II. REVIEW OF LITERATURE

Understanding the complexities of Learning Disabilities (LD) and their impact on a child's educational journey is vital in creating an inclusive and supportive learning environment. Teachers, as key figures in the classroom, play a significant role in identifying and addressing learning disabilities, which are often neurological. Early recognition of these conditions is essential for effective intervention and to prevent long-term academic difficulties. Given the need for systematic identification, developing a tailored assessment tool for teachers becomes crucial to ensure early detection and targeted support for students with LDs. This chapter reviews the existing literature on learning disabilities, inclusive education, and the importance of such tools, structured under the following subheads.

A. Learning Disability and Inclusive Education
B. Prevalence of learning disability
C. Importance of identification of learning disability at the primary school level
D. Development of tools to identify Learning Disability among children
E. Role of teachers in the identification of Learning Disability
F. Knowledge, Attitude, and Practice of teachers on learning disability
G. Need and importance of sensitising teachers on learning disability
H. Conceptual framework of the study

A. Learning Disability and Inclusive Education

Learning Disabilities (LD) necessitate a multifaceted educational approach, whereas inclusive education ensures that all students, regardless of their abilities, receive equitable opportunities to succeed. Rani and Reddy (2021) emphasise that LDs not only affect individual academic outcomes but also challenge national development. Teachers, as key architects of children's intellectual, moral, and physical growth, play an essential role in this process. In most classrooms, it is common to find one or two students with LDs, making teachers' understanding and awareness crucial in shaping these students' future success. Niti and Singh (2021) explore inclusive education in India, where students with disabilities and learning difficulties are integrated into mainstream classrooms alongside typically developing peers. This method fosters a learning environment where differences in abilities are recognised and embraced, aiming to enhance the potential of every student, regardless of

strengths or weaknesses. Inclusive education supports children with learning disabilities by promoting both social and academic integration.

Maqbool, Saleem, and Kumar (2022) further emphasise the benefits of social inclusion in inclusive classrooms but point out that children with LDs often require personalised attention, additional support, and differentiated instruction to achieve academic success. They argue that without these tailored approaches, inclusive education may fall short of addressing the specific academic needs of children with LDs. In their study conducted in the Vaal Triangle district of South Africa, Hove and Phasha (2023) advocate for the use of multi-level teaching and differentiated instruction within inclusive classrooms. They argue that these strategies allow learners with and without LDs to remain integrated without segregation, providing equitable opportunities for all students to thrive. Their study further stresses that teachers must be well-informed and trained in these approaches to create truly inclusive educational environments.

The collective studies of Rani and Reddy (2021), Niti and Singh (2021), Maqbool, Saleem, and Kumar (2022), and Hove and Phasha (2023) highlight the critical role of inclusive education in addressing the challenges posed by learning disabilities. While inclusive education aims to integrate students with and without learning disabilities into the same classroom environment, it is evident that this integration must go beyond mere social inclusion. The academic success of students with LDs hinges on teachers' ability to provide multi-level teaching and differentiated instruction, ensuring that these students receive the personalised attention and support they need to succeed.

a. Learning Disability

The concept of learning disabilities has evolved significantly over the decades, reflecting advancements in educational and psychological research. Samuel Kirk (1962) first introduced the term "learning disabilities," emphasising the need for specialised education for children facing distinct learning challenges. The 1970s saw scholars like Hallahan and Kauffman (1976) developing tailored educational strategies and interventions, marking the beginning of structured approaches to addressing these challenges.

In subsequent decades, further advancements in understanding learning disabilities emerged. Fletcher and Forman (1994) extended the spectrum of learning disabilities to include writing difficulties and numerical cognition deficits. Dysgraphia, for instance,

impacts fine motor skills and the ability to produce written content, while dyscalculia affects number recognition and mathematical problem-solving. Both conditions necessitate distinct educational interventions tailored to the specific cognitive impairments involved.

Lyon (1996) delved into the neurobiological basis of learning disabilities, particularly dyslexia, underscoring the importance of early intervention. He also discussed the success of annual reading assessments in the U.S., which have proven effective in detecting learning disabilities early and preventing further academic decline. Treatment typically involves a combination of remedial interventions, often tailored to the specific cognitive impairment, and may include behavioural and medical approaches.

Learning disabilities are frequently comorbid with conditions such as ADHD, anxiety, and depression (Willcutt & Pennington, 2000). Shaywitz (2003) and Berninger & May (2011) noted that these disabilities can persist into adulthood, affecting life skills and employment opportunities. Handler and Fierson (2011) further identified neurobiological factors, such as brain pathologies, as primary contributors to learning disabilities. Both hereditary and environmental factors are implicated in the development of these disorders, showcasing their multifaceted origins. Cortiella and Horowitz (2014) highlighted the varying definitions of learning disabilities used by professionals in education and medicine. The DSM-5 (2013) reconsolidated specific learning disorders (SLDs) under a single neurodevelopmental disorder classification, uniting reading disorder, mathematics disorder, and disorder of written expression into one broad diagnosis.

Kohli et al. (2018) noted the prevalence of dyslexia and linked it to difficulties in phonological processing. This disorder evolves from decoding issues to challenges with reading comprehension, emphasising the need for early and continued intervention. Muktamath et al. (2021) described how children with learning disabilities are frequently misjudged, with their difficulties often mistaken for laziness or inattentiveness. Learning disabilities are identified when there is a noticeable discrepancy between a child's intellectual capacity and their school performance, particularly in areas such as reading, writing, and arithmetic. Despite their challenges, these children typically possess average or above-average intelligence. A child with a learning disability may struggle with tasks related to speaking, listening, reading comprehension, spelling, arithmetic, writing, or conceptual understanding. The broad spectrum of learning disabilities, as analysed by DSM-5 and IDEA

2004, encompasses disorders such as dyslexia, dysgraphia, dyscalculia, auditory processing disorder (APD), and non-verbal learning disabilities (NVLD). These disorders are rooted in cognitive impairments, with dyslexia, dysgraphia, and dyscalculia being among the most prominent, each having distinct characteristics. The distinct nature of learning disabilities is further demonstrated through specific subtypes. Dyslexia is widely recognised as a major learning disability, affecting approximately 80% of individuals with learning disabilities.

