CHAPTER – II

2.1. Introduction

It is obligatory on the part of any new researcher to review the earlier studies conducted in that area and related areas. It previews the plausible dimensional outlook of the investigator in that research field. It helps to explore various implications and replications connected with the research work and the justifiability of the research. As a competent physician must keep abreast of the latest discoveries in the field of medicine, the research worker and investigator should become familiar with the location and sources of educational information. Study of related literatures implies locating; reading and evaluating reports of researches as well as reports of casual observations and opinions that are related to the investigator’s planned research project.

Related literature includes theoretic discussions, reviews of the status of knowledge by authorities, philosophical papers, description and evaluation of current practices and empirical researches. Review of related researches is indispensable to get a clear-cut perspective of the problem.

REVIEW OF RELATED LITERATURE
In the words of Walter R. Borg (1965) the literature in any field forms the foundation upon which all future work will be built. Scanning of relevant research reports guides the researchers in the right direction, highlighting the pitfalls of the earlier studies showing him the landmarks achieved. Also, a synthesised collection of previous studies helps the researcher to identify the significant overlaps and gaps among the prior ones. The investigator can probe into the neglected areas that need more concentration. Further, the review of related research enables the investigator to get to the frontier in the field of his problem. Until the investigator has learnt what others have done and what still remains to be done in his area, he cannot develop a research project that will contribute to furthering knowledge in his field. It makes the researcher aware of the research possibilities that have been overlooked. His focus on these areas may pave the way to break new grounds and come out successful with new theories and principles, which may be of permanent value in the field of teaching and learning.

This chapter contains the review of related studies with regard to prevalence of learning difficulties in students, specific studies on learning difficulties in reading, writing, spelling and arithmetic, studies on characteristics of students with learning difficulties, studies on factors associated with learning difficulties, awareness and attitude of teachers towards children with learning difficulties. Such a review will help the researcher to possess in-depth knowledge on the nature of the problem and the type of variables the researcher has to deal.

Many studies have been conducted on different aspects of special education in foreign context. As this field is new in India and gaining momentum recently, there are only a few studies available in Indian context. The available studies in foreign as well as Indian contexts have been presented under the following headings:

- Studies on the prevalence of learning difficulties in students
- Specific studies on learning difficulties in reading, writing, spelling and arithmetic
Studies on characteristics of students with learning difficulties
Studies on factors associated with learning difficulties
Studies on the awareness and attitude of teachers towards learning difficulties in students.
An overview of research reviewed.

2.2. Studies on the Prevalence of Learning Difficulties in Students

The literature, at hand, throws light on the fact that many studies have been conducted on learning difficulties abroad. On the Indian screen, the studies on learning difficulties are negligible and meagre. This field is an upcoming field in the Indian educational scenario.

Numerous studies have been conducted on different aspects of learning difficulties. Some of the studies on prevalence of learning difficulties in students are presented here under for review.

Adolph Kussmaul (1877) reported the case of an adult patient with no apparent disabilities other than a severe reading deficit. He asserted that “a complete text-blindness may exist, although the power of sight, the intellect, and the powers of speech are intact.” In emphasizing the specificity of the reading problems, in isolation from other types of potential problems, Kussmaul gave birth to the idea of specific reading disability. Kussmaul labelled the condition as word-blindness.

Ann (1993) studied the effects of discrepancy models and eligibility decisions on student selection in the diagnosis of learning difficulties. The purpose of the study was to examine the criteria for diagnosis and the means by which they are operationalized. A second major objective of the study involved comparing the IEPC'S eligibility decisions against the severe discrepancy criterion. The result indicated an increase in numbers when a regression method was used over a simple difference score method. When the same, however, included moving to more severe cut off score the pattern reversed and a 20 percent decrease was observed. When regression method was
employed over a simple difference score method for correlating IQ with discrepancies, no correlation was observed. Neither method resulted in disproportionate racial representation among those meeting the severe discrepancy criterion (ii) an agreement rate of 15 percent suggests a greater reliance on the severe discrepancy criterion than previous reported agreement as the same regardless of the method used.

Badian (1984), Jorm et. al., (1986) state that dyslexia is common with around 5 percent incidence regularly identified in the Western countries. Border (1971) found that there are three groups of dyslexics. 9 percent dyslexics have visual problems which are called dyseidefic, 63 percent of dyslexics have auditory and linguistic problems which are called dysphonetic, and the remaining is a mixed group.

Butler (1996) studied the effect of positive self-talk training on perceptions of self-efficacy in students with specific learning disabilities. The purpose of this study was to determine the effects of positive self-talk training on the perceptions of self-efficacy in students with specific learning disabilities. Analysis of these data revealed a statistically significant difference in the pre-test and post-test scores for the sub-scale social. No significant differences were found in the pre-test, post-test scores for the sub-scales self-image and academic.

