CHAPTER 2
CONCEPTUAL FRAMEWORK

2.1 Definitions of Learning Disability
2.2 Causes of Learning Disability
2.3 Types of Learning Disability
2.4 Intellectual Abilities
2.5 Behavioral and Emotional Problems of Children
2.1 Definitions of Learning Disability

Even after decades of research no final consensus has been reached concerning a precise and unambiguous definition of Learning Disabilities (Kavale et al., 1991). Many definitions have been proposed and as many as 40 definitions have been decided upon by different countries. The one that can be called as the basis of all definitions is the Federal definition, incorporated in Public Law 94-142 in USA.

In the early 1960, difficulty that many children were having with learning began to attract serious attention. An increasing number of children were found unable to cope with schoolwork, specifically with reading, writing and mathematics. These children were otherwise bright, fairly articulate in their verbal expression, and did not appear to have any form of mental retardation, sensory handicap or visual impairment. Educators and professionals began to take these learning difficulties seriously. On April 6, 1963, Dr. Samuel Kirk addressed a gathering of anxious parents in Chicago, at which he first used the term 'Learning Disability' to describe these children (Hallahan and Cruickshank, 1973).

The Federal Register (1977) definition of Learning Disability states that, “A disorder in one or more basic psychological processes involved in understanding or in using language-spoken or written which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems that are primarily the result of visual, hearing or motor handicaps, of mental retardation or emotional disturbance or of environmental, cultural, or economic disadvantage.” (Federal Register, 1977, p.65083) (http://www.nalandainstitute.org)
Many other groups and organizations proposed many other definitions, since this definition. The term Learning Disability emerged from a need to identify and serve a group of children and adolescents, who experience school failure but elude the traditional categories of exceptionality. Today Learning Disabilities is seen as an umbrella concept not only including reading as primary areas of dysfunction but also spellings, handwriting, mathematics, speech and comprehension (Berdine & Blackhurst, 1985).

The Learning Disabilities Association of America contends Learning Disabilities to be, "A chronic condition of presumed neurological origin interfering with development, integration or demonstration of verbal or non verbal abilities, affecting self esteem, education, vocation and socialization." Children with Learning Disabilities exhibit a variety of social and emotional problems to subject to disorders. A lack of positive self regard resulting in poor self-concept, ego development and self-esteem, rejection from teachers, teasing from peer group and parental disapproval often result in anxiety which is critical to development of self esteem.

The field currently called Learning Disabilities includes notions of brain damage, hyperactivity, mild forms of retardation, social-emotional adjustment, language difficulties, and subtle forms of deafness, perceptual problems, motor clumsiness and above all reading disorder-almost the entire field of special education. The explosive development of the field brings primarily the fact that the term learning disability side steps the stigma and hopelessness generally associated with such terms as 'mental retardation', or just plain 'slow'. Many parents would rather believe that their child suffers from defects like 'perceptual dysfunction' which sounds as if it can be corrected. Hence there is now a tendency to call every kind of school problem a Learning Disability (Farnham, 1997).

Estimates of the prevalence of Learning Disorders ranges from 2% to 10% depending on the nature of ascertainment and the definitions applied. Approximately 5% of students in public schools in the United States are identified as having a Learning Disorder. This represents approximately half of all public school children in United States receive special education services (Center for Disease Control- Department of Health and Human Services, 2002).
**What is a Learning Difficulty?**

Learning Difficulty is a term used to describe a specific group of children, adolescents & adults who have problems in learning. Difficulties in learning are found across all ages and in all socio-economic classes. This is not a type of Mental Retardation as mistaken by many people.

These problems are generally school related, in the areas of reading, writing, spellings and mathematics. Parents and teachers usually discover the problem when children fail to cope up with schoolwork and which is generally at 2\textsuperscript{nd} to 5\textsuperscript{th} Standard level. These children are otherwise bright, fairly articulate in their verbal expression and do not appear to have any form of Mental Retardation. They can see, hear and do not have marked intellectual deficits but show deviation in behavioral and psychological development so such an extent that they are unable to adjust in the home or to learn by the ordinary methods used in the school.

**Manifestations of Learning Difficulty**

Learning Difficulty is manifested in various forms- frequent exchange of manuscript and cursive letters, omission of letters, reversals, use of limited vocabulary, phonetic spellings, problems in solving word problems, number and counting.

There are many different types of Learning Difficulties and there is a great deal of variation within individuals. Symptoms and behaviors vary a great deal, further confusing the issue. A child may be excellent in mathematics and perform poorly in reading and writing. Another child may find it very difficult to write sentences in English but may have good verbal skills. Even within a subject area, there may be a great deal of variation. A child may have problems in expressing thoughts in writing and another child may be unable to associate sounds and symbols- both having problems in written expressions.

**2.2 Causes of Learning Disability**

Research shows that it is difficult to pinpoint the root cause of Learning Disabilities and a lot of experimentation and discussions are going on about this issue. Mostly the causal factors include adverse conditions before birth, during birth and after birth of a child. Heredity is also an important element (Bender, 1973; Smith, 1980; Nakra, 2001).
These factors along with neurological damage, organic problems in the brain; biological factors like chemicals, hormones, alcohol, medicines and nutritional deprivation, genetic factors, environmental factors like toxins, chemotherapy, poor quality teaching, understimulation may make a child vulnerable to difficulties in learning. Hence it becomes important to find the cause from the preventing point of view (http://www.nalandainstitute.org; Nakra, 2001; Hardman, 1990; Lovitt, 1989).

2.3 **Types of Learning Disability**

Learning Disorder in children or in adolescent are characterized by academic under achievement in reading, written expression or mathematics in comparison with the overall intellectual ability of the child. In 1975, public Law 94-142 (the Education for All Handicapped Children Act) mandated all states to provide free and appropriate educational services to all children. Since that time, the number of children identified with learning disorders has increased, and a variety of definitions of Learning Disabilities has arisen. The term Learning Disorders, formally referred to as academic skill disorders, was introduced by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, 1994). To meet the criteria for a diagnosis of learning disorder, a child's achievement in that particular learning area must be significantly lower than expected and the learning problems must interfere with academic achievement or activities of daily living.

