Chapter-1

INTRODUCTION
Introduction

As we look around, we see that none of the individuals is same. Individual of the same age may differ from each other in a variety of ways; it may be physically, socially, economically and intellectually. Each person has an individual profile of characteristics, abilities and challenges which determines the way he travels the highway of his life with his rate of progress. Plato once stated that no individual are born exactly alike ‘each differ from the other in natural endowments, one being suited for one occupation and the other for another.’

If we keep apart the physical features of the individual, even than learning abilities of each individual are different. Behaviourist John Watson believed that individual differences in behaviour were due to different experiences of learning. However, there are children in our society who are totally unique in their characteristics; they are different from the normal or average children, in sensory abilities, communication abilities, social behaviour or physical and intellectual characteristics. In general, these children are referred as ‘abnormal’ or ‘special children’. The survey by National Sample Survey Organization (NSSO) 1981 revealed that fifty-nine million children suffer from disabilities within the age-group of five-fourteen years. The reauthorized individual with Disabilities Education Act 2004 was signed into law by President George W. Bush on December 3, 2004. Approximately 6.8 million children and youth with disabilities are served by IDEA, the nation’s special education law. IDEA lists out 13 different disability categories under which three through twenty-one years old who are eligible for services. While individual with physically handicapped or partially hearing gains sympathetic attention, but there is a small group of disabilities often found among school-age children, who are improperly referred to as slow learners, mentally retarded and even sometimes as demobs, thickens or worse. Teachers are frustrated by the lack of progress in this group despite frequent attention.

1.1 Concept development of Learning Disability:

This group of children are termed as ‘Learning disabled’ children by Samuel A. Kirk, 1963 in Chicago who used the term for the first time to describe these
children. These children have normal intelligence or above, but have difficulty in at least one academic area or in several areas; although having no other disorder such as mental retardation. Hallahan and Kauffman (1991) study revealed that formerly, such a child was likely to be referred to as being minimally brain injured, a slow learner, and a dyslexic or perceptually disabled. Kamphaus (2000) study showed that the global concept of learning disability includes problem in listening, concentrating, thinking, memory, speaking, reading, writing, spelling and social skills.

Learning disabilities have been termed as invisible disabilities, where individual looks perfectly ‘normal’ and seems to be a very bright and intelligent, yet they are unable to demonstrate the skill level expected from someone of a similar age. Individual with a learning disability is unique and shows a different combination and degree of difficulties.

Learning disability is a group of neurodevelopment disorder which is evident in childhood as continuous difficulties in learning to read, write or do simple mathematical calculation in spite of having normal intelligence, conventional schooling, adequate motivation, socio-cultural opportunity and with intact hearing and vision.

Richard Niolon (2011) article revealed that ‘the first written case about an learning disabled child was in 1896, fourteen years old boy bright and intelligent... quick at games and in no way inferior to others of his age (except for his inability to learn to read’. Clements (1966) viewed that the governmental attempt to develop a definition of learning disabilities was first initiated in 1967 by the United State National Institute of Neurological Diseases and Blindness, but it mainly linked learning disability to minimal brain dysfunction.

1.2 On-growing development of definition:

Since, the field of learning disabilities is a relatively young where significant change in chronicity of learning disabilities was witnessed in the year 1980’s.

In 1968, the first and widely accepted formal definition of learning disabilities was formulated by National Advisory Committee on Handicapped Children headed by S.A. Kirk and was later incorporated into the Education for All Handicapped
Children Act of 1975, Public Law 94-142, which states, ‘Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written languages. There may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing or motor handicaps, to mental retardation, emotional, disturbance or to environmental disadvantage’.

This definition tried to identify children with learning disabilities. Husen and Postlethwaite (1994) viewed that definition by United States National Advisory Committee on Handicapped Children focused on disorders of basic psychological processes and de-emphasized the impact of neurological dysfunction. But, due to lack of general agreement, definition was revised.

Hammill, Leigh, McNutt and Larsen (1981) studies found that the most widely accepted definition was developed by the National Joint Committee on Learning Disabilities in 1981. While, study by Learning Disabilities Association of Ontario (2001) found that Learning Disabilities Association and the National Joint Committee on Learning Disabilities had their own definitions; which were not reliable; neither written in readily acceptable language nor applied by individual having learning disabilities, their families and helping professions.

Since 1962, the term ‘learning disabilities’ has been used but still there is no universally accepted definition. NASET (2006-2007) viewed ‘because of multidisciplinary nature of the field, there is ongoing debate on the issue of definition, and currently at least twelve definitions appear in the professional literature. There are several technical definitions offered by various health and education sources’. Schain (1972) study found that a few medical doctors complain that all definitions exclude learning disabled children whose learning problems are due to neurological handicaps’. ‘Description and definition of learning disabilities are found in the World Health Organisation’s disabilities document, in legislation and policy pertaining to education, disability issues, psychology, medicine and human rights’, (LDAO, 2001). According to Hewett (2009), the two most influencing definitions are– Firstly,
definition by Individual with Disabilities Education Improvement Act of 2004 (IDEA, 2004) of U.S., which states specific learning disability means 'a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculation including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. SLD does not include learning problems that are primarily the result of visual, hearing or motor disabilities, of mental retardation, of emotional disturbance or of environmental, cultural or economic disadvantage'. Second, definition which is used among professional today is the product of collaborative effort comprising of thirteen professional organizations. The National Joint Committee on Learning Disabilities (NSCLD) 1990 defines learning disability as 'general term that refers to a heterogeneous group of disorder, manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual and presumed due to central nervous system dysfunction, and may appear across the life-span. Problems in self-regulatory behaviours, social perception and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Although learning disabilities may occur concomitantly with other handicapping conditions (for example, sensory impairment, mental retardation, serious emotional disturbance or with extrinsic influences (such as cultural differences, insufficient or inappropriate instruction), they are not the result of those conditions or influences.' (Cited in Stonecipher, 2010).

Thus, if we go through the definitions, we find that learning disabilities is a heterogeneous group of children who are neither emotionally disturbed nor physically handicapped or mentally retarded but they find difficulty in maintaining normal progress in school; there is significant difference between child’s mental and chronological age norms and child’s performance on school tasks.

1.3 Identification of Learning Disabled Children:

Due to lack of universally accepted definition of learning disability, every state develops specific principle in according to the requirement in the regulation so
as to determine whether a child has a specific learning disability and requires special education. The school is stepping stone for identification of learning disabled child ‘A child of school age is identified as suffering from a learning disability if his or her learning quotient, as derived from the formula officially accepted in the child’s school district, state or country, falls below the cut-off point which officially recognized’ (Creuickshank, 1980, p.25). It is estimated that approximately three million learning disabled children receive special education in school. U.S. Department of Education (2002) 24th annual report to congress reveals that over half of all children receiving special education have learning disability. 2004 Learning Disabilities roundtable stated that ‘identification should include a student-centred, comprehensive evaluation and problem solving approaches that ensure students who have a specific learning disability are efficiently identified’. Regular education must assume active responsibility for delivery of high quality instruction, research-based intervention and prompt identification of individuals at risk while collaborating with special education and related services personnel’. Sometimes teachers are too quick to label children with the slightest learning problem as having learning disability instead of recognizing the problem which might be due to other factors. Hallahan et. al. (2005) studies on otherhand justified the increase in children being classified as having learning disability. U.S. Department of Education (1996) reveals that about three times as many boys as girls are classified as having a learning disability. Oswald (2011) study found that seventy three percent of learning disabled boys was in special education programs. Bandian (1999) found that there is no difference in gender if identified by research criteria but there was twice as many boys identified as learning disabled compared to girls when identified by general educational teachers or special educational teachers. Bock (2012) cited that reading disabled boys by misbehaving more likely gets teachers’ attention and is referred for treatment while reading disabled girls are quite and they escape teacher’s attention.

Characteristics of Learning Disabled Children:

Certain characteristics of learning disabled children are –

‘Finds difficulty in understanding and following instructions, fails to master reading, spelling, writing, and/or math skills and thus fails, difficulty distinguishing
right from left; difficulty identifying words or a tendency to reverse letters, words, or numbers (example confusing 25 with 52, 'b' as 'd'). difficulty understanding the concept of time; is confused by ‘yesterday’, ‘today’, ‘tomorrow’, easily loses or misplaces homework, schoolbooks or other items'. (AACAP, 2011).

