CHAPTER - I

INTRODUCTION AND REVIEW OF LITERATURE
<table>
<thead>
<tr>
<th>No.</th>
<th>Contents</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.0</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2.0</td>
<td>Terminology</td>
<td>1</td>
</tr>
<tr>
<td>1.2.1</td>
<td>Definition of persons with learning disabilities</td>
<td>3</td>
</tr>
<tr>
<td>1.2.2</td>
<td>Identification of learning disability</td>
<td>6</td>
</tr>
<tr>
<td>1.2.3</td>
<td>Cognitive functioning</td>
<td>6</td>
</tr>
<tr>
<td>1.2.4</td>
<td>Differential approaches</td>
<td>8</td>
</tr>
<tr>
<td>1.3.0</td>
<td>Specific learning disability</td>
<td>10</td>
</tr>
<tr>
<td>1.3.1</td>
<td>Reading and spelling</td>
<td>10</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Subtype Reading Disability</td>
<td>12</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Spelling Assessment and Remediation</td>
<td>13</td>
</tr>
<tr>
<td>1.3.4</td>
<td>Arithmetic Instruction</td>
<td>15</td>
</tr>
<tr>
<td>1.4.0</td>
<td>Remedial Teaching</td>
<td>16</td>
</tr>
<tr>
<td>1.4.1</td>
<td>Need for Assessment</td>
<td>17</td>
</tr>
<tr>
<td>1.5.0</td>
<td>Need for Remediation</td>
<td>17</td>
</tr>
<tr>
<td>1.5.1</td>
<td>Components of Remedial Programme</td>
<td>20</td>
</tr>
<tr>
<td>1.5.2</td>
<td>Behavioural Approaches to Remediation</td>
<td>21</td>
</tr>
<tr>
<td>1.6.0</td>
<td>Research Issues</td>
<td>24</td>
</tr>
<tr>
<td>1.7.0</td>
<td>Summary</td>
<td>25</td>
</tr>
</tbody>
</table>
1.1.0. Introduction

The origin of the field of learning disabilities has passed through three distinct phases each of which stretches over a period of time. The three phases are the foundation phase, the transitional phase and recognition phase. The foundation phase ranges from 1802 to 1946. In the foundation phase researches were carried out relating to disorders of spoken language, written language, and perceptual and motor processes. Transitional phase ranges from 1946 to 1964. In this phase interest had expanded to include concerns about any student who has apparently normal mental ability but could not learn in the normal manner as others do when taught through standard educational methods. This interest paved the way for instructions for brain-injured students, dyslexic students, and aphasic students. In the recognition phase, which ranges from 1965, to the present, the field of learning disabilities has grown in a very rapid, though sometimes – disorderly manner, and today it is the largest of the recognised sub areas of special education (Reddy, Ramar & Kusuma 2000).

The field of learning disabilities is the newest challenging sub area of the broader field of special education. The term “learning disability” describes children who have learning difficulties in specific areas such as reading, spelling, writing, and mathematics. These groups of children are differentiated from those having handicaps such as mental retardation, visual or hearing impairments and emotional behavioural disorders (Crealock & Kronick, 1993). It is only at a later date that learning disabilities were officially recognised to be different from other handicapping conditions and so there is still a great ideal of debate as to what is meant by the term learning disabilities (Friedrich, Fuller & Davis, 1984; Mercer, 1983).

1.2.0. Terminology

On April 6, 1963, Samuel Kirk addressed a gathering of parents in Chicago, at which time he first used the term learning disability (Hallahan & Cruickshank, 1973).
The term *learning disability* was formally accepted and an organization called the Association for Children with Learning Disabilities (ACLD) was started to provide services for individuals of all ages (Nakra, 1996).

Prior to 1960s, a wide variety of terms were used to refer to the entire collection of childhood learning disorders. The most commonly used terms were *minimal brain dysfunction / brain injury, dyslexia or perceptual handicap*.

The term learning disability indicates limited ability in learning. When a person is having limited ability in learning a wide variety of tasks involving different levels of intellectual functioning he / she can be considered to have general mental retardation. On the other hand if the limitation is restricted to certain areas of learning, especially language and number related areas, he/she can be considered to have learning disability. In order to differentiate the two kinds of limitations, sometimes the term “general learning disability” is suggested as an equivalent for mental retardation and the term ‘specific learning disability’ for disabilities observed only in certain areas of learning such as in reading, writing, and or arithmetic.

Dyslexia, 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. Other terms frequently used are “severe reading disability”, “primary reading disability”, “specific reading disability” and “word blindness”. In fact dyslexia has become synonymous with learning disability to such an extent that it has been suggested that dyslexia be used as an umbrella term for all learning disabilities in general (Nakra, 1996).