The most recent revised version of the DSM-IV, (DSM-IV-TR, 2000) includes four diagnostic categories of Learning Disorders: reading disorders, mathematics disorders, disorder of written expression, and learning disorder not otherwise specified. Children with learning disorder, such as reading disorder, for example, can be identified two different ways: children who read poorly compared with most other children of the same age and children whose achievement in reading is significantly lower than their overall Intelligence Quotient (IQ) would predict. DSM-IV-TR, criteria for learning disorders require a substantial IQ-achievement discrepancy and significantly poor achievement in reading compared with that of most children of the same age.
In the present study, researcher is going to focus on only two categories, they are Reading Disorders which also known as Learning Difficulty in Languages (LDL) and Mathematics Disorders that is Learning Difficulty in Numbers (LDN).

2.3.1 Reading Disorder or Learning Difficulty in Languages (LDL)
Reading is an integral part of education and everyday life. Dyslexia, is a term coined by Rudolf Berlin of Stuttgart, Germany, in 1887, is probably the most widely used term to describe a child who is unable to read. It has been estimated that of the children who go to school, 10% to 15% have some difficulty in reading, and 85% to 90% of all learning disabled children have reading problems (Kaluger and Kolson, 1978). Boys with reading problems outnumber girls at the surprising rate of 4 to 1. In fact, dyslexia has become synonymous with learning disability to such an extent that it has been suggested dyslexia be used as an umbrella term for all learning disabilities in general.

Reading disorders are present in approximately 75% of children and adolescents with learning disorders. Children who have learning problems in other academic areas most commonly experience difficulties with reading as well (Nakra, 2001).

Reading Disorder is defined as reading achievement below the expected level for a child’s age, education and intelligence, with the impairment interfering significantly with academic success or the daily activities that involve reading. According to DSM-IV-TR (2000), if a neurological condition or sensory disturbance is present, the reading disability exhibited exceeds that usually associated with the other condition.

Reading Disability is characterized by an impaired ability to recognize words, slow and inaccurate reading, and poor comprehension. In addition, children with ADHD are at high risk for reading disorder. Historically, many different labels have been used to describe reading disabilities, including word-blindness, reading backward, learning disability, Alexia and developmental word blindness. The term developmental Alexia was accepted and defined as a developmental deficit in the recognition of printed symbols. This term was simplified by adopting the term dyslexia in 1960s. Dyslexia was used extensively for many years to describe reading disability syndrome that often included speech and language deficits and right-left confusions.

13
Reading disorder is diagnosed when a child's reading achievement is significantly below that expected of a child of the same age and intellectual capacity.

*DSM-IV-TR (2000)*, Diagnostic criteria for reading disorder indicate -

A. Reading achievement, as measured by individually administered standardized tests of reading accuracy or comprehension, is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.

B. The disturbance in criterion A significantly interferes with academic achievement or activities of daily living that require reading skills.

C. If a sensory deficit is present, the reading difficulties are in excess of those usually associated with it.

Coding note - If a general medical (for example, Neurological) condition of sensory deficit is present, code the condition on Axis III.

Characteristic diagnostic features include difficulty recalling, evoking and sequencing printed letters and words; processing sophisticated grammatical constructions; and making inferences. Clinically, a child may be first identified with a reading disorder after becoming demoralized or exhibiting symptoms of depression related to being unable to successful in school. School failure and ensuing poor self-esteem can exacerbate the problems as the child becomes more consumed with a sense of failure and spends less time focusing on academic work.

### 2.3.2 Characteristics of Dyslexic Reader

Over the years researchers have tried to determine what characteristics are shared by dyslexic readers as a group. From the large number of studies conducted, the following conclusion can be drawn:

1. The dyslexic reader is more often a boy than a girl. Males outnumber females approximately 4:1.

2. The dyslexic reader has average or above average intelligence. However verbal IQ tends to be significantly below performance IQ.

3. Severely disabled readers often have comprehension difficulties and cannot understand the meaning of a given passage.
4. Members within the family may show similar reading problems.

5. Dyslexic reader tends to be spatially disoriented, with pronounced left-right confusion. This affects the way they perceive words:
   (a) There is frequent kinetic reversals of letters (b-d), of words (saw-was), and sometimes entire sentences.
   (b) Sounds are confused (empty-entry)
   (c) Concepts are reversed (east for west)
   (d) The reader is usually left handed, and has difficulty identifying right from left.

6. There may have poor figure ground discrimination and motor and visual motor patterning. Fine motor movements tend to be clumsy. The child may write very untidily with jerky irregular strokes. The letters tend to be poorly formed, irregular and uneven in formation.

7. Speech difficulties are also a typical characteristic of the dyslexic reader. Stuttering, lisping, cluttering are quite common. Slowness in learning to talk is often indicative of later problems in reading.

8. There is tendency to be hyperactive, impulsive and distracted. Most dyslexic readers have a short attention span and low frustration level. They tend to perseverate (get fixated on words) and lack the ability to scan lines, an ability required for successful reading. They are unable to discriminate between letters and can not attend to critical features of the word.

9. Dyslexic readers tend to have an inefficient visual memory system. This means they can not recall the sequence of letters in word and this prevents their reading from becoming automatic.

10. Longitudinal studies confirm that severely dyslexic readers continue to manifest severe reading problems as adults, despite intensive remedial intervention (Frauenheim, 1978).

11. The dyslexic reader functions one grade below expectancy in the primary classes and two or more grades level below in later school years.

12. There is little or no progress despite intensive instruction.

2.3.3 Mathematical Disabilities or Learning Difficulty in Numbers (LDN)

Mathematical Disability or LDN, both terms have been used interchangeably in this, present study.
Definition of Mathematics Disorder

It is a diagnostic label that is generally used to refer to impairment in the development of arithmetic skills, including but not restricted to computational procedures used to solve arithmetic problems and the representation and retrieval of basic arithmetic facts from long-term-memory. To warrant classification as a disorder, the individual's performance in arithmetic must be substantially below that expected for age, measured intellectual abilities, and education. The definition of substantially below is vague, leaving the decision to the clinician. Also, the impairment must be sufficiently serious to interfere with academic achievement or daily living. Moreover, it can not be attributed to visual, hearing, physical, or emotional disorders or to the environmental, cultural, or economic disadvantage.