The evolution of understanding learning disabilities reflects decades of research and refinement. From Kirk's foundational definition in the 1960s to contemporary interventions focused on neurobiological and environmental factors, learning disabilities remain a dynamic and complex field of study. Despite significant advances in understanding LDs, including their diverse manifestations such as dyslexia, dysgraphia, and dyscalculia, there remains a need for more comprehensive research, particularly within the Indian context. Current studies predominantly focus on neurobiological and cognitive aspects, with less emphasis on how cultural and systemic factors influence LDs. Moreover, while the identification and remediation of LDs are increasingly emphasised, particularly in early education, there is a noticeable gap in applying these insights uniformly across different educational systems. This analysis suggests a need for further investigation into how specific cultural and educational frameworks, such as those in India, impact the recognition and management of LDs. The goal is to develop a more inclusive approach that integrates cultural and educational frameworks, and cognitive and non-cognitive factors, tailored to diverse educational settings, to enhance support for students with learning disabilities.

b. Symptoms of learning disability

The symptoms of learning disabilities outlined by the "National Association of Special Education Teachers (2024)" provide a comprehensive overview of the challenges faced by children with learning disabilities. Analysing these symptoms helps to understand the diverse manifestations of learning disabilities and the importance of early identification. The symptoms listed encompass a broad range of difficulties that are commonly observed in children with learning disabilities, primarily in elementary school settings. These symptoms reflect the core areas affected by learning disabilities, such as reading, writing, language, mathematics, and social interactions.

- **Reading Difficulties**: Struggles with learning the alphabet, rhyming, matching letters to sounds, making frequent mistakes when reading aloud, and difficulty understanding text are indicative of reading-related learning disabilities. These issues often stem from deficits in phonological processing, which is crucial for decoding and comprehending written material. The frequent mistakes in reading aloud and difficulty understanding text highlight the need for targeted interventions to address these foundational skills.
- **Writing Challenges**: Difficulties with spelling, messy handwriting, awkward pencil grip, and trouble expressing ideas in writing are signs of dysgraphia or other writing-related learning disabilities. These symptoms suggest deficits in fine motor skills, spelling, and organisation of thoughts, which impact the ability to produce written content effectively.
- **Language and Communication Issues**: Late language development, limited vocabulary, trouble remembering sounds or distinguishing between words, and difficulties understanding jokes and sarcasm point to problems with language processing. These issues can affect both receptive and expressive language skills, which are essential for effective communication.
- **Mathematics Difficulties**: Confusion with math symbols, misreading numbers, and struggles to retell a story in the correct order are indicative of dyscalculia or other math-related learning disabilities. These symptoms reflect challenges in numerical cognition, problem-solving, and sequencing, which are critical for mathematical reasoning and understanding.
- **Social and Organisational Skills**: Difficulty following directions, trouble organising thoughts, not adhering to social rules of conversation, and confusion about task initiation and progression are signs of broader cognitive and executive function issues. These challenges can affect a child’s ability to navigate social interactions and manage tasks efficiently.

The absence of a single definitive indicator emphasises the complexity of learning disabilities and the need for a holistic approach to assessment. The presence of multiple symptoms across different domains suggests that learning disabilities can manifest in various ways, affecting academic performance and daily functioning. This highlights the importance of considering a range of symptoms and their impact on a child's overall development.

In summary, the symptoms listed provide valuable insights into the diverse ways learning disabilities can present themselves. They underscore the need for early identification and a comprehensive evaluation to tailor interventions that address the specific needs of each child. Understanding these symptoms allows educators and parents to better support children with learning disabilities, helping them to achieve their full potential and navigate academic and social challenges effectively.

c. Provision for specific-learning disabled students

The legislative and policy landscape for supporting students with specific learning disabilities (SLDs) reflects a significant commitment to inclusive education, though implementation challenges remain. The Rights of Persons with Disabilities Act (RPwD Act), 2016, marked a crucial expansion in recognising SLDs as a category of disability, leading to the introduction of the "Children with Specific Learning Disabilities (Identification and Support in Education)" bill in 2017. This bill underscores the need for specialised facilities and guidelines for the identification and support of SLDs. The subsequent notification by the Ministry of Social Justice and Empowerment in 2018 emphasised the procedural aspects for certifying SLDs, mandating the screening of students and the establishment of resource rooms in schools. The RPwD Act mandates several key provisions: the screening of students with SLDs upon reaching eight years of age, the creation of resource rooms, and specific examination concessions. These include extra time, the use of calculators, and allowances for spelling mistakes. The implementation of these provisions, however, relies on effective collaboration among educational and health stakeholders to develop and apply appropriate diagnostic tools and interventions.

In Tamil Nadu, specific concessions for students with learning disabilities have been authorised by the Director of School Examinations. These concessions include extra time for examinations, the use of calculators and Clarke's tables, and the appointment of scribes. The process for granting these concessions involves a formal application supported by medical and educational endorsements. This approach demonstrates a targeted effort to address the needs of students with learning disabilities within the state, although it requires efficient administrative processes to ensure consistent application.

The Central Board of Secondary Education (CBSE) has also outlined concessions under its Samagra Shiksha Scheme, aligned with the National Education Policy (NEP) 2020. These include extra time, scribe provisions, and exemptions from second language requirements.

The National Institute of Open Schooling (NIOS) provides similar concessions, ensuring consistency in support across different educational boards. The Indian Certificate of Secondary Education (ICSE) and Indian School Certificate (ISC) boards offer comparable concessions, including extra time, allowances for spelling errors, and the use of calculators.

In addition, the Ministry of Education's 2024 advisory emphasises extending Right to Education (RTE) entitlements and nutritional support to Children with Special Needs (CwSN), aligning with the NEP 2020 goals. This advisory includes measures such as identification and assessment camps, assistive devices, and financial assistance, aiming to address the diverse needs of CWSN within mainstream education settings.

Overall, the provisions and policies for students with specific learning disabilities reflect a robust framework for promoting inclusivity. However, the effectiveness of these measures depends on their implementation and the active collaboration of educational institutions, health professionals, and policymakers. Continued attention to both legislative support and practical application is crucial for achieving the intended outcomes in inclusive education.

d. Inclusive education

Inclusive education integrates students with learning disabilities into mainstream classrooms, addressing their needs and ensuring equitable access to quality education. This section explores the impact of inclusive education on both students and teachers, offering a comprehensive overview of strategies, challenges, and successes associated with its implementation.