Diagnostic and statistical Manual of Mental disorders (DSM) is a reference book containing criteria and characteristics for diagnosing learning disabilities. While, Bos and Vaughan (2002) study viewed that learning disabilities are difficult to diagnose. It is viewed that the exact cause of child’s learning disability is unknown. Naset (2006-2007) viewed that as learning disability is a neurological disorder which hampers ‘the brains ability to received, process, store and respond to information’.

1.4 Factors affecting Learning Disabilities:

Researchers has proposed three major categories— (1) Brain damage factor, Spivak (1986) has estimated that approximately twenty percent of children with learning disabilities have earlier brain injury, ‘either before (prenatal), during (prenatal) or after birth (postnatal)’. Even National Joint Committee on Learning Disabilities (1989) assumes that learning disorder may be due to ‘central nervous system dysfunction’. (2) Genetic factor, studies reveals that heredity as a cause, for severe learning disabilities in some children. Lim, Ho, Chou and Waye (2011) studies revealed that genetic factor causes reading disabilities. (3) Environmental factor, Lovett (1978) viewed that there are three types of environmental factors which influence individuals learning problems; emotional disturbance, lack of motivation and poor instruction (cited in Heward and Orlansky, 1992). Cited in NASET (2006-2007) that economic disadvantage does not caused learning disability but there is increased risk of exposure to harmful toxins (tobacco, alcohol, etc.) in early stage in low-income communities. The general problems of underachievement which correlates with learning disabilities—'biological correlates with intelligence, psychological correlates with emotional balance and environmental correlates with familial environment', discussed by Smith (1973).
1.5 Enactment of Learning Disabilities:

Learning disabilities are often referred as ‘hidden disabilities’ as these children look normal but lack the school level skills. National Advisory Committee on Handicapped Children (1968) formulated definition for learning disabilities which were later included into Public Law 94-142, the Education for All Handicapped Children Act (EAHCA) in 1975. In 1990, congress replaced EAHCA to the Individual with Disabilities Education Act (IDEA), later amended in 1997 and 2004, it became touching stone for special education students in United States where federal government specifically guaranteed educational rights of disabled student. Public Law 105-17, the Individuals with Disabilities Education Act Amendments of 1997, is the federal special education law. It was signed into law in June 1997, with final federal regulation published in March 1999’ (Stephens, 2006). IDEA included thirteen disorders, defining students within its protected class regards to its special education. Council for Exceptional Children (1993) viewed that each amendment of IDEA raised the expectation of students with disabilities receiving education services in typical settings. With emendation of IDEA in 2004 while regulation become effective in 13 October 2005 it brought significant changes from pre-existing regulation to the final regulatory requirements regarding the identification of specific learning disabilities. IDEA (2004) is divided into four sections, Parts A - D. Part A defines the term specific learning disability. Part B provides money to states for providing services to disabled children who are eligible, adding rules and regulation which states and school system must follow for receiving funds from federal government. Part C includes early intervention program for Infant and Toddlers with disabilities, where programs such as family training, counselling, occupational and physical therapy, home-visit, are included for services. Part D helps state education department and agencies in improving their work with disabled children and youth. National Centre for Learning Disabilities (NCLD) 2011 put forward four federal laws relating with learning disabilities individuals, among which two deals with education specific and other two are intended prevent discrimination. (A) Children from three-twenty one years with disabilities receive special education services through Individual with Disabilities Education Act (IDEA). (B) Elementary and secondary Education Act (ESEA) presently replaced as No Child Left Behind Act (NCLB), it compels schools to meet vigorous standard for educational content and to measure yearly students’
progress. (C) Rehabilitation Act of 1973, section 504 prevents discrimination against individuals with disabilities in programs supported by federal funds. (D) The American with Disabilities Act passed in 1990 in civil right which tries to eliminate discrimination against disabled individuals in school, workplace and in other environment.

Under the federal Individual with Disabilities Education Act (IDEA) 2.5 million public school students were identified as learning disabled in 2009 and were given educational assistance.

1.6 Importance of Elementary level:

It is viewed that ‘sign’ of learning disabilities tend to be identified in elementary school level because it focuses on the skills such as reading, writing, mathematics, listening, speaking and reasoning in which child finds difficulty. Zabel and Nigro (2007) study revealed that first instance of trouble in children with learning disabilities is identified in elementary level, which leads to failing of elementary education. Hill (1999) study viewed that early detection of learning difficulty can help for timely treatment which may result in higher level of intellectual functioning as child mature. Gessell and Ilg (1943) study found that an early year lays the foundation of all subsequent development emphasizing biologically and mentally. While opponents of early identification of learning disability (Hayden and Edgar, 1977) viewed that it may lead to unnecessary labelling and stigmatizing in children.

Response to Intervention (RTI) is an academic intervention designed for identification and providing early effective assistance to children who have learning difficulty. Proponents of response to intervention viewed that it brings clarity to specific learning disability category of Individual with Disabilities Improvement Act (IDEA, 2004). Fletcher, Coulter, Reschly and Vaughn (2004) studies found that through RTI, effective intervention can begin without delay, Lyon et. al (2001) report cited that number of children identified as poor readers and served with special education helps in reducing up to seventy percent through early identification and prevention programs. National Institute of Health study showed that sixty seven percent of young student with reading difficulties became average or above average readers after receiving help in the early grades’ (Lawson, 2011).
1.7 Academic achievement of Learning Disabled Children:

Learning disability can be life-long affecting many parts of an individual’s existence but with early identification, appropriate assessment and treatment children with learning disability can be successful. The most common academic areas in which children with learning disability have problems are reading, writing language and mathematics (Hallahan and Other, 2005; Lamer, 2000).

1.7.1 Disability in Reading Skill:

Reading is an important tool, and mastery in it helps learning of nearly every other school subjects. Of all children with specific learning disabilities seventy to eighty percent have deficit in reading. Vaughn, Leccey, Coleman and Bos (2002) synthesized studies conducted on student with learning disability and reported that the quality of reading instruction was poor, with excessive time allocated to seat work and excessive time allocated to seat work and worksheet, but limited time given to reading itself. Torgesen (1998), Lyon and Moats (1997) research revealed that ‘children who get off to a poor start in reading rarely catch up; poor first-grade readers are likely to continue to be a poor readers’ (Lerner, 2000, p.388).

Reading involves in developing whole personality of an individual. Strang (1967) says ‘Reading proficiency is the royal road to knowledge; it is essential to the success in all academic subjects. In modern life, learning depends largely upon one’s ability to interpret the printed page accurately and fully’ (Srivastava, 1979, p.1). Robinson and Bly (2010) article put forward three types of reading disabilities—

(1) Deficit in sound-symbol association known as dyslexic type of reading disability.

(2) Deficit in acquiring a light word vocabulary known as orthographic type of reading.

(3) Deficit is reading comprehension called as hyperlexic type of reading disability.

Individual with reading difficulty lacks in decoding or recognizing words or in comprehending words. Lyon (1996) study found that disorder in phonology causes
major problem in learning disabled children which leads to failing in reading. The term ‘word blindness’ was replaced by the term ‘dyslexia’ which is presently used for reading disability. Dyslexia originally came from a Greek word, coining two syllables ‘dys’ means ‘difficulty’ and ‘lexis’ meaning the printed word’ does meaning ‘difficulty in decoding the printed word’.

1.7.1.1 Word-recognition skill of Reading:

Reading process has four main aspects— (1) decoding printed word (word-recognition), (2) comprehending (comprehension), (3) reacting (reaction) and (4) applying (application). Reading disabled children often reverse letters and words such as (b, d; p, q and mug, gum; pot, top, etc.); confuse left from right and vice-verse and unable to recognize specific sight words. Researchers views that child with mild difficulties in word identification reduces their rate of reading and rereads to grasp meaning (Hook and Jones, 2002). Word recognition is a skill which is sometimes referred as ‘word attack skill’. The first step of the reading process is to identify word. For effective word-recognition-sensation, perception and concept formation are important. Juel (1988) studies found that word recognition skill at the end of first grade were strongly related to reading proficiency at the end of grade IV. Among the approaches used for improving word recognition skill of learning disables children—direct instruction play an important role. It involves practice or repetition given to a child or to a small group of student directly through teaching skill.