The first neuropsychological definition of developmental dyscalculia was put forward by the researcher Kosc (1974) who defined it as a difficulty in mathematical performance resulting from impairment to those parts of the brain that are involved in mathematical processing, without a concurrent impairment in general mental function. There are other definitions of dyscalculia, as well as other similar constructs that are defined in slightly different ways. For instance the DSM-IV (Diagnostic and statistical Manual of Mental Disorders, 4th ed., American Psychiatric Association) includes the diagnosis 315.1 “Mathematical Disorder” and in the United States there is an educational definition of “mathematical disabilities” linked to the legal definition of learning disabilities given in public Law 94-142.

What all of these definitions have in common is 1) the presence of difficulties in mathematics 2) Some degree of specificity to these that is lack of across-the-board academic difficulties and the assumption that 3) these are caused in some way by brain dysfunction.

Mathematics refers to a group of related sciences (such as, algebra, calculus, arithmetic geometry, analytical geometry, chaos theory, number theory, and set theory) that are concerned with the study of number, quantity, shape and space and their interrelationships, using rules and specialized notations. By contrast, arithmetic is the branch of mathematics concerned with numerical calculation. It requires an understanding of number, facts, counting, ordering numbers serially, number quantities, decoding and manipulating symbols, and the rules governing the four basic operations of addition, subtraction, multiplication, and division.
This is also known as Non verbal Learning disability (NLD).

Numeric or quantitative literacy refers to the aggregation of mathematical skills, knowledge, beliefs, communication capabilities, and problem solving skills, which people need to engage effectively and autonomously with quantitative information in everyday life. It is the ability to apply aspects of mathematics to understand, to predict, and to control routine events in daily life.


A. Mathematical ability, as measured by individually administered standardized tests, is substantially below that expected given the person's chronological age, measured intelligence, and age-appropriate education.

B. The disturbance in criterion A significantly interferes with academic achievement or activities of daily living that require mathematical ability.

C. If a sensory deficit is present, the difficulties in mathematical abilities are in excess of those usually associated with it.

Coding note - If a general medical (e.g., neurological) condition or sensory deficit is present, code the condition on Axis III.

Research in the analysis and remediation of problems related to mathematics has been rather neglected. Large number of school children continues to experience failure in this subject. Koppitz (1971) reported that 88% of the children referred to the learning disabled program in her study, in USA, were one to three years below the expected grade level in arithmetic computation. Children with arithmetic disabilities can be found at all age levels, and early identification is very important. Though it is not necessary that a dyslexic reader will also have a difficulties in arithmetic, certain deficits will be common across subjects. For example, the inability to read words will affect the child's ability to solve word problems. Deficits that cause the child to invert or reverse words may spill over to numbers. Problems in visual discrimination will affect the child's ability to discriminate between numbers. There are some prerequisite skills which are needed for smooth mathematical functioning. Piaget's (1969) work continues to remain the most significant contribution in explaining how children acquire quantitative concepts, but a great deal more needs to be done in the areas of remedial textbooks and materials.
The causes of mathematics disorder are unknown, but multiple etiological factors have been proposed, including neurological, genetic, psychological, and social (for example, poor teaching and mathematical anxiety) factors. From a clinical perspective, it is important to note that mathematics disorder not only occurs as a common learning disorder, but also is the most frequently encountered cognitive problem in other learning disorders (for example, specific language impairments and reading disorder), genetic deficits (for example, velocardiofacial syndrome, fragile x syndrome, Down syndrome, Williams syndrome, and Gerstmann's syndrome), neurological disorders (for example, epilepsy), and psychiatric disorders (For example, attention-deficit/hyperactivity disorder [ADHD] and bipolar disorder). Notably, many of these disorders are associated with abnormalities in the parietal lobes and the dorsolateral prefrontal cortex.

Of particular relevance for differences in *DSM-IV-TR* and ICD-10 nosology are the comparative studies of mathematics disorder only and mathematics disorder with co morbid reading disorder (mathematics disorder and reading disorder). Approximately 50% of children with mathematics disorder also meet diagnostic criteria for reading disorder. Arithmetic difficulties are also common in psychiatric disorders such as ADHD and bipolar disorder. For example, epidemiological and clinical studies indicate that approximately 25% of children with ADHD also meet criteria for mathematics disorder, and 15% to 20% of children with mathematics disorder manifest behavioral difficulties that are consistent with a diagnosis of ADHD. The overlap between mathematics disorder and ADHD is greater than would be expected by chance. It appears to be inattention (even at sub clinical levels) rather than hyperactivity and impulsivity that characterize the increased risk for mathematics disorder; inattention places children at greater risk for impaired arithmetic skills than impaired reading skills. Inattentive children exhibit specific difficulty with arithmetic problem solving, particularly when the problem includes some irrelevant verbal or numeric information. These difficulties could be due to an inability to inhibit irrelevant information or deficits in visual-spatial abilities, both of which are associated with ADHD.
2.3.4 The Acquisition of Mathematical Concepts

According to Piaget (1969), the understanding of mathematical concepts is directly linked with stage specific development. Object permanency, seriation, classification, conservation of quantity, one-to-one correspondence and evocative memory, are some of the prerequisite concepts that emerge during the sensory-motor period (birth to age two). However they are not fully understood until the child enters the pre-operational or concrete stage (age seven or eight years), and even then needs concrete manipulative aids. The child is able to deal with hypothetical thinking only at age eleven or twelve, when he enters the formal operational stage.

Recently, increased attention has focused on students who demonstrate challenges learning mathematics skills and concepts that are taught in school across the grade levels. Beginning as early as preschool, parents, educators, and researchers are noticing that some students seem perplexed learning simple math skills that many take for granted. For example, some young children have difficulty learning number names, counting, and recognizing how many items are in a group. Some of these children continue to demonstrate problems learning math as they proceed through school. In fact, we know that that now a days 5% to 8% of school-age children are identified as having a mathematical disability.