The concept of inclusive education has evolved, with significant research highlighting its benefits for students with disabilities. For instance, Booth and Ainscow (2011) introduced the "Index for Inclusion", a tool designed to help schools assess and improve their inclusive practices. Their framework promotes self-review and planning, enabling schools to tailor their strategies to meet the diverse needs of their students. By focusing on full participation

and engagement, they stress that inclusion is more than physical integration—it involves creating learning environments where every student can thrive. The structured approach offered by the Index allows schools to systematically address barriers and embrace diversity, aligning with the broader goals of inclusive education.

In a similar vein, Helm and Katz (2011) explored how children's cognitive development is influenced by their physical and social environments. Their research underscores the importance of creating inclusive settings that stimulate interaction among students, which in turn fosters cognitive and social development. Through such interactions, inclusive education encourages deeper thinking and collaboration, especially for young children, who benefit greatly from a socially enriched learning environment. This highlights the significance of designing classrooms that promote engagement and curiosity for all students, including those with learning disabilities. Building on this, Hehir et al. (2016) examined the performance of students with learning disabilities in integrated classrooms compared to segregated settings. Their findings revealed that students in inclusive environments perform better academically and experience social growth. This suggests that inclusion benefits not just students with learning disabilities, but their peers as well, fostering a collaborative and supportive learning environment. The shift from segregated to inclusive settings enhances the overall classroom experience, creating a more holistic approach to education.

Focusing on rural India, Mukherjee and Das (2020) examined the implementation of inclusive education in resource-limited settings. Their study revealed both successes and challenges: while community-based approaches led to increased enrolment and retention of students with disabilities, issues such as inadequate infrastructure and cultural barriers persisted. These findings point to the importance of adapting inclusive education strategies to local contexts. The successes in enrolment and retention illustrate the potential of inclusive education, while the challenges highlight the need for sustained efforts and targeted interventions to ensure its effectiveness in diverse environments.

The role of pedagogy in promoting inclusion is explored by Black-Hawkins and Florian (2019), who emphasised the importance of flexible teaching methods and individualised support. Their research demonstrated that a whole-school approach is essential for effective inclusion, requiring not just changes at the classroom level, but systemic support

involving school leadership and collaboration among educators. This approach ensures that the diverse needs of students are met and that inclusion becomes a core element of the school's culture rather than an add-on. Technological support also plays a vital role in inclusive education, as demonstrated by Mitchell (2020), who examined the impact of assistive technology on learning experiences. His study found that when students with disabilities have access to the right tools, their ability to engage in learning improves significantly. However, access to such technology is often limited in low-income areas, which can hinder the full potential of inclusive education. This points to the necessity of ensuring equitable access to assistive technologies so that students from all backgrounds can benefit from inclusive practices.

The broader cultural impact of inclusive education is explored by Ainscow et al. (2021), who found that inclusive practices contribute to a more positive and accepting school environment for all students. They stressed that inclusive education benefits not only students with learning disabilities but also fosters a more empathetic and cohesive school culture. Collaboration among educators and strong leadership were identified as key factors in promoting these positive outcomes, further reinforcing the interconnectedness of inclusive practices and school culture.

Despite the positive developments, challenges remain, particularly in countries like India. Suresh and Palanichamy (2021) examined the state of inclusive education for students with Specific Learning Disabilities (SLD) in India. They noted that while there is a growing focus on raising awareness among teachers, issues such as large class sizes, insufficient infrastructure, and limited resources continue to hinder progress. Their study calls for more comprehensive teacher training and a uniform system of support to address these gaps. The development of inclusive education in India requires not just legislative changes but also improvements in teacher preparedness and resource allocation to fully integrate students with learning disabilities into mainstream education.

It is inferred that the research reviewed highlights the complex and multifaceted nature of inclusive education. Its success depends on a combination of factors, including effective teacher training, adequate resources, flexible teaching methods, and the integration of assistive technology. Additionally, inclusive practices have far-reaching effects on school culture, fostering a more supportive and accepting environment for all students.

B. Prevalence of Learning Disability

The review of literature on the prevalence of Specific Learning Disorder (SLD) and learning disabilities (LD) provides a comprehensive overview of the global and Indian scenarios, revealing significant variations and challenges in accurate prevalence estimation.

Global overview

Globally, specific learning disabilities (SLD) are recognised as common yet inadequately understood conditions (Pastor and Reuben, 2008; Yao and Wu, 2003). Despite their prevalence, there is a notable scarcity of studies utilising standardised diagnostic criteria or scales for SLD. Reports from various regions illustrate a wide range of prevalence rates, influenced by factors such as sample size, diagnostic criteria, and study methodologies. For instance, Al-Yagon et al. (2013) reported prevalence rates varying from 1.2% in Greece to 20% in Australia, highlighting the considerable variability within different contexts. The high prevalence rate in Australia may reflect factors such as robust diagnostic practices and greater awareness of learning disabilities in educational settings.

The National Survey of Children's Health (NSCH) in the USA, conducted in 2003, estimated a lifelong prevalence of 9.7% among children aged 3 to 17 years (Altarac and Saroha, 2007). In contrast, Del'Homme et al. (2007) identified a prevalence of 28% in 2004, further underscoring significant discrepancies across studies. The transition from DSM-IV to DSM-V has further complicated prevalence assessments, as the reclassification of SLD as a neurodevelopmental disorder with severity ratings has led to varying rates in studies utilising DSM-V criteria. For instance, research involving German children (Misciagna, 2019) and Brazilian children (Fortes et al., 2016) demonstrates the impact of these changes. According to the American Psychiatric Association (APA, 2013) and the Centres for Disease Control and Prevention (CDC, 2021), SLD prevalence is suggested to range from 5% to 15%, with narrower ranges observed for specific disorders like reading and mathematics.