1.7.1.2 Fluency skill of Reading:

Fluency is bridge between word decoding and comprehension. It includes three elements-accuracy, rate and prosody. Fluent reader can rapidly decode text and even keep up with high level of comprehension (National Reading Panel, 2001). Many a time fluency is neglected in classroom teaching which later hampers the child to remember what they read and even fail to relate ideas expressed in text as they read the text inefficient and laborious manner. Presently, researchers studies reveal that there approaches in teaching fluency, which develops decoding skill and helps in practicing to read with expression (Rasinski, 2004).
Dowhower (1987) study found that repeated reading helps the student to read passage 'faster, with understanding and more accurately. Put Reading first and the National Reading Panel on Repeated Reading Lession put forward that repeated oral reading develops word recognition, speed accuracy and fluency. Put reading first on modeling fluent reading states, 'By listening to good models of fluent reading, students learn how a reader's voice can help written text make sense’. Further states, 'By reading effortlessly and with expression, you are modeling for your students how a fluent reader sounds during reading’... ‘The more models of fluent reading the children hear the better’ (Scientific Research Base, 2004).

1.7.1.3 Early assessment of Learning Disability in Reading skill:

Fluency develops word recognition, which helps reader on concentrating the meaning of the text. Onuya and Krupka (1999) studies found that students who fails in reading at grade level by the end of third grade experience difficulty throughout their school career, perform poorly in other subjects, and may never graduate (cited in Qualls, 2008). While, Good, Simmons and Smith (1998); Shaywitz (2003) studies found that early intervention provides opportunity to students to progress and even help teacher to used instructional strategies that have positive impact and support student comprehension.

1.7.2 Disability in Writing skill:

The process of writing occurs along with reading. Stotsky (1983) study viewed that writing instruction improves reading performance and vice-versa. But study of Fitzhugh (2000) shows that 'writing research lags behind reading research’. Writing helps in developing concept, level of comprehension and abstract ideas. Writing is an active process where more physical aspect is involve by writers. Englert et. al (1988) study found that students with learning disabilities have significant trouble through communicating with writing. Robinson (2007) study found that around the eleventh century B.C., Phoenicians were first to develop alphabetical system which contained vowelless twenty two letters; Ullman (1977) found that Greek around eight B.C. adapted Phoenician system along with adding vowels and omitting some consonants.
Newcomer and Barenbaum (1991) found that in academic domains reading and arithmetic are more advanced than writing process which significantly neglected both in regular and special education curriculum. Writing disorder is first to recognized when it §been introduced (Berninger and Wolf, 2009). Formerly, disorder in written expression was called developmental expressive writing disorder where person’s ability to communicate was lower than normal level based on the individual age, intelligence, and educational background or physical impairment. There is no definite cause for writing disorder. Hereditary is often regarded as cause for writing disorder, even difference in brain development, brain injury or stroke are also taken for consideration as its cause (Logsdon, 2001.)

The term ‘dysgraphia’ is used for expressing writing difficulty. Berninger (2009) viewed that ‘dysgraphia’ the term has come from the Latin word ‘dys’ meaning ‘impaired’ and ‘graphia’ meaning ‘making letter forms by hand’. Devel (1994) put forward three types of dysgraphia– (i) Dyslexic dysgraphia (ii) Dysgraphia due to motor clumsiness (iii) Dysgraphia due to defect in the understanding of space. Individual with dysgraphia usually shows difficulties with handwriting and spelling, study by Berninger and Wolf (2009) later it leads to writing tiredness (Nicolson and Fawcett, 2011).

1.7.2.1 Handwriting skill of Writing:

International Dyslexia Association exclusively used the term ‘dysgraphia’ to refer difficulties with handwriting’ (wikipedia, 2010). ‘Handwriting is a form of communication and a life skill that is necessary throughout life’ (Giroux, 2011, p.2). Handwriting is regarded as most economic, suitable and personal form communicating of expression.

From the elementary stage, handwriting skill has been given importance (Heidi and Case Smith, 1996) and which continues throughout the educational system and life-long. It is estimated that number of student with handwriting difficulty in primary level increases from four percent to twenty percent as children reaches middle school where writing becomes complex. ‘Students with handwriting problems may be unable to execute efficiently the motor movements required to write or to copy written letters
or forms; they may be unable to transfer the input of visual information to the output of fine motor movement; or they may be poor in other visual-motor functions and in activities requiring motor and spatial judgement' (Lerner, 1998, p.412-13). The investigator has used cursive writing as a strategy for teaching learning disabled children.

Cursive is a style of handwriting which makes writing faster as the symbols of the language and written in flowing manner and infrequent pen lifting. Early, Nelson, Kleber, Treegoob, Huffman and Cass (1976) study found that children who were taught with cursive writing were superior in the Stanford Word Reading and Spelling Test and showed fewer reversal and transposition errors in writing (cited in Harding 1986, p.84). ‘A cursive script was used 3,500 years ago in Egypt, where the priests had a hieratic script with the same relationship to hieroglyphics as our longhand has to printing. Cursive Hebrew dates back to Moses (C. 1400 B.C.) and there are also examples from the times of Jeremiah and Jeroboam II (C. 760-570 B.C.)’ (cited by Male, 2007). The International Dyslexia Association (2000) proposed that student taught with cursive writing helps in lessening spacing problem within words because cursive letters are attached within itself and has fewer reversible letters. Larson (1998) study revealed that cursive letters would be taught in following manner, beginning with- m, n, t, i, u, w, r, s, l, e; later with more difficult- x, z, j, p, h, b, k, f, g, q and than combining letters- me, be, go, it, no and so on. Berninger and Wolf (2009) study viewed that teacher should teach student to read cursive writing as it is beneficial in daily used in classroom teaching.

1.7.2.2 Spelling skill of Writing:

Spelling is another cause which hampers writing. Writing and spelling are regarded as automatic skills. Spelling is often called as ‘the invention of the devil’. Ability to use letters in constructing words according the accepted rules is spelling. Spelling is part of integrated language system depending upon the child’s activity as a reader, speaker, listener and writer in a environment of learning.

Henderson (1985) study found that even students who are not affected with learning disabilities do sometimes have spelling problem. Spelling difficulties
hampers the child to read a word, 'have difficulty in applying the needed phonies and structural analysis needed to spell the word correctly, unable to visualize the appearance of the word, or lack the motor facility to write the word' (Lerner, 1998, p.406). Gerber (1986) and Henderson (1985) studies found that child's developmental stage is determine by spelling errors. By the age of seven or eight the child's visual and phonological element become stable and he or she uses both element through which spelling difficulties are noticed. Border (1973) put forward two types of reading spelling disabled child– (1) Dyseidetic dyslexic having visual problem, and writes the word phonetically, example he/she writes 'hows' for 'house', 'futher' for 'father'; (2) Dysphonetic dyslexic makes mistakes with the original word visually without having any resemblance to phonetic, example, student may write 'but' for 'the', 'loose' for 'house'. Nelson and Wassington (1974) study describes two types of spelling disabled child– (1) reading and spelling difficulty combined; these students have language problem and make errors both in visual and phonetic. (2) Only spelling problem; these students have hardship in visualising the word.

'Spelling difficulties is important, because poor spelling can hamper writing and can convey a negative impression even when the content of the writing is excellent' (Spear and Swerling, 2005). Multisensory strategy encourages learning through some or all of the senses. This approach utilizes the visual, auditory, kinaesthetic and tactile senses. Multisensory method was developed by Dr Samuel Orton, Anna Gillingham and group of teacher in early 1930's. This method is even used to teach reading and writing. Former President of the Orton Dyslexia society said, 'Dyslexic students' need a different approach to learning language from that employed in most classrooms. They need to be taught, slowly and thoroughly, the basic elements of their language– the sounds and the letters which represent them– and how to put these together and take them apart. They have to have lots of practice in having their writing hands, eyes, ears and voices working together for the conscious organization and retention of their learning'. (cited in Henry, 2000). Hulme (1981) study revealed that this technique helps the child to resolute correct spelling while writing the word. 'Orton suggested that teaching the "fundamental of phonac association with letter forms both visually presented and reproduced in writing, until the correct association were built up" would benefit students of all ages' (Henry, 2000).
1.7.2.3 Early assessment of Learning Disability in Writing skill:

Early intervention along with appropriate strategies tries to improve student’s deficient skills. Berninger, O'Donnell and Holdnack (2008) studies found that early identification, prevention and diagnosis through various tests and evidence-based assessment help in instruction of handwriting and spelling. Graham and Harris (1989); Morroco and Newman (1986) studies revealed that learning disabled students improve mostly through instruction where writing process is given importance.