2.4 Intellectual Abilities

Intelligence is most talked about subjects within psychology; there is no standard definition of what exactly constitutes intelligence. Some researchers have suggested that intelligence is a single, general ability; while other believe that it encompasses a range of aptitudes, skills and talents. What exactly is Intelligence? For the present study, a formal definition developed by psychologist David Wechsler is considered. Wechsler (1944) defined intelligence as, ‘the global capacity to think rationally, act purposefully, and deal effectively with the environment’.

The following are some of the major theories of intelligence that have emerged during the last 100 years. These theories have emerged to define, explain and predict human intelligence.
Charles Spearman's General Intelligence
British psychologist Charles Spearman (1863-1943) described a concept he referred to as general intelligence or the g factor. He concluded that intelligence is a general cognitive ability that could be measured and numerically expressed (Spearman, 1904).

Louis L. Thurstone's Primary Mental Abilities
Psychologist Thurstone (1837-1955) offered a different theory of intelligence. Instead of viewing intelligence as a single, general ability, Thurstone's theory focused on seven different primary mental abilities (Thurstone, 1938). The abilities that he described were Verbal Comprehension, Reasoning, and Perceptual Speed, Numerical ability, Word fluency, Associative memory and spatial visualization.

Howard Gardner's Multiple Intelligences
One of the most recent ideas to emerge is Gardner's theory of multiple intelligences. Instead of focusing on the analysis of test scores, Gardner proposed that numerical expressions of human intelligence are not a full and accurate depiction of people's abilities. His theory describes eight distinct intelligences that are based on skills and abilities that are valued within different cultures. The eight intelligences Gardner described are, Visual-Spatial Intelligence, Verbal-Linguistic Intelligence, Bodily-Kinesthetic Intelligence, Logical-Mathematical Intelligence, Interpersonal Intelligence, Musical Intelligence, Intra-personal Intelligence, and Naturalistic Intelligence.

Robert Sternberg's Triarchic Theory of Intelligence
Psychologist Sternberg defined intelligence as, 'mental activity directed toward purposive adaptation to, selection and shaping of, real world environments related to one's life' (Sternberg, 1985). While he agreed with Gardner that intelligence is much broader than a single, general ability, he instead suggested some of Gardner's Intelligences are much better viewed as individual talents. Sternberg proposed what he refers to as “successful intelligence” which is comprised of three different factors: Analytical Intelligence: This component refers to problem-solving abilities. Creative Intelligence: This aspect of intelligence involves the ability to deal with new situations using past experiences and current skills. Practical Intelligence: This element refers to the ability to adapt to a changing environment.
While there has been considerable debate over the exact nature of intelligence, no definite conceptualization has emerged. Today, psychologists often account for many different theoretical viewpoints when discussing intelligence and acknowledge that this debate is ongoing.

2.4.1 Measurement of Intelligence

Today, there are many intelligence tests available in the field of Psychology. These tests measure different abilities. Some tests are verbal, some are non-verbal, performance. The basic test like WISC is also available in many languages and adapted in India. For the present study, Adaptation of WISC that is MALINS test in English and Hindi languages is used to study the abilities profile of LD students.

A) The History and Development of Modern Intelligence Quotient (IQ) Testing

Intelligence has been an important and controversial throughout psychology’s history. The term Intelligence Quotient or IQ was first coined in the early twentieth century by a German Psychologist named William Stern. Today nearly all psychologists recognize that both genetics and the environment play a role in determining intelligence.

Interest in intelligence dates back thousands of years, but it was not until psychologist Alfred Binet was commissioned to identify students who needed educational assistance that the first IQ test was born.

The first intelligence test referred to today as the Binet Simon Scale, became the basis for the intelligence tests still in use today. However, Binet himself did not believe that his psychometric instruments could be used to measure a single, permanent and inborn level of intelligence (Kamin, 1995). Binet stressed the limitations of the test, suggesting that intelligence is influenced by a number of factors, changes over time and can only be compared among children with similar background (Siegler, 1992).

The Stanford-Binet Intelligence Test

After the development of the Binet-Simon scale, the test was soon brought to the United States where it generated considerable interest. Stanford University Psychologist Lewis Terman took Binet's original test and standardized it using a sample of American participants.
This adapted test first published in 1916, was called the Stanford-Binet Intelligence Scale and soon became the standard intelligence test used in the U.S.

The Stanford-Binet Intelligence test used a single number, known as the Intelligence Quotient, (or IQ) to represent an individual's score on the test. This score was calculated by test taker's mental age by their chronological age, and then multiplying this number by 100. For example, a child with a mental age of 12 and a chronological age of 10 would have an IQ of 120 (12/10 x 100).

The Stanford-Binet remains a popular assessment tool today, despite going through a number of revisions over the years since its inception.

**Intelligence Testing during World War I**

At the outset of World War I, U.S. Army officials were faced with the monumental task of screening an enormous number of army recruits. In 1917, as president of the American Psychological Association (APA) and chair of the committee on the psychological Examination of Recruits, Psychologist Robert Yerkers developed two tests known as the Army Alpha and Beta tests. The Army alpha was designed as a written test, while the army beta was administered orally in cases where recruits were unable to read.

**The Wechsler Intelligence Scales (WISC)**

The next development in the history of intelligence testing was the creation of a new measurement instrument by American Psychologist David Wechsler. Much like Binet, Wechsler believed that intelligence involved a number of different mental abilities, describing intelligence as, 'the global capacity of a person to act purposefully, to think rationally, and to deal effectively with his environment.' (1939). Dissatisfied with limitations of the Stanford-Binet, he published his new intelligence test known as the Wechsler Adult Intelligence Scale (WAIS) in 1955.

Wechsler also developed two different tests specifically for use with children. The Wechsler Intelligence Scale for Children (WISC) and the Wechsler preschool and primary scale of Intelligence (WPPSI). The adult version of the test has been revised since its original publication and is now known as the WAIS-III. It contains 14 sub tests on two scales and
provides three scores: a composite IQ score, a verbal IQ score and a Performance IQ score. Sub tests scores on the WAIS-III can be useful in identifying learning disabilities, such as cases where a low score on some areas combined with a high score in other areas may indicate that the individual has a specific learning difficulty (Kauffman, 1990).