In recent years, comprehensive analyses by Olusanya et al. (2022) highlight the global prevalence of disabilities among children and adolescents, noting that UNICEF estimated that 10.1% of children aged 0–17 years have moderate-to-severe disabilities. The Global Burden of Disease (GBD) study (2019) corroborated these findings, showing significant prevalence rates in Sub-Saharan Africa and South Asia, which accounted for over half of children with

disabilities. In Pakistan, studies have indicated a prevalence of 7.7% among primary school children, while in Turkey, it was reported to be 13.6% (Gorker, 2017). Additionally, a recent study by Yanmei Li et al. (2023) revealed that the prevalence of learning disabilities among US children aged 6 to 17 years was estimated at 8.83%, slightly higher than previous rates reported, indicating stability in the condition's occurrence. Moreover, a study by Bozatlı et al. (2024) focused on preschool children in Edirne, Turkey, revealing that 5.7% were at risk for SLD, with this figure rising to 27.6% when subscale scores were examined. Such findings emphasise the need for standardised methodologies and highlight the persistent prevalence of SLD across various regions, as well as concerning trends among specific demographics.

In conclusion, the body of research on specific learning disabilities underscores a complex landscape marked by significant regional variations and evolving diagnostic criteria. The discrepancies in prevalence rates across studies highlight the importance of consistent methodologies and standardised assessments. As the understanding of SLD continues to develop, targeted interventions and support mechanisms must be prioritised to address the needs of affected populations, particularly in regions with the highest prevalence rates, such as Australia, Pakistan, Turkey, Greece, and the USA. The call for increased awareness, research, and resources is vital to ensure that children with learning disabilities receive the appropriate support for their educational and developmental needs.

Prevalence in India

In India, the recognition of learning disabilities (LD) as a significant issue has grown over the years, yet the prevalence remains under-researched and inconsistently addressed. Early studies provided a glimpse into the scope of the problem, but variability in findings has persisted due to differences in diagnostic criteria and methodologies. In the early 1980s, the National Sample Survey Organisation (1981) identified 3.6 million children with learning disabilities, marking one of the earliest attempts to quantify the issue in India. The Institute of Neurology (1997) conducted a study that found a 10% prevalence rate, a much higher figure compared to earlier estimates. By the early 1990s, Agrawal et al. (1991) and Shah et al. (1994) reported prevalence rates ranging between 2% and 13%, further illustrating the variability in data collection and assessment methods during this period.

Moving into the mid-1990s, Kapur (1995) noted a particularly broad prevalence range of 9-39%, which underscored the lack of consistent diagnostic tools and the difficulty of

establishing clear prevalence rates in diverse regions of India. As research continued, the National Institute of Mental Handicap (2003) reported a 4% incidence rate, while Karande (2008) found a prevalence range between 5% and 15%. These findings revealed significant variability not only in prevalence rates but also in the methods used for diagnosing LD across different studies. The Census of India (2001) reported that 2.1% of the population had some form of disability, and by the 2011 Census, this figure had increased to 2.6%, with "any other disability," which includes learning disabilities, affecting 18.37% of individuals aged 5-19 years. Dilshad (2006) and subsequent Indian surveys conducted in 2009 indicated prevalence rates ranging from 10% to 14% among primary school children, suggesting an upward trend in recognising LD, although discrepancies in diagnostic criteria persisted.

In the past five years, more recent research has brought greater attention to the issue of LD in India. Subi and Archana (2019) identified that 13-14% of school-going children are affected by LD, highlighting an increasing concern about its prevalence. Chordia et al. (2019) observed gender disparities, noting that boys were more frequently diagnosed with LD, and cautioned against potential overestimation due to limited school exposure. Deenu Chacko and Karunakaran Vidhukumar (2020) conducted a study in Ernakulam, reporting a 16.49% prevalence and identifying male gender, low birth weight, developmental delay, family history, and curriculum as significant determinants of LD. A more comprehensive understanding was provided by Joseph and Devu’s (2022) systematic review and meta-analysis, which revealed prevalence rates ranging from 2.16% to 30.77% across different studies. This wide range of findings reflects the ongoing challenges in achieving accurate and consistent data on LD in India. The authors emphasised the urgent need for standardised diagnostic practices and early intervention strategies to address the needs of students with specific learning disabilities (SLD).

The prevalence of learning disabilities in India has been marked by considerable variability in estimates over the decades, from early figures in the 1980s to more recent research. While the recognition of LD has increased, especially in the past five years, there remains a pressing need for consistent diagnostic tools and a national approach to assessing prevalence. The findings indicate that without a systematic and standardised framework for diagnosis and intervention, the true extent of LD in India remains unclear, complicating efforts to provide tailored educational support for affected students.

C. Importance of identification of learning disability at the primary school level

The importance of identifying learning disabilities (LD) at the primary school level is emphasised across various studies and regions, reflecting a global consensus on the need for early intervention. This review highlights the complexities involved in the identification process and the challenges faced in different educational contexts.

Research conducted internationally underscores the critical role of early identification in effectively addressing learning disabilities. Chan et al. (2004) in Hong Kong demonstrated the utility of behaviour checklists for identifying dyslexia, highlighting the necessity for tools that can be replicated across different settings. Such studies stress that timely identification is crucial for implementing effective interventions, thus improving educational outcomes for affected children. In India, the recognition of Specific Learning Disabilities (SLD) under the Rights of Persons with Disabilities Act, 2016, signifies progress. However, the complexity of screening and diagnosing SLD remains a significant challenge. Existing tools, such as the AIIMS SLD Comprehensive Diagnostic Battery (Mehta and Sagar, 2014) and the NIMHANS Index for SLD (Kapur et al., 1991), are widely utilised but suffer from limitations, including the lack of well-established norms for different SLD subtypes and the absence of standardised tools for diverse educational contexts.

The NIMHANS Index for SLD, for instance, is constrained to English-medium schools, despite 42% of students studying in Hindi-medium schools (Department of School Education & Literacy, Ministry of Education, UDISE, 2020). Tools developed in regional languages, such as Tamil, Kannada, and Marathi (Muthusamy and Sahu, 2020), face challenges in achieving nationwide acceptance, which is crucial for certifying children with SLD across diverse linguistic and educational backgrounds (Scaria, 2023).

The variability in curricula and educational standards across different regions and boards adds another layer of complexity. The GLAD tool, based on NCERT's minimum levels of learning, attempts to address these issues by incorporating items from textbooks across various boards. However, it still encounters challenges in standardisation and applicability across different languages and age groups (Narayan, 1997). Moreover, existing tools are often not standardised for various age groups, which complicates assessments for older students (Kohli et al., 2018).