1.7.3 Disability in Arithmetic skill:

There are studies which revealed that some mathematics disabled children have reading disability. Hale and Fiorello (2004) studied found that both disabilities have common processing difficulties, while there studies which view that there are students who have only mathematics disability. It is estimated that five to eight percent of school-going children have mathematics disability. Due to complexity in the field of mathematics, research on learning disabilities in mathematics progress in slower than research of reading disabilities.

Mathematics is a term which is derived from Greek word ‘mathema’ meaning knowledge, study, and learning’. Thus it is abstract term which includes structure, quantity, space and change. Carl Friedrich Gauss referred mathematics as the ‘Queen of the science’ while Benjamin Peirce referred it as ‘the science that draws necessary conclusion’. Nearly one third of employment in today’s technology world is related with the abstract term of math and science.

But there are individuals in our society who have deficiency in basic math skill which limits the opportunities. Due to lack of criteria and variation of definition from state to state many a times students with mathematical disorder are not been diagnosed. In general, it is viewed that mastery in arithmetic requires understanding of numbers system and basic principles of counting along with definite procedural steps so as to solve simple and complex problems.

There are number of reasons for which some individual experience math difficulties, these may be due to memory disorder, trouble in remembering sequence of steps, visual processing difficulty and lastly phobia in math. Cockroft (1982);
Denvir, Stolz and Brown (1982) studies found that children fail in mathematics due to number of reason, including cultural anxiety, poor teaching and lack of experiencing. While study by Farrham-Diggory (1978) found that due to brain-damage, children have disability in mathematics and they are termed as ‘acalculic’ or ‘dyscalculic’.

Dyscalculic is been often referred as poor number sense (Emerson, 2009). The term dyscalculia has been derived from Greek and Latin word, where the word ‘dys’ comes from Greek meaning ‘badly’ and ‘calculie’ comes from Latin term ‘calculare’ meaning ‘to count’, etimologically, the term means ‘counting badly’.

There are four types of dyscalculia– 1 Semantic retrieval dyscalculia l Visuospatial dyscalculia l Procedural dyscalculia l Number fact dyscalculia. Dyscalculia is a medical term which is used to refer children having severe arithmetic ‘comprehension’ or ‘computation’.

1.7.3.1 Recognition and Use of Mathematical symbols:

The Individuals with Disabilities Education Act (IDEA) 2004 put forward two specific mathematical difficulty areas– (1) mathematical calculation (2) mathematical reasoning. Each of these two areas interferes in the academic and normal life of individual. Calculation difficulties are quite common in children, where these children are unable to learn how to solve certain calculation while making the same mistakes repeatedly. Difficulty with calculation is known as ‘anarithmetica’ (Badian, 1983). As these children delay in learning the rules and procedures for solving calculation, it slows the rate of mastering the mathematical problem than their peer group, and otherhand they need more concentration in mastering rules and procedures (Bryant, Joffe (1980) in his study gave an example of a child who begins by selecting the correct operation but later on changes one-half to another through the calculation. Confusion in reading and writing of numbers and symbols leads to incorrect calculation. Johnson and Myklebust (1967) study revealed that mostly these children have difficulty with numbers 2, 3, 4, 5, 6 and 9 while reading and writing. These children have difficulty in recognizing the mathematical symbols which affect them in calculation.
1.7.3.2 Early assessment of Learning Disability in Arithmetic skill:

Studies have shown that with effective assessment and measures, deficiency can be reduced and even sometime it's totally cured. There are number of strategies which are used for teaching mathematical disabled children, among which computer is mostly used strategy. A 1999 national survey conducted by Education Week in collaboration with the Milken Exchange found that ninety seven percent of all teachers surveyed use a computer for educational purpose, either at home or at school, and fifty-three percent use software for classroom instruction (cited by Christambass, 2009; Ragosta, Holland and Jamison (1981); Niemiec and Walberg (1987) studies found that computer used as additional practice in mathematics for primary grade children had great achievement. Kraces (1981) study found that second grade children responded correctly twice as many times on addition facts speed test as control group after playing computer game for one choice over two-week period.

Thus, learning disabled children are those children who have specific break down in learning process due to perceiving, memory, listening, reading, writing, thinking, mathematics and expression and they are first doubled when there is clear and unexplained difference between actual level of achievement and individual’s level of expectation.

1.8 Development of Learning Disability in India:

Over/billion of people in India have problem with poverty, illiteracy and unemployment therefore parents find it difficult to educate their normal child and in that case special child are left behind. The 86th amendment of the constitution of India encourages educational programme for all children including disabled children.

In 1950’s and 1960’s there was major development for learning disabled children in western world, while awareness and recognition of learning disabilities in India is a recent origin. The term leads to number of misconception due to lack of valid definition of the learning disabilities. It is estimated that thirteen to fourteen percent children suffer from hidden disability, yet there is neither legislation nor policy for these children in India.
The Hindi movie ‘Taare Zamen Par’ (Like Stars on Earth, 2007; directed by Aamir Khan, Amole Gupta and Ram Madhvani) had created tremendous impact and will among the country people about the hidden disability. Early detection, diagnosis, education and acceptance from family, friend teacher and constructive policies helps in success of the child unfortunately it lacks in our country. In 1996, Maharashtra government was first to formally grant children with specific learning disabilities for completing education from regular mainstream school. Studies by Kulkarni (et. al., 2006) revealed that learning disabled children showed significant improvement in school Board after availing the benefit from the school. Sarva Shiksha Abhiyan (Education for All movement) has been launched by government of India with partnership with state government since 2001 to attain universal elementary education in the country. Sarva Shiksha Abhiyan would set up detection centres and remediation centres in every town or district for learning disabled children. Karande (et. al., 2007) said ‘at present, the facility of remedial education is still not available in many schools even in mega-city like Mumbai and many parents cannot afford the services of special educations working in the private sector (one session costs about Rs. 250)’

Karnath (2001) viewed that research work done in India are many time comparable with west. Sunil, Thomas, Bhanutej and John (2003) study found that in India, there are approximately ninety million individual have learning disabilities with varying degrees and average of five student in each class. Ramaa (2000) study found that research on learning disabilities are been done since last two decades yet these children goes undetected in school level due to lack of teacher training. Banerjee (2003); Shrinivasan (2004) Times India Network (2004, 2005’s) studies found that parents are frustrated due to lack of trained person in the field of special education which causes assessment procedure nullify in India.

Now-a-days, many institutions have been coming up as helping hand for learning disabled children, such as– Sion Hospital of Maharashtra is the only authorised centre for testing learning disabilities; ORKIDS, by Geet Oberoi, New Delhi; Shristi Child Development and Learning Institute, New Delhi; SAMVEDA research and training centre which later known as ‘Special Educational Needs (SEN) by Surendranath P. Nishanimut, Kolkata; National Institute for the mentally handicapped, Andhra Pradesh; school of learning disabilities includes centres from various regions of India. Karande (2008) article pointed that union government of
India must recognize learning disability as disorder and ‘convince the policy makers to amend the persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 which is guided by the philosophy of promoting equality and participation of persons with disabilities and eliminating discriminations of all kinds’.

Tata Group’s corporate supports Tata Interactive system (Mumbai) which provide measures to ensure students with learning disabilities achieve place in educational system. Initially, in 2002, it only funded clinic with learning disabilities in India. Later, Tata Interactive Learning Disability Forum (TLDF) commenced in 2006 is regarded as the first global symposium of its kind in the country, where experts in learning disabilities meet to create awareness and enable progress in remediation activities for special education need for children. Theme focussed by Tata Interactive Learning Disability Forum—

2006 — Awareness.
2007 — Multi-disciplinary approach.
2008 — Focus of research.
2009 — Focus on spreading awareness and building local learning disabilities capabilities, beyond Mumbai (opened LD Clinic at KEM Hospital).
2011 — Focus on spreading awareness and building local learning disabilities capabilities, beyond Mumbai (Quarterly awareness & Training workshops for school teachers and Principals on LD in Mumbai & Kolkata).
2012 — Skipping the Learning Curve (Looking beyond Traditional Learning.
2013 — Learning disabilities— a more inclusive perspective (March 1-2, 2013).