Rather than score the test based on chronological age and mental age, as was the case with the original Stanford-Binet test, the WAIS is scored by comparing the test taker's score to the scores of others in the same age group. The average score is fixed at 100, with two thirds of scores lying in the normal range between 85 and 115. This scoring method has become the standard technique for intelligence testing and is also used in the modern revision of Stanford-Binet test.

B) Measuring Intelligence of Children having LD

Today, in the U.S.A., whenever a child is formally classified as Learning Disabled, he becomes the financial responsibility of the state. These children, who are provided with educational programs under federal law, are in most states distinguished from other children with learning problems on two grounds. First, the basis of their scholastic problems is presumed to be due to some neurological dysfunction. The LD category excludes children who have learning problems as a result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. Second, to be diagnosed as Learning Disabled there must be a discrepancy between a child's potential and his achievement. Stated differently, there is a discrepancy between a child's expected school achievement and his real school achievement. Miles (1978), states that a person is dyslexic provided that there is discrepancy between his intellectual level (potential) and his performance at reading and spelling (achievement) and that this discrepancy is accompanied by some other supporting "signs" like problems with left and right, poor sense of time, putting letters and figures the wrong way around, unusual difficulty in remembering mathematical tables, putting letters in the wrong order etc.

Needless to say, this diagnostic practice has been debated, disputed and criticized. Apart from the fact that a neurological dysfunction is never been proved, it is impossible to prove that the environment has played no role in creation of learning disabilities. Another matter in dispute is how big the discrepancy must be before one can refer to a child as learning disabled.
The most important criterion to determine a child's potential (expected achievement) is his Intelligence Quotient (IQ). The aim of an intelligence test, supposedly, is to measure the intelligence of a child. It is however, beyond comprehension, why IQ should play such a predominant role in the diagnosis of LD. It has been demonstrated clearly by numerous studies how unreliable IQ scores can be. The scores may vary by as much as 15 points by one test to another, while emotional tension, anxiety, and unfamiliarity with the testing process can greatly affect test performance. In addition, Gould (1981) described the biasing effect that tester’s attitude, qualifications, and instructions can have in testing. In one study, 99 school psychologists independently scored an IQ test from identical records and came up with IQ scores ranging from 63 to 117 for the same person.

Linda S. Siegel (1992) proposes that, 'we should abandon the IQ test in the analysis of LD child.' According to most definitions, although they are not conclusive, intelligence is made up of the skills of logical reasoning, problem solving, critical thinking, and adaptation. This scenario seems reasonable, until one examines the content of Intelligence tests. The definition of Intelligence as it is operationalized in all IQ tests includes virtually no skills that can be identified in the terms of the most widely accepted definitions of intelligence. To support her statement Siegel gives a detailed analysis of the sub tests of Wechsler Intelligence Scale for Children-Revised (WISC-R). The WISC-R is most widely used test for assessing the potential of Learning-Disabled children between the ages of 6 to 16 yrs. This test is composed of Verbal and Performance scales, and is nearly always used in LD diagnosis. In each subtest of the Verbal scale, performances is in varying degrees dependent on specific knowledge, vocabulary, expressive language and memory skills, while in the performance scales, visual-spatial abilities, fine motor coordination, perceptual skills and in some sub tests speed are essential for scoring. As Siegel (1992), rightly points out, IQ test measure, for the most part, what a person has learned, not what he or she is capable of doing in the future (his potential).

There is an additional problem in the use of IQ tests with individuals with learning difficulties. According to Siegel (1992), it is a paradox that IQ scores are required of people with LD because most of these persons have deficiencies in one or more of the component skills that the part of these IQ tests – memory, language, fine motor skills etc. The effect is that they may end up having a lower IQ scores than a person who does not have such problems, even though they may both have identical or better reasoning and problem solving
skills. The lower IQ score therefore, may be a result of learning disability, and IQ scores therefore underestimate the real intelligence of the individual with a learning disability.

Another assumption of the discrepancy definition is that the IQ score should predict reading, so that if you have a low IQ Score you should be a poor reader and that poor reading is an expected consequence of low IQ. However, there are individuals who have low IQ score and are good readers. It is often assumed that learning disability may be diagnosed by significant variability (often refer to as scatter) in scores on the sub tests of intelligence tests (e.g. Kaufman, 1981). The rationale for the analysis of scatter is that these patterns can be used to assess information processing deficits and have implications for instruction and remediation.

The present study, tries to address one critical question that, are there any age group wise different patterns of performance which can be found on the Malin's' Intelligence Scale for Indian Children (MISIC), (which is an adaptation of the WISC-R by Malin in 1969) that can be used to reliably discriminate children having LDL and LDN? To answer this question this study compared the profile of MISIC scores, Verbal, performance and Full scale IQ of already diagnosed children of LDL and LDN.

MISIC is an adaptation of the WISC-R. There are numerous research work were carried out on WISC by the researchers. But very few research works is related to MISIC. The present study focused on MISIC score patterns.

Although there have been studies that have used WISC or WISC-R have failed to find a difference between children with and without LD or have produced inconclusive evidence (Rourke, 1998). One source of difficulty is the failure to adequately define LD. The definitional issues are very complex ones and have been reviewed by Fletcher (1992), Siegel (1989a, 1989b), Siegel and Heaven (1986), and Vellutino (1979). In the present study, researcher used the definition of LD based on work by Rourke (1991); Rourke and Tsatsanis (1996); Rourke and Finlayson (1978); Rourke et.al. (1990); Siegel (1988a, 1988b, 1989a, 1989b, 1990a 1991a, 1992, 1993a, 1994, 1998), and Siegel and Heaven (1986). In this conceptualization LD is defined as a significant problem in reading or arithmetic. Provided that other exclusionary criteria apply (severe emotional problems, insufficient knowledge of the languages, etc), if an individual has a significantly low score compared to a peer on a
reading or arithmetic disability, respectively, and should therefore be considered an individual with a learning disability.

There has been considerable debate about whether children with LD have distinctive patterns of performance on the WISC-R or its predecessor (WISC; Wechsler, 1999). Studies that have attempted to confirm the usefulness of the WISC-R as a diagnostic tool for LD have been fraught with methodological errors. There are very few studies related to MISIC test and LD. In the present study, detailed analysis of Malin’s score of diagnosed LD children is obtained, to see the discrimination of LDL and LDN based on the scores and also to study the significance of the scores between the ages.