Catherine V. Morsink (1983) initially opined the incidence and prevalence was about 2 percent. Similarly, Crisfield (1996) estimated that as much as 10 percent of the population may have mild developmental dyslexia and 4 percent severe dyslexia. American Psychiatric Association (1994) estimated approximately 3 percent of the school population should be regarded as specifically learning disabled (Frost and Emery, 1996). Gibson and Levin (1975) reported that at least 15 percent of American school children have reading difficulties.
Hartley (1995) in her data, ‘on the proportion of children with communication disorders presenting to Community Development Assistants (CDAs) in Eastern Uganda and the implications of this on service delivery in less developed countries’, suggested that there may be as many as 98.8 million people with speech and language difficulties in less developed countries of the world. Helander (1993) in his article on ‘Introduction to Community Based Rehabilitations’, estimated that there may be 200 million disabled people in less developed countries.

Hinshelwood (1917) highlighted the potentially inherited aspect of reading disability. He also addressed the issue of diagnosis and prevalence of word-blindness, foretelling current-day debates. He postulated that the primary disability of the children had been in visual memory for words and letters. Thus, his educational recommendations, although not very specific, dealt with training children to increase their visual memory for words. Furthermore, he was a strong advocate for intensive, individualized one-on-one instruction: “It is not possible to teach such children in ordinary elementary schools… The first condition of successful instruction in such cases… is that the child must have personal instruction and be taught alone”.

Hughes (1994) made a comparison of special education placement patterns relating to the racial membership of students identified as mildly mentally retarded and specific learning-disabled. The purpose of this study was to examine criteria that were used in the determination of eligibility for students identified as mildly mentally retarded and specific learning disabled.

Results indicated that there was higher percentage of African-American students referred for special education assessment in the sample than Caucasian students when compared to total general population. Further, the findings revealed that African-American students were disproportionately over represented in classes for students identified as mildly mentally retarded and under represented
in programmes for students identified as learning disabled. Level of
the assessor training was also found to influence the identification of
the students.

Johnson et. al., (1956) and American Speech and Hearing
Association Committee (1952) estimates indicated that from less than
½ percent to more than 1 percent of children may have difficulties in
vocalization.

Kirk and Elkins (1975) in their ‘Survey on characteristics of
children enrolled in the 24 federally funded Child Service
Demonstration Centres’ reported that reading difficulty was the primary
focus for two thirds of 3000 learning disabled students. Koppitz (1971)
reported a five year follow up study of 177 learning disabled children in
which only 24 percent were found to be in regular classes; the majority
of children continued to have serious academic and behavioural
problems. Her findings were consistent in grade school and were
seriously deficient in basic skills at age 14.

Mark Selikowitz (1993) observed that a study made in 1968 on
‘Children with specific learning difficulties’ found that 14 percent in
research scientists, 13 percent in business executives, 11 percent in
university lecturers, 7 percent in school teachers, 7 percent in lawyers
and 7 percent in owners of a business are learning disabled. All these
people have come from families where one of the parents is a
professional. And there is some evidence that certain specific learning
difficulties are less common in some countries. This may be due to
differences in the way data are collected, or it may reflect genetic
differences. It may also be due to differences in education system. For
example, the low-stated prevalence of specific reading difficulty in
Japan may be related to the nature of Japanese writing system which
does not require the same degree of phonological skills as for
example, in English. McGee and Share (1988) in their Dunedin
epidemiological study found that about 80 percent of 11 year olds,
identified as attention deficit hyperactive disorder, had dyslexia.
MacMieKen (1939) in his survey on 383 children in Scotland found that the reading performance of children lagged behind their intelligence level. Money (1962) stated that students could not be said to have a learning difficulty unless they had at least been exposed to conventional instruction.

Orton (1925), a neuropathologist set up a 2-week, mobile clinic in Greene County, Iowa. As a part of this “experiment,” local teachers were invited to refer students “who were considered defective or who were retarded or failing in their school work”. Fourteen of the 88 students were referred primarily because they had great difficulty in learning to read. Orton highlighted the fact that many of these students scored in the near-average, average, or above-average range on the Stanford-Binet IQ test—one had an IQ of 122, four had IQs between 100 and 110, five had IQs between 90 and 100, one had an IQ of 85, and four had IQs between 70 and 80.

The Quirk Report (1972) in ‘Speech Therapy Services’ concluded that 3 percent children in ordinary schools suffered from speech disorders, though only 2 percent required a speech therapist. However, it was thought that nearly 3 percent of pre-school children required speech therapy, which again emphasises the need for early intervention. In London, 3,00,000 children and adults were in need of speech therapy services excluding partially hearing and autistic children. There had been a vast increase in speech therapy services following the Quirk Report.

Rod Nicolson and Angela Fawcett (1995) carried out a research in which 23 dyslexics and suitably matched controls, all aged between 12 and 13 years, were given a variety of tasks involving balancing on a beam. There was, not surprisingly, no difference between the two groups, when further tasks were superimposed, however, for instance counting backwards or pressing the left of two buttons if a high tone sounded and the right, if a low tone sounded, the dyslexics balancing performance was impaired. Rutter, Tizard and Whitmore (1970) in their
well known study found 0.8 children per thousand with severe language problems at school age and this endorses many studies which give a figure of approximately one per thousand of school age children with severe speech language difficulties.