Although agencies are coming up for remediating learning disabilities yet a lot is to be done. Even many a times, learning disabled children ard look as burden to the school. Co-ordinator of Maharastra Dylexia Association, Pedegar viewed ‘it is easier
to label such student as dumb or lazy and forget it... or simply ask them to leave the school' (Birla, 2001).

1.9 Rationale of the study:

Every year millions of children with disabilities receive special services related to their unique need from Individuals with Disabilities Education Act (IDEA). Every child has difficulty in one area or the other, but the area of difficulty in cognitive region, slows down academic learning which affect on the 3R's (reading, writing and arithmetic). Bender and Wall (1994) study found that deficits in cognitive processing is main reason for learning problems in academic areas, which are sufficient for causing learning problems even in non-academic areas. In every classroom there is at least one child who in spite of having average or above average intelligence fails in academic area, these children were referred as learning disabled children. During 1988-89 school years, 1,998,422 children aged six to twenty one were identified as learning disabled and received special education services (U.S. Department of Education, 1990). It is estimated that five to ten percent of school going children suffer from learning disability to a greater or lesser extent. In India, around thirteen to fourteen percent of school children suffer from learning disorder. Heward (2009) study found that current statistics reveals that presently 2.7 million students are being served as learning disabled.

Learning disability is a general team that describes specific kinds of learning problems which affects reading, writing, listening, speaking reasoning and doing math (NICHCY, 2011). It’s often first suspected when there is clean and unexplained gap between an individual’s intellectual ability and actual school achievement. Childs learning disability first becomes apparent in school setting. Learning disability can be classified into three types.

These are –

(A) Neuropsychological or developmental

(B) Academic or Achievement

(C) Social.
Under these three main heads, there are sub-heads, these are:

(A) Neuropsychological/developmental disability

(a) Biological or genetic disorder—under these, there are other disorder—

(i) Perceptual motor disorder
(ii) Visual Processing disorder
(iii) Auditory Processing disorder.

(b) Memory disorder
     Attention disorder.

(B) Academic or Achievement disabilities—

(a) Language and reading
(b) Writing
(c) Spelling
(d) Mathematics
(e) Executive functions.

(C) Social disabilities—

(a) Low self-concept
(b) Oppositional behaviours.
(c) Low motivation and interest.
The investigator is concerned with the academic disabilities of the children, where school subjects such as reading, writing, spelling and mathematics are given importance.

The exact cause of child's learning disability is unknown. Professional stress mental health as cause of learning disability. Formerly, it was thought to be caused by a single neurological problem, but now researchers view that the causes are more diverse and complex. Kavale, Foriss and Bender (1987) study found that a large
number of researchers are pursuing the causes of disorders. Lyon (1994); Stanovich (1986); Torgesen and Wong (1986) studies revealed that earlier concept of learning disabilities involving brain damage have been revised or destined while the causes of the disorder are still largely unknown. New evidence show that most learning disabilities do not start in single, specific area of the brain, but from difficulties in bringing together information from various brain regions. ‘A leading theory is that learning disabilities stem from subtle disturbances in brain structure and function that may begin before birth’ (Stepens, 2006). A wide variety of causes have been proposed, these are – genetic predisposition; tobacco, alcohol or substance abuse by the mother prior or, during and after pregnancy’ problems during pregnancy or delivery and environment – both emotional and physical.

Learning disabilities is term as an ‘umbrella’, where number of specific learning disabilities are included, such as reading, writing, mathematics, sensory, central auditory, non-verbal learning, visual motor, and language disorders. Child and adolescent psychiatrists studies shows that learning disabilities can be lessened with early intervention, while consequence of not recognizing a learning disable child can be severe (American Academy of child and Adolescent Psychiatry, 2011). ‘If SpLD remains undetected chronic poor school performance, class detention, and dropping out of school ensue’ (Shaywitz, 1998; Karanade & Kulkarni, 2005; and Darkin, 1991). Perplexed parents may punish the child for being lazy and unmotivated for their child’s poor performance. These children have trouble blending sounds, mistakes in writing b for d, w for m vice-verse and sometimes reads words backward ‘pot’ becomes ‘top’, ‘saw’ becomes ‘was, sentence are full of spelling errors, etc. Parents send the child to private tutors who have little or no understanding of the actual problem. These children try hard to follow instruction, concentrate and are subjected to hours of instruction, but still fails to master school tasks and falls behind. Teachers blame the child for slowing down a class of 40-60 students. The child is branded as being dull and unmotivated and is pushed to strive harder. Children failing to cope with academic skills are frequently criticized by teachers and parents and they are rejected by peers. Vaugh, Mcintosh and Spencer Rowe (1991) studies revealed that in school, the learning disabled children have difficulty in making friends. The child self-confidence drops, fearing ridicule, withdraws from and later quits. Stone and Conca (1993) studies found that children with learning disabilities are likely to
attribute their failure to their lack of ability, which lowers their feeling of self-esteem. These children slowly withdraw themselves or become aggressive, anxiety and depression increases and even sometimes they get involve with anti-social behaviour. Peck (1985) found that in Los Angeles country over a three year period fifty percent of learning disabled children under age fifteen committed suicide. Fristad et al (1992) found ‘presence of learning disabilities among a sample of clinically depressed hospitalized children to be seven times higher than in the general population’.

With passage of time, learning disability has been an accepted term, between the mid 1970s and the mid 1990s, the number of children classified as learning disability nearly tripled. Presently, students with learning disabilities became the largest single category of children who are been served under special education. Fortunately, attitudes are changing and more positive approaches to working with parents are emerging loudly because of the enactment of PL 94 - 142, which increased parent’s involvement. Shaywitz (1998) Karande and Kulkarni (2005) studies found that supportive home environment is one of the factors which favourably determine the outcome of learning disabilities in a school-going child. Family showed four qualities which helped in success of learning disabled children, these are – (i) Education was provided to parents so as develop learning in children. (ii) Parents pleaded for special assessment and tutoring for their children. (iii) Private tutors were kept for the children by their parent. (iv) Parents provided helping hand for the children in obtaining employment. Robinson & Robinson (1976) describe it as ‘a warm respect for the child as he is appreciation of his assets, tolerance for his shortcomings, and active pleasure in relating to him (Mercer, 1983, p. 98). Parents play an important role in life of learning disabled children. Parents have to balance between providing too much or too little assistance to their child in achieving their educational goals. As acceptance by parents helps the child in their development, on otherhand, rejection by parents tends to increase their level of emotions, such as depression, loneliness and low self-esteem. Breske (1994) viewed that learning disabled children from early days tend to be less consistent, unpredictable and have high temper outburst. Freund and Elardo (1978) study found that learning disabled children have better social skills in families in which the mother encouraged the child to take on household responsibilities. Swick, Flake-Hobson and Reymond (1980) studies revealed that parent-teacher communication is the key for child development.
Diagnose of learning disabled children are confusing, most of a time slow-learners are termed as ‘learning disabled’ by teacher and parents. These students are not diseased nor slow in learning (Dilshad, 2006). Abrams (1960) study showed that strong feeling of inferiority caused by constant failure and frustration leads to learning deficiency. Trained specialist through testing and observation helps in identifying learning disabled children. In the process of identifying the child, school districts may use student’s response to that intervention.