The prevalence studies conducted in India further underscore the diversity in learning disabilities. Singh et al. (2017) highlighted the significant presence of dyslexia, dysgraphia, and dyscalculia among children in English medium schools, stressing the importance of awareness and early identification. Similarly, Chordia et al. (2019) found a higher prevalence of learning disabilities among boys and emphasised gender disparities, which vary by region and academic level.

The literature reveals several gaps, including limited resources, inadequate tools, and a lack of awareness among parents and teachers (Sahu et al., 2018). The absence of a unified approach to diagnosing SLD, compounded by regional and cultural diversity, highlights the need for tools that are not only standardised but also designed to be practical and user-friendly for teachers. The development of a handy tool specifically for primary school teachers, which is easy to administer and interpret, would greatly enhance the early identification of learning disabilities. Such a tool should be designed with usability in mind, ensuring that teachers can effectively screen children without extensive training or complex procedures. This would enable early intervention, empowering educators to better support children at risk of learning disabilities in a timely manner. Emphasising the creation of a tool that is teacher-friendly and tailored to the practical realities of a classroom can bridge the current gap in SLD diagnosis. As Albert Einstein wisely noted, "It is the supreme art of the teacher to awaken joy in creative expression and knowledge." By equipping teachers with such resources, the tool would support their role as critical facilitators in the education system, ensuring they can recognise and nurture the unique strengths of each child.

D. Development of Tools to Identify Learning Disability among Children

Learning disabilities are widely recognised as significant impediments that can hinder a child's educational progress and holistic development. Evaluating these impediments poses a considerable challenge for educators, necessitating the use of specialised assessment tools. Studies have been conducted worldwide to identify learning disabilities among children, and these have been critically reviewed and summarised as follows.

In India, learning disabilities are identified by specific hospitals and clinics. Students who are referred for evaluation initially undergo a thorough medical examination to exclude vision and hearing impairments, as well as any underlying conditions that might be the root

cause of their learning difficulties. Following this, they are subjected to a series of IQ and achievement tests administered by a clinical psychologist and a special educator.

However, valid assessment tools are scarce in India (Kalyanpur, 2020). The government provides a list of suggested diagnostic tests, but unfortunately, only a few of them are standardised for the Indian population (Kohli et al., 2018). For instance, studies (Bandla et al., 2017; Chordia et al., 2019) have used tools like Raven's Progressive Matrices and Seguin Form Board as intelligence measures, which have been utilised to assess the IQ levels of children. Shah et al. (2019) enumerated nine assessment batteries commonly used to diagnose LD. Among these, only the NIMHANS Index for SLD has been developed in the Indian context. It has limited published validity and reliability data, established with a sample of merely 40 students (Panicker et al., 2015). Scholars argue that the inherent cultural biases in the tests and processes used to identify LD in India disadvantage students from lower socio-economic backgrounds and diverse language backgrounds (Mukhopadhyay & Sriprakash, 2011). Once students are diagnosed with LD, they are eligible for certain accommodations and modifications in their examinations, such as a reader, writer, additional time, overlooking spelling errors, calculator for mathematics, or attempting a lower grade-level mathematics paper, and exemption from a second language (Karande et al., 2011; Maharashtra Dyslexia Association), as well as quotas in higher education placements (Ministry of Law and Justice, 2016).

Only students with what is termed benchmark disabilities, defined as someone with 40% or more disability (Ministry of Law and Justice, 2016), may avail of these accommodations. The concept of benchmark disabilities has been borrowed from sensory disabilities such as visual impairment and hearing impairment which diagnose a percentage of impairment. There are currently no standardised processes to determine the benchmark percentage of LD (Thomas Kishore et al., 2021). The government of India has recommended that students who test positive on the NIMHANS scale be considered as having benchmark difficulties (Ministry of Social Justice and Empowerment, 2020). Given the limitations in the applicability of the NIMHANS tool, applying the criteria of benchmark disabilities to LD has added to the existing confusion about diagnosing disabilities. At present, there are no standardised protocols to diagnose LD and the choice of tools is left to the discretion of the testing centres. More significantly, very few tools are available in Indian languages which

puts students for whom English is a second language at a considerable disadvantage (Kalyanpur, 2020). Fortunately, multi-lingual tests are being developed that are normed in the Indian population. The Dyslexia Assessment for Languages of India (DALI) developed by the National Brain Research Center (Kalyanpur, 2020; Rao et al., 2021) is available in English, Hindi, Marathi, and Kannada. It is designed for primary grades and identifies students at risk for dyslexia. In addition to a reading battery, it also includes a checklist that can be used by classroom teachers to screen for learning disabilities (Dyslexia Assessment for Languages of India, 2015). An additional instrument, the Verbal Learning Disabilities Checklist (Sood, 2013), has been designed for students aged 9 to 15. This 52-item checklist serves as a measure to detect one of four types of verbal learning disabilities: reading disabilities, speech and language comprehension disabilities, writing disabilities, and mathematics disabilities. The tool is accessible in both English and Hindi.

The mentioned span over a decade and focuses on the development and validation of various screening tools for identifying learning disabilities among school children. In 2007, Leung et al. developed a 27-item screening instrument for Hong Kong primary students. The checklist, validated and tested for reliability, could be administered in 10 minutes based on everyday observations, eliminating the need for specific testing. Yadav and Agarwal (2008) developed a Learning Disabilities Scale consisting of 19 questions in 5 areas. They identified 2.25% of school children aged 8-10 years as learning disabled in rural schools in Allahabad, with boys having more Learning Disabilities than girls. Swarup S and Mehta DH (2011) prepared a Behavioural Checklist for Screening the Learning Disabled (BCSLD). It is a screening tool covering eight areas, each representing a deficit in a particular ability, giving insight into the mental makeup of the child and explaining the reason for the child's underachievement. In 2014, Ashraf and Najam designed a study to validate a screening tool, the Learning Disabilities Checklist, for the assessment of learning disabilities among children students from 6th and 10th grade studying in Govt. schools of Lahore. Joshi and Vanaja (2016) highlighted the necessity to develop tools for early identification of children with reading difficulties. He estimated that at least 2.19 to 2.20% of the entire population suffer from dyslexia. In 2017, Javed et al. constructed a screening checklist for the primary level students in the public school with learning difficulties in the subject of mathematics. The screening checklist has the strength to differentiate the students with low and high achievers.