2.5 Behavioral and Emotional Problems of Children

Behavioral and emotional problems of children are typically divided into two general categories: externalizing and internalizing problems. Externalizing problems are outer-directed and involve acting out defiant, and non compliant behaviors. Internalizing problems are more inner related and involve depression, withdrawal, and anxiety. Youngsters with externalizing problems generally display behaviors that are disruptive and harmful to others (Campbell, Shaw, & Gilliom, 2000). In contrast, those with internal problems experience inner-directed negative emotions and mood such as sadness, guilt, fear and worry (Zahn-Waxler et al., 2000).

The relationship between learning disabilities and emotional/behavioral problem is complex. Algozzine (1977) characterized externalizing behaviors as "disturbing" to others in the social environment and internalizing behaviors as "disturbing" to the individual. As such, internalizing behaviors present unique challenges in referral, assessment, and intervention practices in school settings because of the covert and non intrusive nature of these kinds of behavior. In school settings, teachers typically under-refer students with internalizing behavioral problems, compared to students with externalizing behavior patterns (Kauffman, 2001; Walker & Severson, 1992).
There are three generally recognized externalizing disorders: Attention-Deficit/Hyperactive Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD). Present study will focus on single externalizing disorder that is, ADHD. The relationship between ADHD and LD is well researched topic and many studies stated that, there is a significant positive correlation between them. Diagnosis of ADHD is becoming more common during the preschool and kindergarten years, although there is still much debate about whether this disorder should be diagnosed in young children, and if diagnosed how that determination should be made.

Internalizing problems are generally considered to belong to the subgroup of psychopathology that involves disturbances in emotion or mood. The general identification of the internalizing problems as focused on emotional components, such as, sadness, guilt, worry, and so forth is consistent across several definitions. More specifically depression and anxiety disorders and the sub clinical problems in these areas typically comprise discussions of internalizing problems and disorders.

2.5.1 Attention Deficit Hyperactivity Disorder (ADHD) - An Externalizing Problem

Over the past several years, ADHD has received increasing attention in both, research and popular literature. Much of this attention has focused on school-age children, but increasingly researchers are studying ADHD as a syndrome that may be diagnosable in the preschool and kindergarten years. ADHD has a prevalence rate of 3 to 5% in the general school-age population and is more common in boys than girls (Kaplan & Sadock, 2005).

The condition now called “Attention-Deficit/Hyperactivity Disorder” (ADHD) has been recognized for at least the last half-century. Although descriptions of ADHD associated behaviors have been remarkably consistent over the years, the name of the syndrome has changed several times.

Early terminology was based on assumptions about the causes of the disorder. In the 1930s and 1940s, children with ADHD-like behaviors were called “brain damaged” or “brain injured” because it was known that brain damaged individuals showed similar behaviors. In 1950s and 1960s, it became clear that, although many children exhibited the same set of
behaviors as those called "brain damaged", neither a definitive history of brain trauma, nor the presence of abnormal neurological signs could be documented. The assumption was made that neurological dysfunctions were causing these problems, but were too subtle to be detected with available medical procedures. Therefore, the term "Minimal Brain Dysfunction" came into common use.

"Hyperactive" or "Hyperkinetic" became the term of choice for characterizing these children by the 1960s. The argument was made, especially in education and psychology circles, that the diagnosis of the underlying disorder was based on behavioral criteria, not on any documented medical evidence. Thus it made sense to use a term that was descriptive of observable behavior. At that time, excessive motor activity was considered the central problem evidenced by these children. Hence, the term "hyperactivity" became widely used.

By the 1970s most professionals were in agreement that difficulties in attention and concentration were more critical symptoms of the disorder than hyperactivity, and were the primary reason that these children experienced so much social and academic difficulty. Therefore, during the 1980s and early 1990s, the emphasis changed again, favoring neither the inattention or hyperactivity/impulsivity features, but recognizing the unique contributions of each.

The second edition of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-III), published in 1968, by the American Psychiatric Association (APA), was the first to name this syndrome. It was called "Hyperkinetic Reaction of Childhood" and described more as clinical impressions than multi-faceted, interactive behavioral symptoms.

The 1980, DSM-III changed the syndrome name to "Attention Deficit Disorder" (ADD). Two types were specified: with hyperactivity (ADD+ H), and without hyperactivity (ADD-H). Diagnosis required the presence of a minimum set of behavioral criteria that were present prior to age seven, had lasted at least six months, and were evident in all three dimensions of the syndrome: attention, hyperactivity, and impulsivity.

The 1987, DSM-III-R (Revised) changed "Attention Deficit Disorder" to "Attention Deficit Hyperactivity Disorder" (ADHD). Rather than requiring symptoms from each of three
dimensions, it listed 14 symptoms, any eight of which were sufficient for diagnosis. ADD-H was not included but changed to vaguely defined category. Symptoms were not required to be clearly developmentally inappropriate and emphasis was placed on their co-existence with other affective disorders.

The *DSM-IV* R, published in May of 1994, has named the syndrome “Attention Deficit/Hyperactivity Disorder” (ADHD) in order to preserve continuity. ADHD is now divided into four major types, however, with a separation of attention problems from those of hyperactivity and impulsivity in the first three.

This latest version of ADHD diagnostic criteria offers significant improvement over earlier ones in that it is more descriptive of academic vulnerability, recognizes that diagnosis requires the input of many people who know the child well, and includes reporting about the child’s behavior across multiple settings.

Although most professionals now use the term ADHD to characterize these children, some of the older terms may continue to be used in the professional literature and in the popular press and media.

Estimates of incidence rates of ADHD vary widely, from less than 1% to more than 20% of the population. This variation occurs because of the imprecision of terms such as “hyperactivity” and “compulsivity”. The best current estimates are that between 3% and 5% of school children have this disorder (Kaplan & Sadock, 2005).