**Minimal brain dysfunction:** Injury to or abnormal development of the cerebrum may interfere with higher brain functions and contribute to certain behavioural deviations, language disorders, and learning disabilities in the absence of specific neurological signs of mental retardation.
When cerebral dysfunction exists and the clinical neurological examination is normal, the term “minimal brain damage” or “minimal cerebral dysfunction” is used. The language problems and learning disabilities that are related to neurological impairment are classified as neuro-psychiatric learning disorders (Clemmens, 1961).

1.2.1. Definition of Persons with learning disabilities
Learning disabilities are formally defined in many ways in many countries. However, L.D. usually contain three essential elements: a discrepancy clause, an exclusion clause, and an etiology clause. The discrepancy clause states there is a significant disparity between general mental ability, and reading, the exclusion clause states the disparity is not primarily due to intellectual, physical, emotional or environmental problems, and the etiology clause speaks of causation involving genetic, biochemical, or neurological factors. This last clause is often stated, in definitions but it is not focussed upon since it is difficult to determine etiology and usually is not part of the educational assessment or remedial program recommended for the students. The most frequent clause used in determining whether a student has a learning disability is the difference between mental ability and specific learning.

Over time, definitions have evolved through the efforts of various groups. Following are such definitions given in chronological order.
1. The following definition appeared in a textbook on exceptional children (Kass, 1978).
“A Learning disability refers to a retardation, disorder, or delayed development in one or more of the processes of speech, language, reading, spelling, writing or arithmetic resulting from a possible cerebral dysfunction and / or emotional or behavioural disturbance and not from mental retardation, sensory deprivation or cultural or instructional factors” (Kass, 1978, p.5).
2. A task force on terminology and identification of the “Child with minimal brain dysfunction” was cosponsored by the National Society for Crippled Children and Adults, Inc., and the National Institute of Neurological diseases and blindness of the National Institutes of Health in 1966. Accordingly, the term “minimal brain dysfunction syndrome” refers to children of near average, average or above average general intelligence with certain learning or behavioural disabilities ranging from mild to severe, which are associated with deviations of function of the central nervous system. These deviations may manifest themselves by various combinations of impairment in perception, conceptualization, language, memory and control of attention, impulse or motor function. "Similar symptoms may or may not complicate the problems of children with cerebral palsy, epilepsy, mental retardation, blindness or deafness" (p.5).

3. At the 1967 conference, the Association for Children with Learning Disabilities, a national parent organization adopted the following definition formulated by professionals and a group of executives of the organization. "A child with learning disabilities is one with adequate mental ability, sensory processes and emotional stability who has a limited number of specific deficits in perceptual, integrative, or expressive processes which severely impair learning efficiency. This includes children who have central nervous system dysfunction which is expressed primarily in impaired learning efficiency" (p.5).

4. The next definition comes from the United States office of Education. It includes the regulations for defining and identifying LD students under Public Law (PL) 94-142:

"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, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury,
minimal brain dysfunction, dyslexia and development aphasia. The term
does not include children who have learning problems which are primarily
the result of visual, hearing, or motor handicaps or mental retardation or
emotional disturbance or of environmental, cultural or economic
disadvantage (USOE, 1977, P. 65983).

5. The Definition of National Joint Committee for Learning Disabilities
(NJCLD)
Learning disabilities is a generic term that refers to a heterogeneous group
of disorders 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 to be due to
central nervous system dysfunction. Even though a learning disability may
occur concomitantly with other handicapping conditions (e.g., cultural
differences, insufficient / inappropriate instruction, psychogenic factors), it is
not the direct result of those conditions or influences (Hammill, Leigh, Mc

The Board of the Association for Children and Adults with Learning
Disabilities (ACALD) however, disapproved the above definition and wrote
their own:

- Specific Learning Disabilities is a chronic condition of presumed
  neurological origin, which selectively interferes with the
development, integration, and / or demonstration of verbal and / or
  non-verbal abilities.
- S.L. Ds exists as a distinct handicapping condition in the presence
  of average to superior intelligence, adequate sensory motor
  systems, and adequate learning opportunities. The condition
  varies in its manifestations and in degree of severity.
- Throughout life the condition can affect self-esteem, education,
vocation, socialization, and / or daily writing activities (Special
1.2.2. Identification of learning disability
Because learning disabilities are defined as handicaps that interfere with the mastery of basic academic skills, they cannot be formally identified until a child starts experiencing problems in school. Not only must the child be having academic problems, but also U.S. federal law states that there must be “a severe discrepancy” between a student’s intellectual ability and his or her academic achievement before the presence of a learning disability can be confirmed. While the law does not specify how severe the gap between intelligence and performance has to be, most schools will not suggest evaluation for learning disabilities unless a child is more than a year behind his or her grade level in reading, writing or mathematics.

Identifying learning disabilities involves hours of observation, interviews and one-on-one assessment. It is a time consuming, labor intensive, and costly process. Therefore, when a student starts to fall behind, schools often recommend a “wait and see” approach, trying traditional means of “extra help” for a year or two before deciding on further action. Unfortunately, the longer a learning disability remains unrecognized, frustration and embarrassment about poor performance start to eat away at the child’s motivation and self-confidence. Expectations are reduced and enthusiasm for education is lost.