Early detection can help in providing treatments and correcting learning disabled child. Intervention strategies facilitate the relationship between both the parent and child and the professional and parent, studies of Gowen and Nebrig (2002); Mc Collum and Yates (1994); Mc Collum, Gooler, Appl and Yeats (2001). The article by AACAP (2011) posted that child with learning disability have snowballing effect if not detected and treated early. In 1994, four or five percent were estimated as learning disabled children. Sluman et al (1995) revealed that early childhood and elementary classroom are successful in educating children with learning disabilities. An elementary school is an institution where children receive first stage of compulsory education. They are provided to a restricted curriculum with the emphasis on the 3R’s— reading, writing and arithmetic. Fletcher and Forman (1994); Wolery (1992) studies revealed that if children are identify earlier who are at risk for learning disabilities, they can be able to prevent from those disabilities. Early identification and intervention in kindergarten reduces the number of children that might otherwise be eligible for special services. (Lyon et al. 2001), on other-hand, Satz. et. al. (1978) studies found that early identification leads to misidentification and incorrectly labelling a student as at risk for academic failure. Importance has been given for early, intensive, empirically based intervention for children through general education. The National Institute of Child Health and Human Development (NICHD) longitudinal studies examined and revealed that early intervention given at different stages to children who are mostly at-risk for reading difficulties, number of failing to learn to read would reduce.

Overall level of intellectual development of learning disabled children is normal but still they have difficulty with academic task— reading, writing and arithmetic.
1.9.1 Learning disabled children with Reading difficulty:

In the elementary school curriculum, reading is regarded as important and troublesome subject. About ten million children have problem in reading. From these, ten to fifteen percent automatically leave out of high school while only two percent completes four year college program. Reading is one of the central difficulties of student with learning disabilities. Brabner (1969); Carnine and Silbert (1979); Kaluger and Kolson (1978) suggested that reading is the principal cause of failure in school. Medical term ‘dyslexia’ is often used to describe severe reading disorder. Reading difficulty leads to mispronunciation of words, skipping entire lines and frequent start and stop (Bock, 1998). Reading failure leads to misbehaviour, anxiety and a lack of motivation.

The International Association for the Evaluation of Educational Achievement in 1966 launch an international study of reading comprehension as a part of its sixth subject survey. In this report, R.L. Thorndike, the director found that there was ‘large difference in reading level between the developed and developing countries’, where India, with high level of economic development falls for behind in literacy. Studies of secondary students with learning disabilities shown that one-third drop-out of school is due to poor school performance (Blackorby and Wagner, 1977; Wagner and Blackorby, 1996). The process of reading can be divided into two components which are interrelated— (i) Word-recognition (ii) reading comprehension. Studies by Lyon (1995), Torgeson, Rashotte and Alexander (2001) revealed that difficulties in word-recognition directly affects ‘readers ability in comprehending what they are reading.

The main difficulty of reading disabled child is with word-recognition and fluency. Wood, Flowers and Grigorenko (2001) ‘emphasize that fluency also involves anticipation of what will come next in the text and that speeded practice alone is not sufficient’ (article by Hook and Jones, 2002). Nathan and Stanovich (1991) reviewed ‘word-recognition can be accurate but not automatic. ... In short, accurate word recognition is not enough for full fluency.’ In reading skill, investigator deals with word-recognition and fluency, where fading strategy and active voice strategy was used for teaching. Studies funded by NICHD revealed that ninety to ninety-five percent reading impaired children can overcome their difficulties if they receive appropriate treatment at early ages.
1.9.2 Learning disabled children with Writing difficulty:

Hammill and McNutt (1981) study found that reading is correlated with writing skill. Writing language is a key element of the integrated language system with linkages with oral language and reading. It is estimated that three to five percent of students have writing disorder, which is even termed as dysgraphia, Vogel (1998), Troia, Graham & Harris (1998); Gerber & Reiff (1994); Adelman and Vogel (1991) studies revealed that learning disabled students have significant problems in the acquisition and in using of written language and these problems often continue to adversely affect their lives as adult. Writing requires many related abilities: facility in spoken language, ability to read, skill in spelling and legible handwriting. The process writing is cognitive, requiring recursive and progressive writing.

Children with learning disability often have difficulties in handwriting, spelling or composing (Hammil, 2004; Vellutino and others, 2004). Graham (1990) descriptive research viewed that learning disabled students with spelling and handwriting deficits have difficulty in composition instruction. Carpenter and Miller (1982), Lerner (1981) researchers found that children who have trouble recognizing words in reading usually have poor spelling. From four percent of students in primary grades with handwriting disorder increases to twenty percent in middle school due to writing composition.

In a study involving third through ninth grade student, Poplin et. al (1980) reported that these children scored significantly lower than their peers on most written expression tasks, especially in spelling, punctuation and word usage. Smith (1981) viewed that ‘learning disabled students need direct concentration instruction to become proficient in written communication’ (Mercer, 1983 p-278). The investigator deals with handwriting and spelling of writing skill, where cursive strategy and multi-sensory strategy has been used for teaching. International Dyslexia Association (2012) revealed that early intervention during school years helps to improve student’s deficient skills through providing appropriate accommodations.
1.9.3 Learning disabled children with Arithmetic difficulty:

The Isle of Wight survey of Rutter, Tizard and Whitmore (1970) found that children who were poor at reading were also poor at arithmetic. Cawley, Miller and School (1987) study found that difficulty in reading and comprehending the word have problem in solving the mathematics task. Mathematics is and universal and symbolic language which enables individuals to think about records and providing ideas concerning the elements in relationship to quantity. Mathematics is referred as difficult area for many students, but students with mathematical disorder have much more difficult than others of his or her age. Geary (2004), Gross Tsur, Manor and Shaler (1996) students estimated that mathematical learning disability affect five to eight percent of school age children; while Miller, Butler and Lee (1998), Rivera (1997) studies estimated that about twenty six percent of students with learning disabilities receive assistance for problems in mathematics. Students who exhibit problems in arithmetic are indirectly related to the areas of reading and attention. The medical term dyscalculia is used to describe severe disability learning and using mathematics (Lerner, 2000, pp. 484). Dyscalculia affects the brains ability to process and understand the meaning of numbers.

The Individuals with Disabilities Education Act (IDEA) of 1997 has specified two mathematical problem areas for students with learning disabilities these are—mathematical calculation and mathematical reasoning; it is viewed that these two areas interfere with achievement in school and success in life (Lerner, 2000, pp.484). The basic mathematical operations are addition, subtraction, multiplication and division. These children confuse or misapply arithmetical operation or have memory problems, these two reasons may be regarded as the cause for making mistakes in calculation. Children with calculation disability mostly unable to recognize the mathematical symbols which are used., such as ('+' for addition), ('-' for subtraction), ('x' for multiplication) and ('÷' for division); ignores decimal point; lack in understanding commutative property; forgets steps while solving calculation as mix-ups ‘borrowing’ (subtraction) and ‘carrying’ (addition). Children often misread and write mathematical operation, the study by Badian (1983) found that an incorrect algorithm is due to confused operation. Cosden, Gerben, Samuel, Goldman and Semuel (1987) study found that learning disabled students use the computer more frequently for math instruction than for any area of the curriculum.
From mathematical skill, the investigator teaches the learning disabled children to recognize and use of mathematical symbols through computer. Ragosta, Holland and Jamison (1981); Lavin and Sandars (1983); Niemiec and Walberg (1987) studies showed that the use of computer assisted instruction influence mathematics of primary grade children. Schonell (1937) wrote about the importance of sound foundation in arithmetic and the need for early diagnosis of arithmetic problems in order to prevent 'for reaching emotional handicaps'.

The investigator in her study tried to provide effective teaching strategies so as to improve their academic skills. The skill based approach used by the investigator focus on helping the child’s development in specific skills like reading, writing and arithmetic. Children with learning disabilities achieve success in their academic life when they are provided with right support and intervention else learning disability is a life-long problem (Lawson, 2011). Dr Swanson found that students with learning disabilities (treatment group) receiving instruction in small group experienced greater increase in skill then student with individual instruction (Stanberry & Swenson, 2012).

1.9.4 Importance of Elementary level:

Elementary stage considered as the first stage of compulsory education and it is expected that at the conclusion of the stage a child should be able to read, write and do simple arithmetic. Croll and Moses (1985), Hell (1984), Montgomery (1990) studies revealed that school is the first place where learning disability becomes apparent after he or she enters school. The investigator has taken Class-III for her experiment. Robinson and Bly (2012) viewed ‘the end of the third grade children begin reading to learn and no longer are just learning to read’, further they said that delayed in language skill begins to log in reading comprehension which continues with time. Bock (2012) article cited that NICHD studies revealed success lies in identifying and treating children before they reach third grade.