**Current Definition and Diagnostic Criteria for ADHD**

According to *DSM-IV* R (APA, 1994), the essential feature of ADHD is, “... A persistent pattern of inattention and/or hyperactivity-impulsivity which is more frequent and severe than is typically observed in individuals at a comparable level of development, symptoms of ADHD must be present before age seven years, and must interfere with developmentally appropriate social, academic or occupational functioning in at least two settings (for example, at home and at school, or at home and at work).
Although symptoms of ADHD may be less noticeable as the person matures, or in novel, highly controlled or reinforcing situations, symptoms of inattention, hyperactivity/compulsivity, or all three, are usually present in at least two settings.

Associated features of ADHD, which vary according to age, developmental stage, and type, may include “low frustration tolerance, temper outbursts, bossiness, stubbornness, mood liability (changes), demoralization, rejection by peers, poor self esteem, academic under achievement and problematic couple and family relationships”.

While the disorder is usually not diagnosed prior to school entry, problems often are noted before age four. Males are diagnosed at least three times more often than females, although available evidence indicates that females are probably under diagnosed (Kaplan & Sadock, 2005).

ADHD is often inherited. It is very common to find that relatives of a child with ADHD were, or are, considered to be hyperactive, impulsive, inattentive, or all three, at school, in the community, or at work.

The DSM-IV R attempts to clarify the diagnosis of ADHD by separating symptoms of inattention from those of hyperactivity-impulsivity and denotes four separate types of ADHD. The new diagnostic criteria for the three main types specify that symptoms must have been present before age seven and have persisted for at least six months to a degree that is maladaptive and inconsistent with the child's developmental level (APA, 1994).

For the diagnosis of ADHD, Combined Type, six or more symptoms listed under the Inattention criteria below, and six or more of the symptoms listed under Hyperactivity-impulsivity must have been met for the period of at least six months. (314.01)

For the diagnosis of ADHD, Predominantly Inattentive Type, six or more symptoms listed under the Inattention, but fewer than six symptoms under Hyperactivity-Impulsivity must be met for at least six months. (314.00)
For a diagnosis of ADHD, Predominantly Hyperactive-Impulsive Type, six or more symptoms listed in the Hyperactivity-Impulsivity criteria, but fewer than six symptoms listed under Inattention must be met for at least six months. (314.01)

Additionally, there is fourth type, ADHD, Not Otherwise Specified, in which there are prominent symptoms from the Inattention and/or Hyperactivity-Impulsivity criteria lists, but these are not sufficient to meet criteria for ADHD.

A. Either (1) or (2):

1. Six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

**Inattention Criteria**

(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

(b) Often has difficulty sustaining attention in tasks or play activities

(c) Often does not seem to listen when spoken to directly

(d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)

(e) Often has difficulty organizing tasks and activities

(f) Often avoids, dislikes, or is reluctant to engage in tasks which require sustained mental effort (such as schoolwork or homework)

(g) Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)

(h) Is often easily distracted by extraneous stimuli

(i) Is often forgetful in daily activities

2. Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level.
**Hyperactivity Criteria**

(a) Often fidgets with hands or feet or squirms in seat
(b) Often leaves seat in classroom or in other situations in which remaining seated is expected
(c) Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) Often has difficulty playing or engaging in leisure activities quietly
(e) Is often 'On the go' or often acts as if "driven by a motor"
(f) Often talks excessively

**Impulsivity Criteria**

(g) Often blurts out answers before questions have been completed
(h) Often has difficulty awaiting turns
(i) Often interrupts or intrudes on others (e.g., butts into conversation or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home)

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a pervasive Developmental Disorder, Schizophrenia, or other psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a personality Disorder).
**Code based on type:**

314.01 Attention-Deficit/Hyperactivity Disorder, Combined Type:
If both criteria A1 and A2 are met for the past 6 months

314.00 Attention-Deficit/Hyperactivity Disorder, Predominantly Inattentive Type:
If criterion A1 is met but criterion A2 is not met for the past 6 months

314.01 Attention-Deficit/Hyperactivity Disorder, Predominantly Hyperactive-Impulsive Type:
If criterion A2 is met but criterion A1 is not met for the past 6 months

Coding note: For individuals (especially adolescents and adults) who currently have
symptoms that no longer meet full criteria, "In Partial Remission" should be specified.

314.9 Attention-Deficit/Hyperactivity Disorder Not Otherwise Specified
This category is for disorders with prominent symptoms of inattention or hyperactivity
impulsivity that do not meet criteria for Attention-Deficit/Hyperactivity Disorder. Examples
include -

1. Individuals whose symptoms and impairment met the criteria for Attention-
   Deficit/Hyperactivity Disorder, predominantly inattentive Type but whose age at onset
   is 7 yrs or after

2. Individual with clinically significant impairment who present with inattention and
   whose symptom pattern does not meet the full criteria for the disorder but have a
   behavioral pattern marked by sluggishness, daydreaming, and hypo activity.

**2.5.2 Attention Deficit Hyperactivity Disorder and Learning Disabilities**
There is a considerable overlap between learning and attention problems. Research has
documented that when we examine a group of ADHD children, we find that approximately
19% to 26% also have learning disabilities. Conversely, when we begin with a group of
children having learning disabilities, we found that one third also have ADHD. The question
is why this co morbidity exists? Researchers who have studied this issue have come up with at
least three theories about the link between ADHD and LD: 1) ADHD children have difficulty
with academic under achievement because they are inattentive and impulsive. 2) Learning
Disabled children “turn off and tune out” in the classroom because the work is so difficult for
them and; 3) ADHD and LD share a common genetic cause, so a child inherits one disorder
will also inherit the other.
After years of heated debate, it appears that all the three theories have merit. In some cases, ADHD and dyslexia may occur together because of a shared genetic cause. In other cases, even when there is no common genetic cause, there is a reciprocal relationship between ADHD and LD; that is inattentive behavior leads to learning problems, and learning problems make it likely that the child will often be inattentive and off-task.

Research also acknowledges that LD and Attention Deficit Disorder (ADD) frequently co-occur. In addition to significant inattentiveness, impulsivity and hyperactivity, primary characteristics manifested in children diagnosed as ADD include “learning disorder” and “academic underachiever” (Marshall & Hynd, 1997; Stanford & Hynd, 1994). Estimates of co-morbidity of ADD and LD range from approximately 50% (Riccio & Jemison, 1998). Estimates of report vary, depending on the way LD is defined or ADD is assessed. While this rate of co-occurrence had led some to theorize that the two disorders share overlapping deficits (Marshall & Hynd, 1997), other research concludes that ADD and LD are separate and distinct entities that often co-occur (Riccio & Jemison, 1998).