1.2.3. Cognitive Functioning

1. Handling complexity
When children with learning disability or Attention Deficit Disorder are faced with a number of tasks, or with a task they feel is complex, they may become overwhelmed and give up, or become over excited, hyperactive and or misbehave. This also might occur if they are in an environment that is excessively stimulating, noisy, novel, or confusing.
2. Handling Tasks Adaptively / Flexibly
Children with LD may think there is one fixed way to say or do something in their deficit area of functioning. They do not necessarily realize or remember that there are alternatives. This contrasts with normal children, who see patterns and hence understand concepts that recognize that language, mathematics, social interactions, everyday tasks, and the navigation or use of space can be approached in countless ways. Moreover, the poorly developed sense of pattern also means an inaccurate notion of outcomes, so that children with LD rigidly cling to the narrow approaches with which they are familiar.

3. Attending to and Remembering the Differences that make a Difference / Judgement
Whenever someone has a Learning Disability, they tend not to notice and/or remember important details in that area. They may notice and remember inconsequential information, which clutters their memory with items that others would disregard. Others may lack judgement concerning what is important or where importance tends to occur so they study everything or fail to prioritize and reprioritize. This results in disorganization, inefficiency, failure to complete tasks, and feeling of being overwhelmed.

Since children with LD fail to notice some detail in their deficit area, virtually everyone with LD has an attentional problem. On the other hand children with attentional problems do not necessarily have LD. Attentional problems and/or hyperactivity also can be manifestations of an attention Deficit Hyperactivity Disorder (ADHD). Developmental Disability, Sociopathy, Immaturity, Depression, or Anxiety.

4. Thinking symbolically, Noticing patterns, Understanding concepts
Children with LD often experience difficulty in thinking symbolically in their deficit area of functioning. They fail to notice the pattern that connect knowledge, be those patterns seen in equations “8”, that division is the
opposite of multiplication, or that words consist of parts. They do not notice the pattern of a chapter in a textbook or a story so they are unaware of which types of information can be found at which juncture, and therefore which parts to skim and which to read carefully. They may not notice the typical pattern of a teacher’s instruction and so are uncertain of what follows what; they do not know when their attention wanders. Since they have this hazy sense of pattern, they do not build the anticipation that encourages people who do not have LD to persist with the task until the end.

Because their world is unpredictable, they cling to whatever is familiar, either dreading outcomes or being too casual about them. Their hazy sense of pattern and hence of pace, distribution and rhythm results in errors so they provide too little or too much information; write too little or too much, or are too active or insufficiently active.

5. Using reflection / Imagery
Children with LD may not realize that others use inner language to preplan what they are going to say or do, to critique their language and actions as they are saying and doing them, and to reflect upon what they have done after it is completed, so that their productions always are in the process of being refined. Nor do they look at the total picture before understanding a task; they may fail to analyse conditions or identify salient relationships upon which to base a hypothesis (Crealock & Kronick, 1993).

1.2.4. Differential Approaches
Several studies in the last few years have indicated that children with LD have difficulties on a number of general and or global mental activities (Stanovich, 1986). In support of this assumption, the research findings monitoring may be summarized as follows: Children with LD experience difficulty with self-regulatory mechanisms such as checking, planning, testing, revising and evaluating during an attempt to learn or solve problems (Bos & Fillip, 1982; Brown & Palinscar, 1982, 1988; Butkowsky & Willows,
Such children perform poorly on a variety of tasks that require the use of general control processes or strategies for solution (e.g., Bauer & Emhert, 1984; Dallego & Moeley, 1980; Deshler, Alley, Warner & Schumaker, 1981; Englere, Raphael, Anderson, Anthony, Fear, & Gregg, in press; Garner & Reis, 1981). Under some conditions, well designed strategy training improves performance (Borkowski, Weyhing & Carr, 1988; Duffy et al., 1986, 1987; Gelzheiser, 1984; Graham, 1985; Graves, 1986; Hallahan, Lloyd, Kosiewica, Kaufman, and Graves, 1979; Malamoth, 1979, Hasselborn & Korkel, 1986; Leon & Pepe, 1983; Torgesen, Murphy & Ivey, 1979; Short & Ryan, 1984; Wong & Jones, 1982), while at other times some general cognitive constraints prevent the effective use of control processes (Baker, Ceci & Herrmann, 1987; Shankweiler et al., 1979; Swanson, 1984b, 1987; Wong, Wong & Foth, 1977; Cooney & Swanson, 1988). However, when training of information processing components includes self-evaluation (e.g., predicting outcomes, organizing strategies, using various forms of trial and error), and attributions are related to effective strategy use (Licht, 1983; Licht, Kistner, Ozharagoz, Shapiro & Clausen, 1985; Oka & Paris, 1987; Pearl, Bryan & Herzog, 1985) sub processes are automatized (Samuels, 1987; Pellegrino & Goldman, 1987; Kolligian & Sternberg, 1987; however, Cheng, 1985), and training attempts are successful (Borkowski et al., 1988; Englert et al., in press Graves, 1986; McLoone, Scruggs & Mastropieri, & Zucker, 1986; Meichenbaum, 1982; Palinscar & Brown, 1984; Torgesen et al., 1979; Worden & Nakamura, 1983; Schumaker, Deschler, Alley, Warner & Denton, 1982; Scruggs, Mastropieri & Levin, 1987; Short & Ryan, 1984; Wong & Sawatsky, 1984). That is, learning disabilities may be the result of a unique coordination of multiple processes that include high order (as well as low order) activities rather than a specific type of processing deficiency related to a particular academic domain.
1.3.0. Specific Learning Disability