In India three-fourth of the population belongs to the middle and lower economic class. Montgomery (1990) study revealed that learning disabled children are mostly from disadvantage cultural and social environment. In Barak Valley, the
total number of population in rural area is more than 2.5 lakh comparing to population in urban area. Mostly, the population of these areas earns its living by farming, fishing and trading. Thus, poor families send their children to government school at least for getting their child literates, as they cannot afford private schools. Sinha (2003) study viewed that government schools are failing to provide adequate learning opportunities as a result basic education is increasing. In India, most of the government schools conditions are poor along with their teaching method. Dilshed (2006,p.2) cited that ‘the social composition of the government schools comprising children of poorest households, many of whom are first generation learners, has made it a place where almost no learning takes place’. Sarva Shiksha Abhijan is trying to modify the school system so as to increase literacy rate. But due to poor quality of primary education system children are pushed from one grade to the next, irrespective of their learning; studies have revealed that there are children in Class III to IV who are not able to read and write even simple sentence. Studies by Batra (2002) and Ramachandran (2003) viewed that there is something wrong with learning outcomes of children.

1.10 Statement of the Problem:

Barak Valley has been taken as an area of study because the investigator has found no relevant study in the field of learning disability. Thus, the investigator has chosen this topic 'Effect of Special Strategies of Teaching on Reading, Writing and Arithmetic skills on Learning Disabled Children of Class-III.

1.11 Objectives:

1. To identify learning disable children in class -III level.
2. To identify specific learning difficulties among learning disable children.
3. To develop reading skills of learning disable children through the strategies.
4. To develop writing skills of learning disable children through the strategies.
5. To develop arithmetic skills of learning disable children through the strategies.
6. To measure effect of these special strategies on reading, writing and arithmetic skills of learning disable children.
1.12 Hypothesis:

1. There exists difference in mean academic achievement of learning disable and normal children.

2. Fading strategy will have effect on word recognition ability of learning disable children of class-III.

3. Active voice strategy will have effect on fluency of learning disable children of class-III.

4. Cursive strategy will have effect on handwriting ability of learning disable children of class-III.

5. Multi-sensory strategy will have effect on spelling ability of learning disable children of class-III.

6. Computer assisted strategy will have effect on recognition of the numerical symbols on learning disable children of class-III.

7. Computer assisted strategy will have effect on use of the numerical symbols on learning disable children of class-III.

1.13 Delimitation:

1. The three main areas (Cachar, Karimganj, Hailakandi) of Barak Valley are selected for the study.

2. The study includes only class-III children of government schools in Barak Valley.

3. No standardized test will be used to collect data for academic achievement of the students; it will be collected from the school records, while poor achievers will be given the treatment, whereas control group will be given routine method.
1.14 Operational definition:

Learning Disability – Learning disability is a term which includes those children who are physically normal and do not have intellectual deficit, rather have deviation in behaviour and psychological development to such an extent that they are unable to adjust in home or learn through ordinary methods used in school. This is a disorder which shows difference between ability and academic achievement. In the study, children who are having difficulties in all the three R’s (reading, writing and arithmetic) were included from the area of Barak Valley.

Special strategies – A learning disabled child are not permanently impaired. Their trouble is mainly with academic skill, as they neither have problem psychologically nor medically. Providing specialized instruction, their disability disappears. The investigator has used special techniques such as fading strategy for word-recognition, active voice strategy for fluency; cursive strategy for handwriting, multisensory strategy for spelling; computer assisted strategy for recognition and use of the numerical symbol.

- Reading skill – Reading is complex activity which consists of making out meaning from written or printed pages involving comprehension and interpretation of ideas. In the study, reading skills means students who are unable to recognize words and have low or no accuracy in reading a sentence or paragraph were included. They read ‘m’ as ‘w’, ‘p’ as ‘q’, ‘saw’ as ‘was’, ‘2’ as ‘S’, ‘9’ as ‘6’ etc.

(a). Word-recognition – One of the main component of reading skill is word-recognition. Ability to recognize and pronounce or read the word immediately by sight is word-recognition. The study included those students who were unable to connect between the sound and the written letter symbol, hence are unable to comprehend. This skill affects fluency, and spelling of the child. Fading strategy was used for giving treatment.

Fading strategy – The strategy was taken from Lucy C. Martin, where firstly each alphabet of the word was pronounced while showing them each letter of it and later each alphabet was omitted one by one and finally asking for the word to be spell.
(b) **Fluency** – The ability to read the passage quickly and accurately with appropriate pacing and pronunciation. Fluency skill is developing through word-recognition as it bridge between comprehension and word-recognition. Reading disabled children are unable to recognize alphabets as they mix-up or reverse them (example they read ‘m’ as ‘w’; ‘p’ as ‘q’; ‘saw’ as ‘was’; ‘gum’ as ‘mug’ etc.) for which they are unable to comprehend and their speed of reading decreases. Student who were included for the study were taught through active voice strategy.

**Active-voice strategy** – The strategy was taken from Lucy C. Martin’s material. She emphasized in reading the text a loud and clear with proper pronunciation which helps the student to understand each alphabet and word and increases their fluency.

- **Writing skill** – Writing is regarded as complex and highest type of communication. Writing requires ability to keep ideas in mind while formulating the correct graphic form of each letter and word while handling the writing instrument properly and having adequate visual and motor memory while combining relationship between eye-hand. It conveys how well an individual has organized his or her ideas. Individual with writing difficulty lacks in composing text as it is full of, spelling and punctuation mistakes with poor handwriting and poor paragraph organisation.

  Such as they spell ‘offiss’ for ‘office’; ‘Im’ for ‘learn’; write ‘dab’ for ‘bad’, ‘tub’ for ‘but’ etc. Handwriting, spelling and composition are three main sub-skills which are involved in writing. Study included those students who had handwriting and spelling difficulty.

(a) **Handwriting** – Handwriting is a definite form of communication skill, where record can be directly observed, evaluated and preserved. It depends on smooth eye and hand co-ordination with control of multiple joints in hand, wrist, elbow and shoulder while forming letter and arranging them on the page. In the study, handwriting means teach disabled students who have illegible writing with irregular letter sizes and shapes, mixing of upper and lower case alphabets with unfinished letters. Cursive technique was used to teach them to write in proper way.
Cursive strategy – The term cursive derives from French word cursif and from Medieval Latin cursive's literally means running. It is also known as joined-up writing, linking or running writing and joint writing. It is a design of handwriting were the written symbols are combined in a flowing manner making the writing faster. In this style of writing, letters are written with a vertical stroke, with rhythmic continuity and wholeness and minimizing spatial judgement problem.

(b) Spelling – Spelling is forming of words through proper arrangement of letters. The individual must store and retrieve the word completely to spell it correctly. To interpret the meaning of the word the reader has to spell the word correctly, while spelling is regarded as main component of writing process. In the study, spelling is referred to children who lacks in maintaining regularity between the written and spoken form of language. Multisensory strategy was used for teaching the children.

Multisensory strategy – Multisensory strategy coincides with visual, auditory and kinaesthetic-tactile to improve memory and learning. It is used to boast up retention of the student through the phonetic codes of the language. In this strategy, the child first sees the word then hear the spelling of the word and finally traces the word, the method rely on three pathways of learning. The strategy helps the student to learn easily, retain and apply concept more readily.

• Arithmetic skill – Arithmetic is regarded as the art of computation, where competence in performing the operation with numbers is required. Arithmetic involves understanding concept of decimal value, positive and negative value, carrying and borrowing, number lines, fractions, word problems, time related notion including days, weeks, months, seasons, seconds, minute, hour, quarters, etc. and mainly recognizing the mathematical symbols. But learning disabled children fail to understand these concept and they make abundance errors in calculation by using wrong strategies. In the study, the investigator took only those students who were unable recognize and use these mathematical symbols. They misinterpret ‘4+5’ as ‘4x5’, ‘3’ as ‘E’, ‘7+2’ as ‘7–2’ etc.
(a) **Recognition of mathematical symbol** – The four operational symbols are ‘addition (+)’, ‘subtraction (−)’, ‘multiplication (x)’ and ‘Division’ (÷). These symbols are regarded as main symbols of arithmetic and mastery in any mathematical problems requires proper recognition and use of the symbol. Learning disabled children fails to recognize these symbols and as a result they end up with wrong calculation.