These studies collectively highlight the importance of developing and validating reliable screening tools for the early identification of learning disabilities among school children. They underscore the need for these tools to be sensitive to the cultural and linguistic diversity of the student population, and to be easily administered by teachers and other school personnel. The studies also emphasise the importance of early intervention in addressing learning disabilities and helping students achieve their full academic potential. The research indicates that while there are scales available for identifying learning disabilities, these tools are typically designed for professionals and are intended for use in clinical settings with children as subjects. When a teacher or parent identifies a potential issue in a child, they often need to consult doctors or psychologists, which may not always be readily accepted at first. Early identification is best achieved by teachers and parents, as children spend most of their time with them. Teachers, as educated professionals, are present during the active daytime hours of a child's life, making them well-placed to observe and assess behaviours effectively.

When a tool is specifically designed for teachers, it leverages their role as informed observers of children. This facilitates a more efficient identification process. Importantly, the tool should be self-administered by teachers, allowing them to identify children with learning disabilities based on observable behaviours and their frequency. This approach minimises disruption to the child, who is already navigating various developmental challenges while empowering educators to take a proactive role in supporting their students.

E. Role of Teachers in the Identification of Learning Disabilities

The reviewed literature underscores the vital role of teachers in identifying and managing learning disabilities (LDs), with a strong emphasis on the need for specialised training and systemic support. Teachers are key figures in recognising early signs of learning difficulties and ensuring timely interventions. However, several critical gaps and challenges remain, particularly concerning the adequacy of training and resources, which impede the effective identification and management of LDs.

In the classroom, teachers are not only essential to students' academic progress but also to their personal growth. Burroughs et al. (2019) affirm that teachers are pivotal school-based resources influencing students' academic achievements and long-term outcomes. Yet, identifying the specific traits of an effective teacher, especially in working with students with LDs, remains a challenge. Chetty et al. (2014) further argue that teachers' impact extends beyond academic performance, shaping students' attitudes, behaviours, self-efficacy, and

classroom dynamics—all crucial elements for fostering a supportive learning environment, particularly for students with learning disabilities.

Kaur (2019) contributes to this view by likening teachers to parental figures who guide students during their formative years. Teachers play a critical role in helping students, especially those with LDs, recognise their abilities and develop into well-rounded individuals. This guidance is especially important during the early years of education, where identifying learning disabilities can have a significant effect on long-term outcomes. Baumert et al. (2010) stress the importance of teachers' professional knowledge, which is essential for designing varied, engaging, and challenging learning experiences. This expertise is vital in shaping student outcomes, as teachers need to adjust their teaching strategies to meet the diverse needs of all learners, especially those with LDs.

Knowledge of learning disabilities is a fundamental aspect of ensuring effective identification and management. Ghimire (2017) identifies a considerable gap in teachers' understanding of LDs, attributing this to a lack of awareness and inadequate specialised training. This deficiency hinders the identification and management of LDs, posing systemic challenges in educational settings. Ghimire further underscores the need for targeted professional development programs to equip teachers with the necessary skills and knowledge, enabling early interventions and fostering more inclusive educational practices. Building on this, Deb (2018) expands the discussion to emphasise that the role of schools and teachers goes beyond merely identifying LDs; it also involves integrating children with LDs into society. This perspective highlights the comprehensive role of educators in fostering social inclusion, which is critical for the holistic development of children with LDs.

However, Jolly and Chacko (2021) critique recent studies on teachers' roles in identifying LDs, pointing out methodological issues such as convenience sampling and lack of randomisation, which limit the generalisability of findings. They call for more rigorous and randomised studies to ensure the reliability and applicability of research outcomes. This need for robust research is echoed by Madhamani and Joseph (2021), who highlight that teachers are often the first to notice learning difficulties as children enter school. They stress the importance of teacher vigilance and early identification in preventing discrimination and improving students' educational and social experiences. Additionally, Jebakumar et al. (2023) and Javaid et al. (2022) discuss the logistical challenges involved in screening large numbers

of students, underscoring the critical role of teachers' knowledge and awareness. These authors advocate for the assessment of teachers' knowledge and perceptions, particularly in regions such as Tamil Nadu, where such studies are limited. In response, Dani et al. (2024) argue that teachers, due to their daily interactions with students, are ideally positioned to observe and identify learning disabilities. They stress the need for comprehensive teacher training across all grade levels to ensure effective screening and assistance for students with LDs. Given the logistical constraints of screening all students, teachers' roles become even more crucial, necessitating practical training and sustained support.

The literature reveals a pressing need for educational resources tailored to improve teachers' knowledge and competency in identifying and managing LDs. Ali et al. (2019) and Shari and Vranda (2015) note that many teachers lack sufficient understanding of LDs, which affects both classroom practice and early detection. In response to this gap, Mathew and Binu (2012) developed a self-instructional module aimed at improving teachers' knowledge, demonstrating the need for such resources to bridge the knowledge gap effectively.

The literature consistently highlights that, while teachers are central to the identification and management of LDs, significant challenges, including knowledge gaps, insufficient training, methodological limitations in research, and logistical barriers, must be addressed. Targeted professional development, enhanced research methodologies, and comprehensive training are essential to improving teachers' effectiveness in supporting students with learning disabilities.

F. Knowledge, Attitude, and Practice of teachers on learning Disability

As teachers are the first to encounter academic difficulties in children, their knowledge, attitude, and practice regarding learning disabilities (LD) are of utmost importance for the early identification of LDs, which can prevent further mental and social harm to children. Numerous studies have assessed the KAP of teachers concerning LD, providing a comprehensive overview across different regions.