Silberberg and Silberberg (1977), Erb and Mercer (1979), Mercer and Mercer (1979) indicated that students with reading difficulties represent the largest subgroup in the learning difficulties category. Likewise, Tucker, Stevens and Ysseldyke (1982) indicated that the prevalence of learning difficulties may be between 9 percent and 70 percent. By 1982-83, the number of children, ages 3 to 21 classified as learning disabled and served under PL-89-313 and PL-94-142 was 1745891 (US Department of Education, 1980). These figures indicate that the prevalence and the number and percent of students classified and labelled as learning disabled has risen. Tucker in 1980 itself stated that, in one State, the percentage of special education students classified as learning disabled rose to almost 44 percent between 1970-77. Tucker opines that the increase in number of students classified as learning disabled is felt to be the result of at least two factors. One – the schools have made an effort to provide services for the larger number of students who are experiencing academic difficulties. Secondly, there is a need to avoid misplacing minority students in classes for the mentally retarded.

Studies reviewed above bring out the Prevalence of learning difficulties in students (Badian, 1984; Jorm et.al., 1986; Butler, 1996; Catherine V. Morsink, 1983; Harris, 2002; Hartley, 1995; Hinshelwood, 1917; Johnson et. al., 1956; Mark Selikowitz, 1993; Rod Nicolson and Angela Fawcett, 1995; Silberberg and Silberberg, 1977; Erb and Mercer, 1979; Mercer and Mercer, 1979) which clearly indicate that almost all the studies were made in western countries, whereas a very few studies have been carried out in Indian context. It is understood from the above studies that systematic and scientific attempt has not been made to estimate the prevalence of learning difficulties in India.
2.3. Specific Studies on Learning Difficulties in Reading, Writing, Spelling and Arithmetic

A good number of studies have been conducted on specific learning difficulties such as reading, writing, spelling and arithmetic and such specific studies are presented here under each heading.

2.3.1. Studies on Learning Difficulties in Reading

Several studies have been conducted on reading difficulties in children. Some of the studies are reviewed below.

Ann (1993) attempted programme evaluation involving the effectiveness of an alternative instructional approach for mildly disabled students. The purpose of this project was to evaluate a programme involving the effectiveness of an alternative instructional approach utilized with mildly disabled students at the elementary grade level. The purpose of the program was to assist students in the learning process within the regular classroom setting, rather than pulling them from the setting for instruction.

In an effort to determine the effectiveness of the programme, an evaluation involving observations, rating scale, interviews and data gathering from participants was conducted. The data collected was used to determine if the alternative instructional approach effectively met the educational, social and emotional needs of the mildly disabled students as outlined in the students individual education plans.

Anne Lewis (1989) records non-handicapped six year old talking to classmates with severe learning difficulty. The six-year-olds repeatedly modified instructions to the children with severe learning disabilities and seemed to be trying to work out the elements that the children with specific learning difficulties could not understand. The non-handicapped children had not previously met children with specific learning difficulties but by listening to what they said, observing their non-verbal behaviour and trying to interpret causes of non-responses,
the non-handicapped children had to think through the best ways of re- phrasing speech to children with specific learning difficulty. This activity is a more useful basis for developing 'Oracy' than language exercises.

Ashum Gupta and Anju Garg (1995) made a study aimed to examine and compare the reading, spelling and writing skills of the dyslexics children with the chronologically matched control group. Their findings indicated that dyslexics children were significantly poorer than normal children on reading skills. This is due to the fact that unlike normal readers, dyslexics had difficulty in applying grapheme – phoneme correspondences, particularly in being able to decode unfamiliar words. While the normal children with increasing grade level improved their performance, dyslexics continued to perform at the earlier grade levels showing no improvement with increasing chronological age. Since they lack word-decoding skills, it is possible to train word segmentation skills to these children from their early age. Analysis of nature of errors indicated that the dyslexic children committed a variety of different types of errors, some of which were phonetic and some non-phonetic. Also, they made errors of reversal, mirror writing, omission of letters, etc, on tests of reading and spelling.

Beech (1992) reported that at least two children in every mainstream class are experiencing marked difficulty with some aspect of communication. Carrol and Chall (1975) and Goldberg, Schiffman (1972) estimated that the number of children with inadequate reading skills is significantly higher in cities than in other areas of the country.

Boden C, Brodeur D. (1999) investigated whether a group of children with reading disabilities (RD) were slower at processing visual information in general (compared to a group of children of comparable age and a group of children of comparable reading level), or whether their deficit was specific to the written word. Computerized backward masking and temporal integration tasks were used to assess the speed of visual information processing. Stimulus complexity (simple,
complex) and type (verbal, nonverbal) were varied. Adolescents with RD demonstrated difficulties in processing rapidly presented verbal and nonverbal visual stimuli, although the effect was magnified when they were processing verbal stimuli. The results of this study suggest that some youth with reading difficulties have visual temporal processing deficits that compound difficulties in processing verbal information during reading.