Specific learning disabilities have been recognized in some countries for much of the 20th century, in other countries only in the latter half of the century and yet not at all in other countries. Even where they have been recognized, the amount of help available varies from no service to their universal instructional provision. This unevenness in intervention services is tragic since most children with learning disabilities who receive sufficient knowledgeable remediation can proceed through the school system, and attain jobs that range from professor to labourer. Conversely, if they are not helped, the possibility of adjustment problems arising is considerable. As our world becomes more complex, the knowledge base increases and the concepts become more abstract; an increasing number of people will prone to have learning disability (Crealock & Kronick, 1993).

1.3.1. Reading and Spelling

For nearly a century, it has been recognised that some children find it nearly impossible to master academic skills such as reading and spelling. Within this group, a few children manifest no recognizable signs of mental or sensory handicaps; nor are the encumbered with impoverished home conditions that could explain their learning problems. These children manifest a unique and perplexing educational problem that eludes easy explanation and has therefore been a major challenge to educators. Since 1963, when the association of children and adults with learning disabilities was formed, this condition has come to be referred to as learning disability (LD). As an educational phenomenon, LD gained official status in 1975 when public law 94-142, the Education for All Handicapped Children Act, was passed. Under this law, a poor reader who has an intelligence score in the average or above average range but a reading score that is significantly lower than would be warranted by the intelligence score is identified as having LD. In the area of reading, LD is also referred to by terms such as dyslexia, specific reading disability, and specific reading retardation (Aaron, 1997).
Considering the fact that nearly 80% of the children in LD programs have reading disabilities, it is reasonable to expect that LD teacher to be an expert in remedial reading techniques. As the study by Pugach and Whitten (1987) indicates, the courses offered in many universities that prepare LD teachers have little to do with reading instruction. Even if prospective teachers are well trained in remedial reading instructional methods, it does not follow that poor readers with LD and those without LD have to be taught differently. In fact they are not Yesseldyke, O'Sullivan, Thurlow & Christenson (1989) investigated the methods used in teaching children with LD and children who are classified as educable but mentally retarded found that “there are few qualitative differences in the nature of reading and math instruction received by different categories of handicapped learners”.

In contrast, according to the Reading component model, methods of instruction will be determined not by the IQ scores of the child, but on the basis of the component that is responsible for the reading problem. Ideally, the teacher of children with reading problems would be a reading teacher with special training in remedial reading methods that are designed to improve skills such as phoneme awareness, decoding, vocabulary knowledge and comprehension strategies.

The theory behind the reading component model is not entirely new; others have advocated views similar to this one (e.g., Swerling & Sternberg, 1996) nor is the thought of abandoning the discrepancy model revolutionary. Allington and Mc Gill-Franzen (1990) as well as Christensen (1992) have made pleas for stopping the unnecessary labeling of children who encounter difficulties in learning to read and providing them with responsible and effective instructional programmes. As Swerling and Sternberg state the concept of learning disability belong in the history of science, not at the forefront of contemporary educational practice and research.
The component model recognizes that some children will experience difficulty in reading because of poor word recognition skills, limited vocabulary, or weak comprehension skills. Because of this, Children with LD differ from each other. Based on this observation, Children with LD can be viewed to belong to different subtypes.

1.3.2. Subtype reading disability
Recent research conducted with LD readers suggest that a number of subtypes in the LD population can be identified on the basis of how their members perform on measures of cognitive-linguistic, perceptual, and achievement skills (Doehring & Hoshko, 1977; Lyon, 1983, 1985a, 1985b; Lyon & Watson, 1981; Lyon, Rietta, Watson, Porch & Rhodes, 1981; Lyon, Stewart & Freedman, 1982; Mattis, French & Rapin, 1975; Petrauskas & Rouske, 1979; Satz & Marris, 1981). The data from these studies support a model that assumes that learning disabilities can result from several different deficiencies in information-processing skills rather than from a single unitary deficit.