Children with ADHD are often found to have one or more LD, and co-morbidity rates are difficult to estimate. The majority of LD subtypes tend to be more common in the inattentive and combined types of ADHD, rather than the hyperactive-impulsive type (Tannock & Brown, 2000; Wilcutt & Penington, 2000).

As noted, LD broadly conceptualized as Reading Disorders (RD), Mathematics Disorders (MD), and Written Expression Disorders. Children with these specific disorders often exhibit a number of deficits that are associated with ADHD, particularly the inattentive and combined types. Both ADHD and RD are associated with deficits in naming speed (amount of time it takes to name various stimuli, such as colors, letters, numbers, objects, etc.), motor skill and time perception (e.g. awareness of time of day or time passed since a specific event, Tannock & Brown, 2000). However, children with RD also exhibit problems in phonological awareness and verbal memory (Tannock & Brown, 2000).

Research also suggests that different subtypes of learning disorders are associated with different kinds of emotional/psychological problems. Specifically language-based learning disabilities appear to be associated with the so-called "externalizing disorders" of ADHD and
conduct disorder, while nonverbal learning disabilities seem to have a stronger relationship with depression and anxiety disorders, the internalizing disorders. Present study can help us to explore more about these findings.

2.5.3 Internalizing Disorders or Emotional Problems

The category of “Internalizing” behaviors includes social withdrawal, depression, loneliness, low self esteem and anxiety, all reflecting turmoil that is kept inside. Each person has natural tendency or preference toward internalizing or externalizing, likely due to genetic factors (Gjone & Stevenson, 1997). Children who are depressed may also experience significant anxiety, for example, but may not strike out at their peers or defy the teacher. This type of behavior has significant repercussions for learning and achievement. However, attention is more likely to be given to externalizing behavior disorders, because they tend to be disruptive to others. Students with internalizing behavior disorders are generally under referred for special services because they do not present classroom management difficulties for teachers (Kauffman, 1993). Furthermore, Gresham, Lane, MacMillan, & Bocian (1999) found that at-risk students with internalizing problems have many negative comments in their cumulative files (e.g., is immature and is lazy and stubborn), suggesting that there social and emotional difficulties were noticed but not identified as needing referral for special intervention.

Over the past two decades, childhood depression has received increasing attention. It is estimated that 0.4% to 2.5% of children are clinically depressed (McCauley, Myers, Mitchell, Calderon, Schloredt, & Treder, 1993) and that the average duration of major depressive disorder in children and adolescents is 7 to 9 months (Birmaher et al., 1996). The reasons for a child's depression may be easily identifiable, such as, when a student's parents are undergoing a divorce, reaction to the specific stressor or academic difficulties or learning disabilities. Depression often coexists with other psychological disorders; most often anxiety disorders (Kovacs, 1996).

As with depression, children experiencing significant anxiety may be easily identified because of their demeanor (e.g., seeming nervous or hyper vigilant), or their anxiety may be less obvious. Often, children who are anxious complain of physical discomfort, such as headaches, stomachaches, or fatigue. The anxiety experienced may be related to something at school (e.g., teasing by peers at lunch or recess), may be more generalized (e.g., the child who
worries about everything), or may stem from specific issues such as learning problems or separation anxiety. Anxiety disorders are closely related to other emotional disturbances, particularly depression and low self-esteem (Rawson, 1992).

There is no consensus on what constitutes self-esteem. Some make the distinction that self-esteem is primarily based in emotions (e.g. 'I feel fat'), whereas self-concept is based more on thoughts (e.g. 'I am unlovable') (Haney & Durlak, 1998). Self-esteem is not just a global concept; it includes aspects, such as, our view of self, awareness and acknowledgment of talents, methods of dealing with our failings, and the ability to cope with how others view us. Problems can occur in a specific aspect of self-esteem. For example, a child may feel confident socially but not in academic settings, resulting in poor academic self-concept but adequate interpersonal self-concept.

Alternatively, a pervasive negative sense of self or an overall feeling of being flawed may affect all areas of child's functioning. Significantly low self esteem and poor self-concept prevent children from objectively evaluating their skills and talents, because their negative self view becomes the lens through which all information filtered. Low self-esteem can also be a major component of a vicious cycle of poor performance. Low self-esteem could contribute to anxiety, depression, behavioral problems and poor school performance.

2.5.4 Learning Difficulties and Emotional Problems, Internalizing Problems

Research has shown that certain emotional problems are more frequently encountered in those who have learning disabilities. Having a learning disability may be a 'risk factor' for the development of emotional problems (Prout, Marcal, & Marcal, 1992, p.62). Specifically, emotional problems may have resulted from attempts to cope with a learning disorder and repeated failures (Abrams, 1986; Chandler, 1994). Learning disorders may also be strongly related to emotional problems, because the core deficits that interfere with learning affect social and emotional development (Bender & Wall, 1994). Although exactly what causes the emotional problems is unclear, it is hard to dismiss the substantial research findings that many children with learning disabilities also experience a number of social, emotional, and behavioral problems.
Learning disabilities are frequently associated with psychological problems (Rutter, 1974; Willcutt & Pennington, 2000). Results of population based surveys suggest that about 30% of learning disabled children have behavioral and emotional problems (Mc Gee et al, 1984). Psychopathology worsens with age in children with non-verbal learning disabilities (Rourke, 1988). In a retrospective study at Child and Adolescent unit at national Institute of Mental health and Neurosciences, Bangalore; Muthukumar et al (1999) found that 79% of children with learning disabilities had co-morbid psychological disorders, in which 32% had internalizing disorders, 28% had externalizing disorders and 19% had other disorders.

In conclusion, LD is the most upcoming problem in India. There is a strong need to understand its implications and also to establish the standardized screening system for diagnosis. Expert penal team intervention programs should be made available in the school setting in India.

The next chapter will include the extensive research review, it will help us to understand the various research and its implications, from which the need for this present research will be clearer.