Charles Hulme and Margaret Snowling (1997) in their book ‘dyslexic: Biology, Cognition and Intervention’ made a number of orthographic comparisons. They found that German speaking dyslexics do not make word or non-word reading errors. They can rely on a very consistent orthography to achieve correct pronunciations. In German, the critical test is the time taken to decode a word or non-word. This time is significantly slower in the case of dyslexics. German speaking dyslexics have just as much difficulty with a phoneme manipulation task as English speaking dyslexics.

Clark (1970) in his study of children of normal intelligence who are severely backward in reading, found that twelve had showed poor auditory discrimination and ten had associated speech difficulties. Clark also stated that in his work those children who had speech and articulation difficulties beyond the age of seven or eight years also had problems with the discrimination of speech sounds (auditory discrimination). This was reflected in poor reading. In his research, children who had a specific reading disability were compared with a group of average readers. In this sample, the correlation between speech errors (errors of articulation) and errors in auditory discrimination was 0.69. Auditory discrimination problems can occur in children who hear normally. None of the children in this study had apparent hearing problems.

Frost and Emery’s (1996) research confirmed that classification in learning to read are more likely to be related to problems with phonological awareness than the problems with visual perception.
Students with hearing loss, and others with a specific learning difficulty, which involves weakness in auditory processing, are obviously most at risk since their ability to access the phonemic aspects of the language around them is impaired.

Harris (2002) conducted a study on learning-related visual problems in Baltimore City. A longitudinal, single-masked, random sample study of children at a Baltimore city public elementary school documents the prevalence of learning-related visual problems in the inner city of Baltimore and tests the effectiveness of vision therapy. Vision therapy was provided to one of the randomly selected groups and data were collected on optometric tests, visual performance tests, and standardized achievement tests before and after treatment was provided. Data presented show that the vision therapy programme made a significant difference in the demand level of reading that could be read for understanding, in math achievement on standardized testing, and in reading scores on standardized testing, as well as on infrared eye-movement Visagraph recordings, which showed significant changes on nearly all mechanical aspects of the reading process.

Nagaraja et al., (1996) conducted a study on speech reading abilities in different groups of hearing impaired (HI) children. This study evaluated the speech reading abilities of 60 hearing impaired children. Of them, 30 subjects belonged to oral group and 30 subjects to total communication group. As there were no standardized test for speech reading available, a test comprising of 10 word items and sentences hierarchically increasing in complexity was developed and used for the study. The influence of age, sex, hearing-aid usage, parental income and education on speech reading ability within oral, aural and total communication groups and between groups were also studied. The study indicated that oral aural group as a whole performed better than total communication group both for word and sentence level speech reading tasks. Their study further indicated that
hearing-aid users performed better on speech reading than hearing aid non-users. Female subjects of oral aural group did better on sentence level speech reading task than word level task. There seemed to be no significant difference in performance between different age children within oral aural and total communication groups. However, between the groups and within the same age, oral aural hearing impaired children performed better than total communication group children. Between grades and within a group there were not much of differences observed in speech reading. However, between grades of oral aural and total communication groups, oral aural hearing impaired performed better than total communication children on speech reading.

Simons H, Grisham (1987) reviewed and evaluated the research literature on the relationship of binocular anomalies to reading problems. The weight of the evidence supports a positive relationship between certain binocular anomalies and reading problems. The evidence is positive for exophoria at near, fusional vergence reserves, aniseikonia, anisometropia, convergence insufficiency, and fixation disparity. There is some weak positive evidence for esophoria at near and mixed evidence on lateral phorias at distance is negative.

Studies reviewed above showed that learning difficulties in reading among students are due to binocular anomalies, hearing impaired, dyslexia etc. Studies also point out to concentrate on the strategies for improving the reading ability.

2.3.2. Studies on Learning Difficulties in Writing

A few studies are reported on writing difficulties and they are enumerated here.

Ellis (1982) stated that children with writing problems or developmental dysgraphia are rarely different from normal children and adults who also have ‘sloips of the pen’. Their problems were only perhaps more severe but not different in kind. He classified the various types of writing errors.

1. Reversals (eg.) good for gods.
2. Orientation errors (eg) bogs for dogs (this occurs with letters p, q; n, m; a, o; r, v; h, k; d, b)

3. Contaminations – the fusion of two adjacent letters which is seen in adults when writing quickly and so evenly (eg) for ‘ing’, for from.

4. Other forms of contractions, eg. Kiten for kitten, television for television.

5. Preservations eg. ‘bananana’ for banana.

The dyslexia child fails to break through the alphabetic phase because of range of phonological deficits. Children in this early ‘logographic’ phase make visual reading errors because they remember words according to features like first letters (‘wish’ for ‘water’) or word length (‘gentleman’ for grandmother). At this stage child has no strategies for deciphering unfamiliar printed words (other than visual approximation to known words) and spelling is rudimentary, perhaps restricted to a few wrote words (Frith, 1985; Seymoyur and Elder, 1986).

Giordano (1983) noted that there is a considerable overlap between speech and writing. Johnson and Myklebust (1967) and Kephart (1971) pointed out that if the child’s disability is very severe, he may need to engage in a variety of pre-writing activities. These activities involve the integration of visual, auditory and Kinaesthetic and tactile senses.