A recurring theme is the inadequacy of teachers' knowledge about LDs. Ali et al. (2019) found that primary school teachers in India had limited understanding of LDs, primarily due to insufficient academic training on the subject. Alahmadi and Keshky (2019) reported similar findings in Saudi Arabia, highlighting a critical need for comprehensive

training programmes. Ghimire (2017) echoed this concern in Nepal, where inadequate knowledge among teachers was prevalent, while Moharana (2015) in India emphasised the urgent requirement for targeted professional development. Conversely, some studies present a more nuanced perspective. Elizabeth and Seema (2019) and Subi and Archana (2019) indicate that although some teachers exhibit a good level of knowledge about LDs, there is still significant room for improvement. Shukla and Agarwal (2015) further corroborate this by revealing a generally low level of awareness among primary school teachers regarding LDs.

Transitioning from knowledge to attitude, it becomes evident that teachers' knowledge significantly influences their attitudes towards inclusive education. Cornoldi et al. (2018) revealed notable differences in teachers' attitudes and practices related to LDs across Italy, Spain, and the USA, which were influenced by varying policies and cultural contexts. Shari and Vranda (2016) found that teachers held less favourable attitudes towards the inclusion of children with LDs in regular schools, with female teachers showing more supportive attitudes. This suggests that teacher attitudes can vary significantly, affecting their willingness to implement inclusive practices. Moreover, studies have shown that teachers' attitudes have a direct impact on students' motivation to learn. For instance, Tang and Hu (2022) identified discouraging attitudes and teaching approaches as critical determinants of student demotivation, aligning with findings from Takase et al. (2019) that underscore the importance of a teacher's positive attitude. Research by Ross-Hill (2009) indicates that an encouraging teacher positively influences students' attitudes and behaviours. Conversely, a discouraging attitude is likely to hinder student motivation (Li, 2022). Therefore, it is crucial that teachers adopt encouraging approaches that foster a positive learning environment.

The relationship between knowledge, attitude, and practice is also evident. Thomas and Uthaman (2019) found a significant correlation between teachers' knowledge and their attitudes towards inclusive education, indicating that a moderate to low level of knowledge about disabilities hinders effective practices in integrating children with disabilities into mainstream schools. Williams et al. (2013) and Lingeswaran (2013) emphasise the necessity of targeted interventions, such as learning packages and validated screening questionnaires, which can enhance teachers' competencies in managing LDs. This highlights the importance of practical training and resource development to bridge the gap between knowledge, attitude, and practice.

Change in KAP can be significantly influenced by sociodemographic factors, including socioeconomic status (SES), geographic location, age, and gender. Hanan Abo El-Gamelen Ebrahim Essa and Amaal Mohamed Ahmed El-Zeftawy (2015) explored disparities between rural and urban teachers in Egypt. Their study revealed that urban teachers had better access to resources and training opportunities, resulting in higher knowledge levels and more positive attitudes toward the inclusion of children with learning disabilities (LDs). Conversely, rural teachers faced challenges such as limited access to professional development, which negatively impacted their understanding of LDs. This findings indicate that urban teachers were more knowledgeable about inclusive education strategies than their rural counterparts. The study highlighted the importance of geographical context in shaping educational practices and attitudes towards inclusion. Age also plays a role in influencing KAP. AlKhateeb (2007) conducted research in Jordan, revealing that younger teachers tended to possess more up-to-date knowledge about inclusive education compared to older teachers. This generational difference underscores the necessity for continuous professional development to enhance teachers' KAP regarding LDs.

Moreover, Gandhimathi and Eljo (2010) investigated the impact of gender on teachers' attitudes towards children with learning disabilities in India. Their findings showed that female teachers often had more empathetic attitudes compared to male teachers. This suggests that gender socialisation may influence how teachers perceive and support students with LDs. The knowledge, attitude, and practice of teachers are interlinked, forming a crucial framework for the effective identification and management of learning disabilities. Understanding how these elements interact is essential for improving educational outcomes for children with LDs. The influence of sociodemographic variables further complicates these relationships, necessitating targeted interventions and training programmes tailored to the specific needs of teachers in various contexts. Enhancing KAP among educators will ultimately lead to more inclusive educational environments that benefit all students.

G. Need and importance of sensitising teachers on learning disability

The need and importance of sensitising teachers on learning disability stem from the pivotal role educators play in fostering inclusive and supportive learning environments for all students. Sensitising teachers to the nuances of learning disabilities is essential for enhancing their understanding, empathy, and ability to address the diverse needs of learners effectively.

By equipping teachers with the knowledge and strategies to recognise, support, and accommodate students with learning disabilities, sensitisation efforts contribute to promoting equitable access to education and fostering academic and social success for every student. This section reviews various studies that underscore the importance of teacher sensitisation and training, highlighting their findings and implications.

Shah and Kumar (2012) highlight the significant benefits of sensitisation programmes for teachers. Their research shows that such programmes effectively raise teachers' awareness of mental health issues among school children. This awareness is crucial as it helps educators recognise and address various learning disabilities, which can otherwise go unnoticed. The study underscores the need for continued sensitisation to ensure that teachers are well-informed about the mental health challenges that affect their students. Scolt (2020) points out that despite existing legislation supporting the rights of persons with disabilities, community sensitisation remains a substantial barrier to inclusion. The study emphasises that legal frameworks alone are insufficient without accompanying efforts to sensitise and train educators and community members. This indicates a gap between policy and practice, suggesting that effective implementation of inclusion policies requires extensive community and educator training.

Several studies highlight the positive impacts of university faculty training on disability and inclusive education. Cunningham (2013), Garrison-Wade (2012), Madriaga et al. (2010), Murray et al. (2014), and Redpath et al. (2013) collectively demonstrate that such training programmes improve educators' knowledge, sensitivity, and attitudes towards students with disabilities. These studies suggest that targeted training enhances educators' ability to create inclusive learning environments, benefiting both students with and without disabilities.

Davies et al. (2013), Lombardi et al. (2011), Murray et al. (2011), and Schelly et al. (2011) further support this by showing that training programmes lead to more positive attitudes among educators. This is crucial for promoting a supportive learning environment where all students can thrive. The evidence suggests that ongoing professional development in disability and inclusive practices is essential for maintaining and improving these attitudes. The content of training programmes is another critical aspect discussed in the literature. Cook et al. (2009) and Gelbar et al. (2015) emphasise the importance of covering various topics in teacher training, including understanding legal obligations, learning techniques for syllabus

design, creating an inclusive classroom environment, and being informed about available resources for students with disabilities. These studies indicate that a comprehensive approach to training, which includes these elements, is necessary for effective sensitisation.