(b) **Use of mathematical symbol** – Arithmetic is mainly based on the four operational symbols (+, −, x and ÷). These symbols help in comprehending the calculation at concrete, semi-concrete and abstract level. Learning disabled children finds difficulty in understanding these symbols and lacks in using the symbols in proper place of any calculation.

**Computer assisted instruction** – Computer plays a vital role in the field of mathematics, by making process of teaching and learning interesting and interactive. As computer serves as audio-visual aid through which learning a fun element for children along with effective information. Through this aid, learning disabled children can clearly recognize the symbols and understands the using of the symbols.

**Elementary level** – The elementary level is the first step of the child’s formal education. The period covers up to the age of eleven to twelve years. By the conclusion of this stage, school aims at making the child learn to read, write and do simple maths. Whatever is taught during this period, the child learns it forever. Even, researchers and educationists dealing with learning disabled children give importance to early assessment and remediation. Early intervention helps in improving academic skills of learning disabled children.

### 1.15 A brief outline of Barak Valley:

Assam is located in the south of Eastern Himalayas covering an area of 78,438 sq.km. The state is regarded as the gateway to the Northeast India and which is popularly known as the ‘Land of the red river and blue hills’. Assam is divided into three zones namely– the Brahmaputra Valley, the Barak Valley and the area comprising two hill districts of North Cachar hills and Karbi Anglong. Assam has five universities, three engineering colleges, twenty two law colleges, seven medical
colleges, nine polytechnic institutions, twenty three industrial training institutions (ITI) and three hundred forty eight arts, science and commerce colleges, the state had 44,500 primary schools, of which 30,000 were lower primary schools and 14,500 were upper primary schools according to 2007-08 economic survey of Assam. The state has twenty seven administrative districts among which Cachar, Karimganj and Haliakandi lies in Barak Valley.

Barak Valley is situated in the southern part of the Indian state of Assam. It covers an area of 6,222 sq.km. while geographically located between 24°15 and 25°9 North latitude and between 92°16 and 93°15 East longitude. The name of the valley was divided from the river Barak, having tropical humid type of climate. The official language of the valley is Bangla but majority of people speak a dialect which is known as sylheti Bangla. The valley is surrounded by Tripura, Mizoram, Manipur, Meghalaya and internationally bounded by Bangladesh. The valley is heterogeneous having hills, low lands and plain areas. Barak was part of Surma Valley in pre-partition day. Consisting of the old districts of Sylhet (presently included in Bangladesh) and Cachar. Of the Surma valley, only Cachar and part of Karimganj sub-division of Sylhet district forms the present valley.

Cachar district was created on 14.08.1832, which is located in the southernmost part of Assam. The district lie between 92°24 and 93°15 East longitude and 24°22 and 25°8 North latitude with geographical area of 3,786 sq.km. The district is bounded Barail and Jayantia hill ranges in north, the state of Mizoram in south, and sister districts Hailakandi and Karimganj in East. The district is the gateway to Mizoram and Manipur. An official census 2011 reveals that the district population is 1,736,319 of which male and female were 886,616 and 849,703 respectively. Average literacy rate of the district in 2011 is 80.36 of which male and female were 85.85 and 74.62 respectively. Total population in rural is 1,420,309 and in urban is 316,010; where male population in rural is 727,130 and in urban is 159,486. Female population in rural is 693.179 and in urban it is 156.524. Average literacy in rural is 78.14 percent, of which male and female literacy were 84.27 percent and 71.71 percent respectively. While average literacy in urban is 89.77 percent of which male and female literacy percent were 92.69 and 86.80 respectively. The district population constituted 5.57 percent of total Assam population. The district is administratively
divided into two sub-division namely Silchar and Lakhipur, with five revenue circles and fifteen community development blocks. In regard to school/colleges— (i) There are 1950 primary/upper primary schools. (ii) There are 125 high and higher secondary schools. (iii) Seven colleges. (iv) Two industrial training institutes. (v) One engineering college (NIIT). (vi) One medical college (Silchar Medical College and Hospital). (vii) Two law college. (viii) One polytechnic institute (Silchar Polytechnic), (ix) One teacher training college. (x) One university (Assam University). Earlier the place was referred as ‘Shiler Chor’ meaning a bank of stone; gradually it became ‘Silchar’. It is headquarter of Cachar district. Silchar is the second largest city of Assam in terms of population and municipal area. The first polo club in the world was formed in Silchar where the first competitive modern form of polo was played. Air India operated the first all-woman crew flight in the world from Kolkata to Silchar which was commanded by Captain Saudamini Deshmukh on a Fokker F-27 Friendship aircraft in December 1985 (Times of India). Today, a large number of professional from Silchar are to be found around the globe in almost all countries and regions.

The second largest town in the valley is Karimganj. It is itself the districts headquarter of Karimganj district, Karimganj sub-division was upgraded to a district on 1st July, 1983. It occupied an area of 1,809 sq.km. It is bounded by Cachar district in northeast, Hailakandi district in east, Mizoram state on the south, Tripura state on its southwest, while it internationally bounded by Bangladesh on its west and northeast. It is an important centre of trade and commerce in the north-east India. According to 2011 census, district has a population of 1,217,002 of which male and female were 620,722 and 596,280 respectively. The location of the district is between longitudes 92°15 and 92°35 East and latitudes 24°15 and 25°55 North. The district comprises one sub-division named as Karimganj, five revenue circles, seven community development blocks. Average literacy of the district according to 2011 census is 79.72, where male and female literacy are 85.70 and 73.49 respectively. Total population percent of rural is 90.94 percent while its just 9.06 percent in urban; having total population in rural is 1,106,745 and urban 110,257. Male population in rural and urban are 564,978 and 55,744 respectively, where female population in rural and urban are 78.24 percent and 93.31 percent respectively. Male literacy percent in rural and urban are 84.63 percent and 95.70 percent, while female literacy percent in
rural and urban are 71.58 percent and 90.88 percent respectively according to census 2011.

The educational system of the district—(i) There are three pre-primary schools with two hundred five enrollment. (ii) Primary and Junior basic schools are one thousand two hundred two with enrollment of 1, 10789 where 58,059 are male and 52,730 are female respectively. (iii) There are 255 middle and senior basis school with 35,566 enrollments. (iv) There are 115 high and higher secondary schools with enrollment of 35,554. (v) There are three professional institutes. (vi) Eight general colleges. (vii) One industrial training institute. (viii) Two nursing institute. (ix) One basic training institute.

The district companies of varied geographical features like shallow wetlands, hilly terrains, forests and agricultural plains.

Hailakandi district was constituted as civil subdivision on 1st June 1869 and later upgraded as district on 01.01.1989. It is regarded as third least populous district of Assam after Dima Hasao and Chirang district (District censuses 2011). The district occupies an area of 1,327 sq.km, out of which fifty percent is reserve forest. The district is located at 24°41 and 24°68 North and 92°34 and 92°57 East. The district has inter-state border with Mizoram on its south and east, bounded by river Barak and Cachar district on its south and east while Karimganj district on its west. An official census 2011 reveals that the district population is 659,260 of which male and female were 338,766 and 320,494 respectively. Average literacy of the district according to census 2011 is 75.26 where male and female literacy are 81.61 and 68.54 respectively. Total population in rural and urban are 611,087 and 48,173; male and female population in rural is 314,577 and 296,510 respectively while male and female population in urban are 24,189 and 23,984 respectively. Population percentage is 92.69 percent and urban is 7.31 percent. Average literacy in rural is 73.58 percent and urban is 94.67 percent. Rural male and female literacy is 80.30 and 66.44 percent. Whereas, urban male and female literacy percentage are 97.14 and 92.19 percent. The district has—(i) 1019 Primary/Pre-primary schools, (ii) 253 Middle schools, (iii) 48 High schools, (iv) four general colleges, (v) One basic training schools, (vi) Extension training centre—providing professional training.
Some schools reported that the name Hailakandi has been divided from the Sylheti word ‘Hailakundi’.

Government Victoria Memorial Middle English Schools was first school established after the name of Queen Victoria, in 1903 to spread education. The foundation stone was laid down by Her Majesty the Queen Victoria of England.

Thus, among the three districts of Barak Valley, Cachar district is more development compare to Karimganj and Hailakandi district in literacy rate and in economy.