Johnson and Myklebust (1967) focused on two types of expressive language problems relevant to children with learning disabilities: reauditorization deficits, or problems in word retrieval, and syntax deficits. For reauditorization deficits they suggested such things as rapid naming drills using real words. For problems with syntax, rather than teaching grammatical rules, they provided ‘a series of sentences auditorially, sufficiently structured with experience so the child will retain and internalize various sentence plans’.
Lerner (1993), Newcomer and Barebaum (1991) reported that individuals with speech and language disorders experience a similar difficulty with written communication. Common communication related problems are poor handwriting, spelling, organizational skills, productivity and quality of writing. Difficulty with literary skills is a hallmark of learning disabilities. Reading and Writing are the most typical targets of technological inventions for persons with disability.

In Peters (1970) research with nearly 1000 children swift and well formed handwriting was one of the three most correlated factors for success in spelling; the other factors being verbal ability and visual perception of word form.

2.3.3. Studies on Learning Difficulties in Spelling

The studies on learning difficulties in spelling are listed out under this subhead.

Andriana Kasriks (1993) on ‘Diagnosis of Developmental dyslexia in Greeks’ carried out a few experiments to find out whether there is evidence for dyslexia in Greek. This enquiry involved the testing of children on a Greek version of Banger dyslexia Test. This comprised comparisons between a test group, controls matched for chronological age and controls matched for spelling age. Detailed examination of the results of the spelling test support to the idea that all or most of the poor spellers in the test group are dyslexic in the required sense, since difficulty in learning, sound-symbol associations is agreed to be a common characteristic of dyslexia. It can be claimed that not only dyslexia exist in Greece but that a Greek version of Banger Test differentiates dyslexia both from age matched controls and from younger children matched for spelling age.

Border’s (1973) study reveal that there are two main types of reading/spelling disabled children. The first type, the dyslexic has a visual problem and attempts to write words phonetically. So he or she might write ‘stah’ for ‘star’, ‘hows’ for ‘house’, ‘muthor’ for ‘mother’. The
second type, the dysphonetic dyslexic makes errors, which are similar to the original word visually, but bear no phonetic resemblance (e.g. class for star, ‘loose’ for ‘house’, ‘wutter’ for ‘mother’). The first type, the dyslexic is obviously attempting to use the phoneme-grapheme conversion route whereas, the second type, the dysphonetic dyslexic is attempting to use the lexical route. Bruck and Waters (1988) found that poor spellers had difficulty with phonological aspects of spelling, in particular, converting sounds into positionally appropriate graphemes.

Bradley (1983) advocated in his study the remedial technique of simultaneous oral spelling. The technique is broadly similar to Gillingham and Stillman’s (1956) method but Bradley used words for the children’s own vocabularies, whereas Gillingham and Stillman advocate lengthy particular sounds in sequence. The method can be described in five steps:

i) The student proposes the word he wants to learn.

ii) The word is written correctly for him (or made with plastic letters).

iii) The student names the word.

iv) He then writes the word himself, saying the alphabetic name of each letter of the word as it is written (copy)

v) He names the word again and checks that it is written correctly.

This sequence is repeated 2 or 5 times more with the student covering or disregarding the structure word as soon as he feels he can do without it. The procedure takes about 30 seconds per word and uses visual, auditory, and kinaesthetic senses.

Bryant and Bradley (1983) reported that children use both the systems grapheme phoneme conversion route and lexical route in learning spelling but they may not recognize when it is appropriate to use them. They quote the case of Tony, an eleven year old boy who is at the 8 year old levels as regards reading and spelling, though he is
good at Mathematics. He is capable of using the phoneme-grapheme conversion route in spelling as he can write out nonsense words such as ‘pring’ ‘blim’ etcetera. He is also capable of using the visual route by writing irregularly spelt words correctly (e.g. ‘Shepherd’, ‘trouser’) one anomaly was that he could write ‘went’ and ‘down’, but not ‘beat’ (spelt ‘bedet’) and ‘frown’ (spelt ‘fran’). This is due to his using the visual route when writing them. They conclude that failure to use his memory to make the word ‘bent’ was due to his not recognizing that there was a chance to use his existing ‘phonological skills’. So, one can recognize that a child’s spelling difficulty may occur because of inability to use either of the routes available or a failure to recognize the different routes that can be used.

Bryant and Bradely (1985) concluded that the use of plastic letters forms an essential aid to assist children to categorize and identify sounds. These writers said that the use of groups of letters, arranged to spell simple words in front of the child, allows for the removal of a particular letter while still leaving the rest of the word visually intact. The child can then substitute other letter to make new words, and in doing so, develop valuable insight into word structure and sound symbol relationships.

Nelson and Warrington (1974) found two types of spelling-disabled children in their study. Those who have a reading and spelling difficulty combined and those who have only a spelling difficulty. Children with a spelling problem alone tend to have difficulty in visualizing the word. In this case the visual lexicon was a problem area and usually the errors made were phonetically accurate (e.g. the child might spell yacht as yot) children with a reading and spelling difficulty tend to have an underlying language problem and made both visual and phonological errors.