The subtyping studies carried out by Doehring, Rourke, Satz & McKinney cited previously are similar in the sense that they all have identified LD subtypes by empirical statistical classification procedures and then validated the identified subtypes by demonstrating that they differed significantly from one another on diagnostic or observational measures not included in the initial cluster or factor analysis. Thus the obtained subtypes have psychometric and educational validity.

There are only one or two studies in Kannada in which subtyping of reading disability was attempted. Karanth (1985) in her paper ‘Dyslexia in a Dravidian language’ presented data from both traumatic and developmental dyslexia in Kannada and discussed the implications for current classifications of dyslexia. Between the two patients, one case was
characterised by the problem in the visual analysis with the difficulty in letter identification (visual dyslexia) and the other case was characterised by the total damage of phonological route and reading was possible only through semantic route. Based on Newcombe & Marshall's model (1981), these two cases were explained. According to this model there are five types of acquired dyslexia namely, visual dyslexia, surface dyslexia, phonological dyslexia, deep dyslexia, and global dyslexia. Among these five types, the surface dyslexia and phonological dyslexia are not possible to occur in Kannada language. However, she noted that studies on both acquired and developmental dyslexia in Indian languages have only recently begun.

Another study was carried out in Kannada by Ramaa, Miles & Lalithamma (1993) with stringent exclusion and inclusion criteria. The study was carried out with three groups: normal readers, non-dyslexic poor readers, and specific dyslexics. They were tested on both verbal and non-verbal measures including visual and auditory memory tests. The results showed that, the generally accepted classification of dyslexia such as visual-auditory (Johnson & Myklebust, 1967), dyseldetic-dysphonetic (Border, 1973) (Castles & Coltheart, 1993) might not be apt to describe dyslexics in Kannada language.

1.3.3. Spelling Assessment and Remediation
Traditionally, spelling has been measured by tasks involving dictated words written in isolation and misspelled words identified in a multiple-choice format. Although both tasks are labeled spelling, they are of course, fundamentally different. Selecting an error is best classified as an editing skill whereas spelling a single word from memory actually includes skills needed for the real task-spelling words in connected language (Bain, 1982).

The development of criterion-referenced spelling tests represents a positive direction in the field of spelling; however, multiple problems still exist. The Kottmeyer Diagnostic Spelling Tests (1959) do not provide sufficient
samples of various sounds / symbol relationships or generalizations and many basic skills are not included. The test of written spelling Larsen & Hamminill, 1976) and its shortened version, the spelling subtest on the test of written language (Hammill & Larsen, 1978), are disappointing even though they are based on adequate research. Those instruments include only few skills in a relatively unsystematized fashion.

Although the most logical terminal goal for any spelling program would be to increase a student’s ability to spell words correctly in written discourse, spelling is not formally assessed in context. Experienced clinicians recognize that LD students could limit their spelling vocabulary to high frequency words that they could spell automatically.

Surprisingly, few developmental or remedial programs has comprehensive research basis such as those developed by Venezky (1970) or Hanna, Hodges, & Hanna (1971), who presented a skeleton outline of morphological and contextual clues and phonological principles in a systematic study of language-vocabulary as well as spelling. Based on a computerized study of words most frequently used by literate adults, Hana et al., (1971) noted the importance of teaching useful spelling generalizations. A computer was programmed to spell 17,000 words using common generalizations. The computer “spelled” 50% correctly and produced only one error on an additional 37%.

Many remedial spelling programs, such as those developed by Gillingham & Stillman (1960) organize words by common phonological elements and present them in a multi-sensory format for both reading and spelling. SOS., simultaneous oral spelling, is part of a multi-sensory strategy designed for spelling (Gillingham & Stillman, 1960).
1.3.4. Arithmetic Instruction

Achievement in math is based on an understanding of computational operations. Addition and multiplication require combining; subtraction, division and basic fraction concepts involve partitioning objects. The use of concrete representations helps students to comprehend the rationale underlying computational operations. Although many young children develop these understandings intuitively before they begin formal math instruction, students with LD may need to have direct, guided experiences with concrete objects to establish a conceptual base (Garnett & Fleischner, 1987).

Although there are many possible causes of poor performance in arithmetic, inadequate teaching has been cited as one of the most significant contributing factors (Russell & Ginsburg, 1981). Carnine, Silbert, & Stein (1983) who described direct instruction techniques in math and Bloom (1976), who outlined the principles of mastery learning, attempted to provide all students with maximum opportunities to learn.

Research has shown that proper instructional techniques can produce significant improvements in academic achievement among students. Fleischner & Shepherd (1980) noted that learning mathematics may be made easier by breaking down complex tasks into manageable sub skills, teaching those skills to mastery, and then showing students how the sub skills can be combined.