Additionally, the literature points out that many students choose not to disclose their disabilities (Grimes et al., 2018). This highlights the need for academic staff to proactively design accessible and inclusive syllabi, ensuring that all students have equitable access to education, regardless of whether they disclose their disability. The studies reviewed collectively highlight the urgent necessity of regularly sensitising teachers about learning disabilities. They highlight that while legislative measures are important, effective inclusion requires extensive teacher training and community sensitisation. Training programmes that cover legal obligations, inclusive teaching techniques, and resources for students with disabilities are essential for improving educators' knowledge, attitudes, and practices. By addressing these areas, educational institutions can better support students with learning disabilities and promote an inclusive and equitable learning environment.

H. Conceptual framework of the study

The study titled "Development of Assessment Scale for Primary School Teachers to Identify Children with Learning Disability" was conceptualised based on several critical assumptions derived from the existing literature.

1. The early identification of LD by PRTs is crucial, as they are the frontline educators and play a pivotal role in recognising and addressing these challenges.
2. There is a significant need for a handy and user-friendly standardised assessment tool that PRTs can use in their classroom settings to effectively identify students with LD.
3. The KAP of PRTs regarding LDs are essential factors that influence the successful identification and support of students with LD.
4. The interaction between teachers' KAP towards learning disabilities can impact their effectiveness in recognising and assisting students with LD.
5. Socio-demographic markers may influence the KAP of PRTs concerning LD, necessitating an examination of these markers.
6. Implementing a sensitisation programme for teachers is expected to improve their KAP towards LDs, thus enhancing their ability to support students with LD.

Based on these assumptions, the study was designed to address the following research questions:

1. Do PRTs need an assessment scale to identify LDs in their classrooms?
2. Will the developed tool be effective for PRTs in the classroom setting to identify students with LD?
3. What are the levels of KAP of PRTs regarding LDs?
4. How do the KAP of PRTs regarding learning disabilities interact?
5. What socio-demographic markers influence the KAP of PRTs regarding LDs?
6. Does a sensitisation programme for teachers change their levels of KAP towards LDs?

These research questions guided the formulation of the conceptual framework for this study. Accordingly, the conceptual framework of the study was developed and is illustrated in Figure 1.

Conceptual Framework of the Study

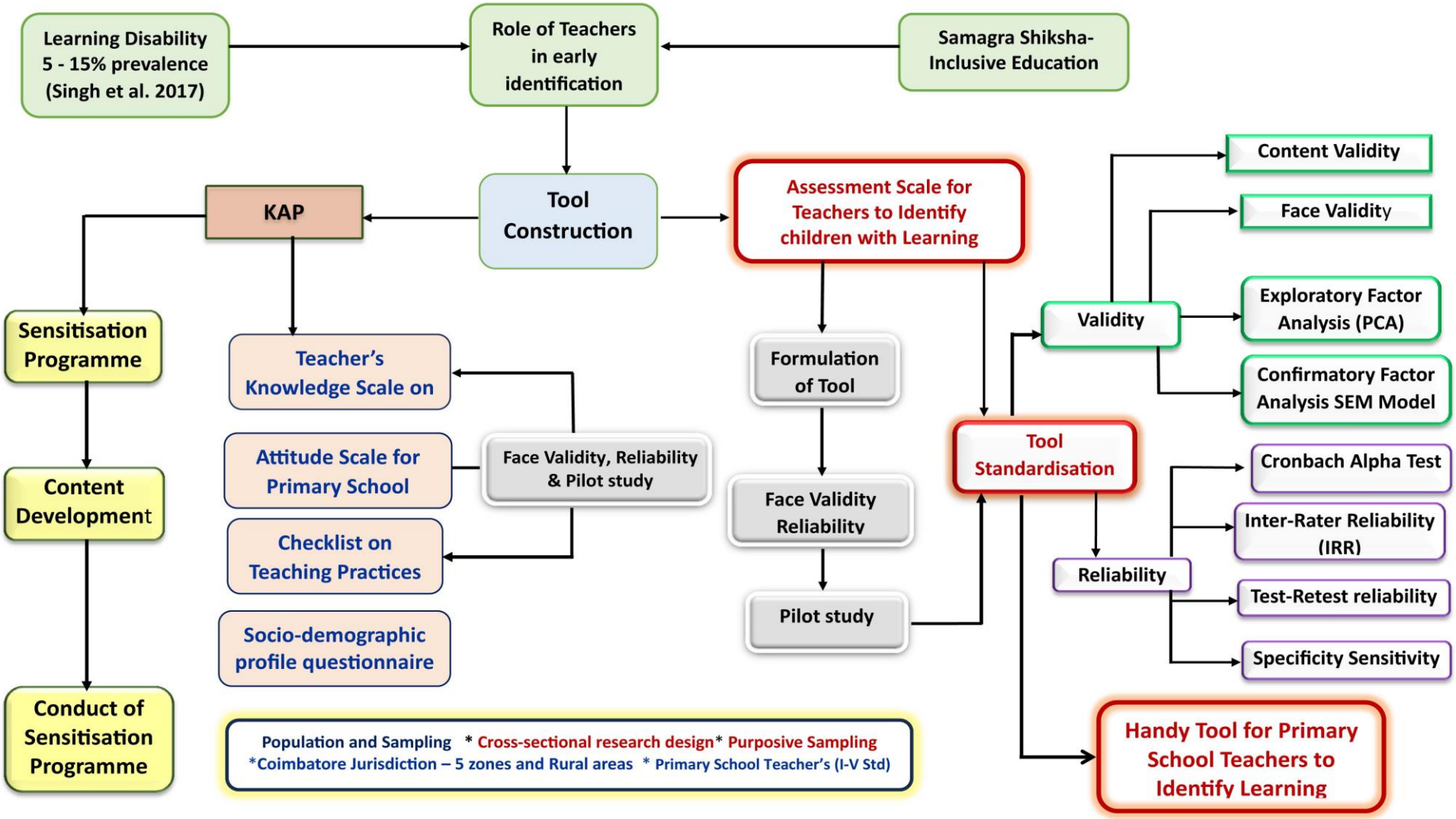

Figure 1