Noel (1986) showed learning disabled students have limited ability in oral communications involving labelling and verbal descriptions. Seymour and MacGregor (1984) reported that spelling deficits in dyslexic may be due to a basic difficulty with visual
processing, while some may have underlying visual deficits, other may rely so heavily upon context during reading that they do not attend in detail to orthographic structure.

Snooboda (1990) demonstrated that though visual imagery seems unlikely to be at the root of good spellers’ success, it is a task development. Denckla and Rudel (1976) reported that word finding difficulties are frequently reported in English dyslexic children but that have not been reported in dyslexic children from other countries.

Studies reviewed above show that learning difficulties in spelling are highly due to heredity, chronological, dyslexia, phobia and biological problems.

**2.3.4. Studies on Learning Difficulties in Arithmetic**

The studies conducted on learning difficulties in arithmetic are appended under this subhead.

Bhattacharya (1986) investigated into the learning difficulties developed by secondary school students in Algebra. The major findings of the study were (i) to conduct a survey of the learning disabilities developed by the beginners reading in secondary schools under the West Bengal Board of Secondary Education in linear equations, (ii) to conduct a scientific experiment on the effectiveness of two mathematical methods for prevention of learning disabilities usually developed by the beginners in linear equation sums in one unknown in Algebra and (iii) to provide a satisfactory mathematical method for beginners for solution of linear equations from the results of the experiments. The findings reveal that

1) Students develop more learning difficulties in the understanding of linear equation sums to one unknown than the knowledge of solving sums.

2) Students develop more learning difficulties in the application of linear equation sums in one unknown than in the knowledge of solving such sums.
3) The simplified method is more effective than the method of transposition for the development of knowledge of students in solving linear equation sums in one unknown.

4) The simplified method is more effective than the method of transposition for the development of applicational ability of students in linear equation sums in one unknown.

Blankenship (1978) conducted a study on intermediate age L.D youngsters performing problems in subtraction. She examined how the D & PM treatment affected the initial acquisition of pupils and the extent to which they have generalized effects and retained them. The data showed positive initial effects for all pupils, the extent of generalization varied; some pupils generalized to more complex problems, but others did not.

Cockcroft (1982) pointed out the fact that low attainment in mathematics can occur in children whose general ability is not low, but the reasons given for such retardation were ‘inappropriate teaching, lack of confidence, lack of opportunity, frequent or prolonged illness and poor reading skills.

The DES report (1978) on mathematical attainment in 11 year old, found that 9:69 obtained scores of 14 or less on test, where the average score was 28. The study indicated that 10 percent to 15 percent of 11 year olds had difficulty with counting and adding accurately when using groups of tens and units.

Dutta (1986) studied the learning disabilities in the reasoning power of the students in geometry. The main objectives of the study were (i) to diagnose the major patterns of disabilities in a specific area of geometry with the help of tools especially developed for the purpose (ii) to try out experimental teaching methods which would prevent developments of learning disabilities in the area under study.

Some of the findings were (1) 33 major patterns of disabilities were identified (2) The experimental groups taught by audio visual
materials and the techniques achieved significantly more than the controlled groups taught by conventional methods.

Englert, Culatta, and Horn (1987) investigated the problem solving performance of LD students and their peers. Both sets of pupils were given a number of addition word problems with irrelevant linguistic and numerical information embedded within them. Data indicated that the regular class students revealed greater accuracy and speed in solving the problems than did their LD peers. Analysis also supported the conclusion that LD students experienced greater difficulties than did non-LD students in solving problems containing irrelevant numbers.

Joffe (1980) found that 61 percent of dyslexic children (children with specific learning difficulties) had not achieved in arithmetic at a level commensurate with their chronological age, despite average or above average intelligence.

Kolar (1995) studied the effects of assessment modification on the classroom testing performance of students with learning difficulties. The purpose of this study was to investigate the effects of assessment modifications on the classroom math testing performance of students with learning difficulties. The results indicated that the mathematical knowledge of the subject was more accurately reflected on paper-pencil measures when the tests were constructed and administered utilizing accommodations which were matched to student strengths and weaknesses.

Lecyn (1996) studied the career-related self-appraisal skills of adolescents with learning difficulties and their relationship to mainstreaming (High School, verbal reasoning numerical reasoning). The purpose of the study was to compare forty-eight high school seniors: 24 with learning difficulties and 24 without learning difficulties in terms of their self-appraisal skills for two career-related abilities, verbal reasoning and numerical reasoning abilities.
A discriminate function analysis indicated that there was no significant difference between the two groups of students with regard to their self-appraisal skills for verbal and numerical reasoning. It revealed that these students compared themselves to students without learning difficulties for verbal reasoning ability and to students with learning difficulties for numerical reasoning abilities.

Luria (1980) stated in ‘Higher Cartical function in Man’ that spatial dysfunctioning is associated with the parieto occupational regions of the brain, which results in numerical confusion, and an inability to discriminate notational signs and symbols (T, X =). These types of problems are termed primary arithmetical disturbance or primary dyscalculia. Dysfunctions associated within the left temporal lobe are characterized by difficulties with complex operation involving a sequence of steps, or mental or oral calculation or reasoning. These disorders are termed as secondary arithmetical disturbance.