Bloom (1976) proposed four requirements for success in mastery learning: developing separate units of analysis within a curriculum; pin pointing the source of difficulty and attacking it when problems occurs; allowing sufficient time to reach mastery; and establishing a clear criterion for mastery. The principles of direct instruction and mastery learning are clearly compatible. Recent studies have shown the effectiveness of math instructional plans that employed both direct instructional and mastery learning principles (Fleischner, Garnett, & Preddy, 1982; Marzola, 1985; Nuzum, 1982).
1.4.0. Remedial Teaching

Although the term "remedial teaching" is virtually self-explanatory, a few words should perhaps be given to state precisely the meaning. Remedial teaching, of course, has as one of its chief functions the remedying or removal of the effects of originally poor teaching and poor learning. It is thus concerned with the pupils who for one reason or another have learned ineffective methods of handling the tools of education. It is based upon a careful diagnosis of defects and causes and aims to correct weaknesses and to eliminate bad habits, which may be found.

In addition to this use of the term "remedial", it is also employed in a broader sense to connote teaching that is developmental in its scope. Pupils are frequently found who do not possess any particular defects or faults which need correction, but who urgently need assistance in developing increased competence in reading and the other fundamental processes. In their case it is not primarily a problem re-teaching or the remedying of deficits, but it is rather teaching for the first time those basic skills which are needed and which apparently are lacking.

By appropriate methods, reading and other fundamental processes are taught. In this sense, remedial teaching involves taking a pupil where he is and from that point leading him to greater achievement (e.g., Aaron & Boyd, 1995; Bradley & Bryant, 1985; Ball & Blachman, 1988; Lovett, Ransby & Barron, 1988; Felton, 1993; Hurford et al., 1994; Byrne & Barnsley, 1995; Torgesen, Wagner & Rashotte, 1997; Jenkins, Heliotis, Stein & Haynes, 1987; Snider, 1989; Bos & Anders, 1990; Lysynchuk, Pressley & Vye, 1990; Gajria & Salvia, 1992; and Dermod & Speaker, 1995 for a review).

In Summary, it might be said that "remedial teaching" as the term is used refers to the two following types of activities:

1. Eliminating ineffective habits and unwholesome attitudes, and re-teaching skills that have been incorrectly learned (remedying defects).
2. Teaching for the first time those habits, skills, and attitudes which have never been learned but should have been, and which are needed by pupils (developing increased competence).

Remedial teaching is thus concerned with two types of deficiencies, the presence of bad habits and the absence of good habits. It takes the pupil at his own level and by intrinsic methods of motivation leads him to increased standards of competence. It is based upon a careful diagnosis of defects and is geared to the needs and interests of pupils (Blair, 1967).

1.4.1. Need for Assessment

Learning disabilities evaluation documents a student’s academic status in considerable detail. It should be clear from the assessment, for example, how the child's achievement in reading, writing and arithmetic compares with that of other children in the same grade. The evaluation should also indicate the specific skills within these broad areas that present problems: for example, it might indicate that a child understands math concepts but has difficulty with computation because of problems remembering math facts and formulae. Assessment determines how much of the child’s academic problems has to do with a learning disability as opposed to such other factors such as use of inefficient or inappropriate learning strategies, mismatch with the teacher's instructional style or the curriculum, or failure to master class content at earlier stages or education. In most cases it is a combination of problems like these – not a learning disability alone – that is responsible for a student’s falling behind in school.

1.5.0. Need for Remediation

Metacognitive skills can be taught, but in regular classrooms they almost never are, since most children figure these skills out on their own. Instruction in these skills, however, can be provided through special instruction.
There are several characteristics of learning disabilities that can interfere with social success, including problems with verbal communication, difficulty in interpreting facial expressions or "body language", failure to understand the rules of games, and impulsive habits. Children with ADHD and children with severe visual perception have the most trouble making friends, but even children with less serious disabilities may find themselves consigned to the social sidelines. Social rejection can have an even bigger impact on children's self-esteem than academic failure.

Social confidence also affects academic success. Children with good interpersonal skills relate positively to teachers as well as to peers. However, children with leaning disabilities may need social skills training through special education. These programmes use a variety of small-group activities to teach and practice such social fundamentals as starting a conversation, responding appropriately to others, and expressing feelings. Typically these lessons are very practical and detailed.

Children with learning disabilities sometimes face a long course of intimidating obstacles once they start school: teachers who don't understand books and assignments that make no sense, peers who are cruel to anyone who is "different", and parents who blame or berate them for their failure to measure up to expectations. Prolonged feelings of anger, anxiety, or helplessness are often best addressed by professional counseling. Professional guidance may also be needed to help family members learn to deal with a child's learning and behaviour problems appropriately. If school problems seem to be overwhelming, it is important to get back in touch with that fact. On any given day, the most valuable thing can do, as a parent "expert" is to enjoy and appreciate the child as a unique human being. For most children, self-esteem depends largely on how they feel about the person they see reflected on their parents' eyes.
The type of remedial treatment to be given a pupil should depend upon the character of the diagnosis, which is made. In every case of learning disability the data, which are gathered during the diagnosis, should be weighed and utilized in the planning of the remedial programme. Because of the fact that every pupil differs in some significant respect from every other pupil it is impossible to plan in advance a set of remedial programme, which will be effective under all conditions. However some basic principles have universal application. A few of them are as follows:

1. **Begin where the pupil is:** One of the greatest mistakes made in all phases of teaching is in assuming that a pupil knows more than he does. New material or advanced work cannot successfully be introduced until the pupil has developed a readiness for it.