Madden, Gardner, Rudman, Karlsen and Merwin (1973) in their research on ‘Stanford Achievement test’ found that 6.4 percent of school children have disabilities in Mathematics. Only 3.7 percent of children have difficulty in Mathematics alone and the remaining 2.7 percent of children have difficulty in both Mathematics and reading.

Miles (1983) conducted a study on dyslexic children aged 7 to 18 years and found that many of them were inaccurate on items such as subtraction, knowledge of tables and recitation of months of the year. Out of 80 children in the 9 to 12 year old age group 58 percent scored significantly more errors in subtraction. 96 percent scored significantly more errors in reciting the months of the year than average readers.

Periocola (1997) studied how students with learning difficulties progress in a constructivist classroom. The purpose of the study was to investigate the Mathematics teaching and learning in a third grade constructivist classroom that included a heterogeneous group of students.
Specific strengths discussed in the conclusions are students willingness to take risks and their level of involvement, weaknesses are indicated in the area of instructional grouping, assessment techniques, and teacher support.

Reddy, Ramar and Kusuma (2001) enumerated the problems encountered by the learning disabled children in learning Mathematics. In their book, they have provided suggestions to circumvent those specific deficiencies. All the specific deficiencies related to Mathematics learning are highlighted and appropriate intervention strategies are also provided for the guidance of the teachers.

Shen (1992) attempted the use of selected mastery learning techniques on Mathematics performance in non-disabled, learning disabled and educable mentally retarded children (mentally retarded). The purpose of the study was to improve learning strategies for special needs children in mathematics, if necessary. Results showed that the mastery learning strategies promoted the learning outcomes of mathematics for non disabled children for learning disabled children and for educable mentally retarded children, but the effects on the latter were not so significant as the use of the mastery learning strategies for non disabled and learning disabled children.

Slad and Russell (1971) in their study found that multiplication to be a more difficult operation than addition or subtraction. In their cases, the relative deficiency in multiplication has stemmed from a faulty grasp of multiplication tables. In general long mathematical problems cause difficulty for children with a calculation problem, as they require the child to retain a number of operations and to apply them in a correct sequence.

Ward (1979) ‘Survey of Mathematics on 10 year old’ showed that many 10 year olds have problem with calculation. Simple addition sums as, for ex. majority of 87 percent children correctly answer 238 + 375. Subtraction is Slightly more difficult than addition 439 – 284 being correctly computed by 70 percent of children. The major source of error (in 11 percent children) is due to a mistake in
carrying over a digit from ten columns giving an answer of 255 instead of 155. Multiplication proves even more difficult with only 55 percent of children getting the correct answer for the sum $283 \times 7$. Most of the mistakes are due to the lack of knowledge of tables and mistakes in carrying over of the digits. Division sums are also very difficult. Only 43 percent of the children have answered correct for the sum $255/6$. Again mistakes are due to lack of knowledge of tables and in carrying over of the digits.

Wood (1980) in ‘Modern Maths and learning disabled child’ reports that many learning disabled children find the modern maths approach, particularly difficult to understand because of several reasons. 1. They find language used in modern maths as very difficult. 2. Set notation presents them with directional problems. 3. Many parents are unfamiliar with modern maths and are unable to help their children at home.

2.4. Studies on Characteristics of Students with Learning Difficulties

The studies of Abrams (1975), Johnson and Myklebust (1967) and Guthrie (1974) state that although some learning difficulty children have trouble in receiving information that is presented auditory or visually, a great number experience difficulty in associating abstracts auditory with visual stimuli. Abrams (1969) and Bryant (1965) studies reveal that disabled learners have extreme difficulty in generalising their knowledge of sound-symbol relationships and in applying it to new situations.

Alexander and Money (1967), Gibson (1970), Money (1967), Moyer and Newcomer (1977) report that children often reverse letters because they are unfamiliar with direction as it relates to letter discrimination. Arter and Jenkins’ (1979) study indicates that training in motor skills have little effect on the students’ academic performance and gross and fine motor in-coordination are still observed in learning difficulty students with enough frequency to be considered a
Brown (1981) has established that hyperactive children’s ability to sustain attention to auditory stimuli improves with age but that improvement is not as great as in regard to visual stimuli.

Barr (1974) made a study on auditory perceptual disorders in children with reference to language learning. The major objectives of the study were (i) to study auditory perceptual disorders in children with reference to language learning and (ii) to focus on the listening experience of children which provided the foundation for language acquisition. The study revealed that (i) statistically significant differences existed between the children with learning problems and normal control group on the 4 standardised tests and (ii) syntactical complexity rather than auditory memory power was the critical factor in correct sentence repetition.

Bryan and Bryan (1978) reported that the learning difficulty students were, more likely than normal students to send and receive negative verbal messages and to interpret non-verbal behaviours inaccurately. Similarly, Bryan, Sherman and Fisher (1980) indicate that learning disabled boys are less likely to maintain eye contact or smile during an interview.