2. **The pupil should be frequently informed of his progress:** By means of charts, graphs, and records, the improvement that is made should be clearly shown. This procedure provides a powerful spur to learning.

3. **The work must be real and vital to the pupil:** Mere exercises, which do not relate to the basic life goals of the pupil will be ineffective. The personal needs of the pupil must be met through the activities, which are engaged in.

4. **Definite satisfaction on the part of the pupil should accompany the work:** According to Thorndike's views on learning "practice with satisfaction" accounts for rapid learning.

5. **Abundant and varied exercises and activities should be provided:** According to Thomas a desire for new experiences is basic to all human beings.
Despite the fact that specific remedial procedures cannot be given in advance of specific diagnosis, general procedures and techniques, which have been found to be successful under various circumstances, should be suggestive and helpful to the teacher with limited experience in remedial teaching.

1.5.1. Components of Remedial Programme
A remedial programme, following the pattern of the typical individualized educational plan, must contain the following information.

1. Current educational performance
2. Annual goals and short-term objectives
3. Nature of the service to be provided
4. Duration of services
5. Evaluation of progress

It is important to assess the child’s current level of functioning in both academic and non-academic areas. This information or baseline data will help in evaluating the child’s later progress. It will also help to establish the nature and severity of the learning problem, and highlight the child’s relative strengths and weaknesses and guide teaching decisions. The information can be collected using the informal assessment procedures. In addition it may be helpful to note other environmental factors that could be hindering the child’s learning: large classroom size, inter-personal relationships with teachers, peers and others, and other social-affective factors.

The educational goals should be a statement of what the child is expected to achieve by year-end. The goals should be in order of priority, sequenced according to the set of skills required in each area. For this teachers must have some knowledge about the curricula and various related skills.

A major drawback in the Indian educational system is that after diagnosing a child as having LD, little attempt is made to ensure he receives appropriate
help. Schools are not responsible for the child’s progress and there is an over dependency on tutors who usually are not trained to deal with learning disability. Hence it is especially important to make sure the Individualised Education Plan (IEP) mentions “who” will provide “what” kind of help to the child. Selecting the right kind of programme for the child will depend on several factors including the degree of the disability, the presence of any other handicapping condition and other limitations.

An Individual Educational Plan (IEP) must state when the remedial programme will start functioning and for how long the child will receive special help. This keeps both teacher and student on target and helps them to work within a realistic time frame. The remedial programme is not cast in stone and should be periodically reviewed to ensure if the instructional strategies are appropriate to the child’s level of functioning. The teacher must know how to assess that the child has really attained mastery because partial learning is of no use.

From this discussion, it becomes clear that a remedial programme needs a systematic, comprehensive approach and input from many professionals. Ultimately however it is the teacher who has to shoulder responsibility for the child’s learning (Nakra, 1996).

1.5.2. Behavioural Approaches to Remediation

Behavioural conceptualizations treat learning disabilities as forms of maladaptive behaviour. Viewed in this way, the same techniques used to modify other types of maladaptive behaviour may be applied to learning disabilities. The focus of treatment is on the dysfunctional behaviour itself rather than on deficits in attentional, neurological, perceptual-motor, psycholinguistic, or other processes believed to be responsible (Lahey, Delameter, Kupfer, & Hobbs, 1978). Second to this emphasis on direct modification is behaviour therapy's emphasis on measurement. A thorough
behavioural assessment is part of the behavioural remediation of any problem.

On a short-term basis, the behavioural approach has been successful in alleviating academic deficits in a variety of populations, including the mentally retarded (Bijou, Birnbrauer, Kidder & Tague, 1966; Brown & Perlmutter, 1971; Clark & Walberg, 1979), emotionally disturbed (Drabman, Spitalnik, & O'Leary, 1973; Hewett, Taylor, & Artuso, 1968; O'Leary & Becker, 1967), disadvantaged and underachieving (Chadwick & Day, 1971; Evans & Oswalt, 1968; Hart & Risley, 1968; Miller & Schneider, 1976; Wolf, Giles, & Hall, 1968), and normal (Harris & Sherman, 1972; Harris, Sherman, Henderson, & Harris, 1973). The lack of experimental evidence on the long-term effectiveness of the behavioural approach, however, severely limits any conclusions that can be drawn.

Two major strategies have been used in the behavioural approach to the treatment of learning disabilities. Initial studies attempted to modify behaviours that were believed to be incompatible with learning (e.g., distractibility, impulsivity, hyperactivity) in hopes that once these incompatible behaviours are eliminated, improvements in academic performances would follow (Madson, Becker & Thomas, 1968; O'Leary & Becker, 1967; Wolf et al., 1968).

The behavioural approach has shown that significant improvements in academic performance can be obtained without delaying with inferred process deficits (Lahey, 1976, 1979). This is not to say that children with LD do not have process deficits, rather that direct treatment of these inferred deficits is neither possible not necessary for academic improvements to occur.

Two studies provide examples of the kind of data that support such a position. Lahey, Busemeyer, O'Hara, & Beggs (1977) worked with four LD children with severe deficits in handwriting. The children wrote in mirror
image or could not write at all in spite of normal intelligence and several years of education. When reinforcement was made contingent upon correctly written words, dramatic changes occurred in handwriting. If it is reasonable to assume that these children had severe deficits in the underlying process of perceptual-motor integration, then we must also assume that reinforced practice remediated both the academic behaviour and the underlying perceptual-motor deficit. However, it is not necessary to add inferred process variables to a conceptualization of learning disabilities, but simply to focus on overt academic deficits.

A study of reading comprehension by Lahey, Mc Nees, & Brown (1973) illustrated that it is not necessary to remediate process deficits to modify academic behaviour. The subjects were two sixth-grade children who showed major discrepancies between their oral reading (both at a 6.5 grade level) and reading comprehension (both at a 4.5 grade level). During the first baseline phase, the subjects answered 65% to 85% of the questions correctly. When reinforcement (social praise and money) was provided, correct responses rose immediately to 80% to 100%. The percentage of correct answers dropped during the second baseline, when reinforcers were removed but increased to at or above 90% correct when the treatment phase was reinstated. In fact, the subjects' accuracy rate rose to grade level as soon as the treatment periods began. These findings illustrate the significant short-term effects that appropriate reinforcement procedures can have on a complex cognitive / academic skill without treating underlying process deficits.

In addition to handwriting and reading comprehension, direct behavioural intervention has been successful with a variety of academic targets including letter identification (Stormer, 1975, 1977), sight word vocabulary (Lahey & Drabman, 1974), arithmetic (Broughton & Lahey, 1978; Kirby & Shields, 1972; Lovitt & Smith, 1974; Smith, Lovitt, & Kidder, 1972), and oral reading (Ryback & Staats, 1970; Staats & Butterfield, 1965).
1.6.0. Research Issues

The literature on learning disabilities is filled with descriptions of particular programmes and treatments. Many claim success, although the evidence in support is often limited in power and lacking in generalization. While many approaches claim some success, the relative success of programmes is unknown. There are a few reported efforts to compare programme effectiveness to test competing hypotheses about diagnosis and treatment. This question is of interest from a theoretical perspective, as comparative analyses may shed light on the nature of various sub conditions subsumed by learning disabilities. The issue is important on a practical level given the extensive human and financial resources, which go into clinical decision-making and treatment. There is an incredible array of diagnostic techniques and treatment programmes designed to remediate learning disabilities. Yet, we are uncertain if the time and cost of particular approaches lead to more insightful diagnosis and more powerful remediation than other simpler and less details efforts. As an example, it is reasonable to ask if strategy-training programmes are more efficacious than applied behavioural techniques, if vision training is more effective than direct remedial instruction. Clinical experience suggests that almost any treatment or intervention has an effect and that some intervention is better than no intervention. However, global and unspecified effectiveness is not enough, from both theoretical and applied perspectives. The relative effectiveness of competing programmes requires test.

Finally, there is increasing consensus that learning disabilities are expressed across a wide age range, and that problems are not limited to school age alone. There is, however, little longitudinal evidence to document the developmental course of learning problems, and the mechanisms and dynamics, which influence their expression, are unspecified. Unraveling the developmental issues will necessitate consideration of both individual and contextual variables, and will also require the test of models from different disciplines (Keogh, B.K. 1990).
1.7.0. Summary

We have reviewed the existing, relevant literature on three aspects, firstly, specific learning disabilities, secondly remedial teaching practice, and thirdly, behavioural approaches.

With regard to the learning disabilities the controversies related to definition and etiology are reviewed. In order to get a comprehensive picture of learning disabilities and remedial teaching methods we have reviewed mainly under the headings of cognitive functioning, specific learning disability, and reading and spelling, differential approaches, spelling assessment and remediation, arithmetic instruction and behavioural approaches.

With regard to behavioural approaches we have reviewed conceptualizations, traditional approaches, techniques and strategies used to alleviate academic deficits and maladaptive behaviour.

With regard to remediation and its practice we have reviewed remedial teaching practice and methodologies, specific nature of remedial treatment and diagnosis, remedial components and their evaluation. This was followed by the issues related to the nature, identification and remediation of specific learning disabilities.