Cohen and Minde’s (1983) study agreed that hyperactive syndrome encompasses a heterogeneous group of behaviour disorders having different symptom clusters and aetiologies. Cruickshank et. al., (1961), Strauss and Lehtinen (1947) has established that many children with serious learning difficulties find it hard to focus their attention on a selected sound, word, number of line or point.

In a report based on the observations of brain injured and hyperactive children, Cruickshank and his colleagues (1961) stated that hyperactive children without evidence of brain damage exhibited learning characteristics similar to those of the neurologically impaired.

The research evidences furnished by Derevensky (1977) and Ward (1977) support the assumption that auditory-visual integration is
related to reading ability but indicates that the variables are related in a complex manner depending on the students development, IQ and economic background.

In the Colorado Family Reading Study made by De Fries (1991), it is found that boys born to a dyslexic parent ran a 35-40 percent risk of developing dyslexia themselves (tending to higher figure of the dyslexic parent was male), whereas, girls ran a 17-18 percent risk irrespective of the parents gender. Where neither parent was dyslexic the risks for boys and girls were 5-10 percent and 1-2 percent respectively. Evans and Smith’s (1979) study evaluates dyslexic clients as being very sensitive to criticism and easily discouraged.

Divya Jindal (1996) states that successful integration and inclusion of children with visual impairment depends on their active social interaction with peers, which is possible only when social skills are developed to an adequate level. However, due to various variables like lack of visual cues and imitation, opportunity, prompts and reinforcement, development of social skills is hampered. Through careful intervention on the part of teachers and researchers, these problems can be overcome.

Haines and Torgesen (1978) found that learning difficulty students with reading problems performed better on memory tasks when they became more active in the learning task through most efficient strategies such as rehearsal.

Hare (1977) asserts that auditory skills are particularly important for acquiring language skills, which include reading. Some children who have retarded visual perception ability also have poor auditory perception, suggesting that a general development lag in perception exists. Interestingly many of these children are successful in having to read. Horowitz (1981) in his study shows that learning difficulty students are less popular than their peers are and that they are aware of their unpopularity.
Harris and Sipay (1975) observe that evidence of directional confusion in reading disability cases is of far greater significance than any pattern of lateral dominance, which may appear. Johnson and Myklebust (1967) were among the first to study the Mathematical disorders of learning disabled students. They hypothesized that there were two main types of disorders, those related to difficulty in processing auditory or visual information and those characterized by an ability to perform arithmetic calculations.

Keith and Engineer (1991) report that medication alone is rarely, if ever, an adequate answer to the hyperactive child. Some form of extra tuition is needed together with diet control, catharsis and behaviour modification. In some cases medication can significantly improve attention span. Dramatic changes in behaviour and a reduction in family stress have been reported by some parents. Children find difficulty in distinguishing separate sounds and blending of these sounds to form words. Extensive research has been carried out to discover the nature of this difficulty, but as Mattis et. al. (1975) feel that no clear evidence has so far been emerged.

King (1995) states that any student who is bored by work, which is trivial and lacks challenge, may well become troublesome. Labov (1970) in his work on ‘the language of black children in US’ found that the school context rather than children’s capabilities, limited the quality of black children’s oral language in formal school situations.

Lovegrove, Martin and Slaghuis (1986), Steiz and Fowler (1993) proposed that visual processing deficits are the source of the disorder while others like Tallal (1980), Tallal and Piecry (1973) claim that the problem reflects basic auditory processing deficits. Similarly, Tallal’s (1980) study demonstrates that dysphasic children (children with major speech problems) often have difficulty in coping with auditory and other information when it is presented at speed. When the same tests are repeated with reading difficulty children, she finds that some of them have similar problems and significantly are also weak at rapid processing of speech sounds which is at the root of their difficulties.
Manju Pandey (1999) identified learning disabled children on the basis of academic disorders and attempted to measure their level of intellectual development. This study was done on 100 learning disabled and 100 learning able children of primary level. The results of the study indicated that the level of intellectual development plays an important role to determine the individual’s learning ability/disability.

Miles (1997) also reported that dyslexic subjects tend to read slowly even when they have achieved some degree of proficiency. Miles through his research on dyslexia concludes that

1. Dyslexia is not primarily a reading difficulty; many dyslexic subjects learn to read with a fair degree of success.
2. In almost all cases, however there is a history of early difficulty in learning to read.
3. Most dyslexic subjects remain slow readers.
4. Reading aloud continues to present problems.
5. In a few cases they rely on trying to identify the visual shape of the word instead of thinking of the letters as symbols.
6. Neither Initial Teaching Alphabet (ITA) nor the look and say method of teaching is likely to be successful.

Pearl, Bryan and Donahue (1980) found that learning disabled students in their samples did not believe their achievement to be under their control; this learned helplessness seemed to extend beyond the areas in which students had abilities to other areas of academic learning. The research also suggests that learning disabled students have poor self-esteem, poor motivation and attributions suggesting, an external locus of control. Poplin et. al., (1980) found that third – through – eighth grade learning difficulty students scored significantly lower than did the normal students in their age group, on the test of written language. These findings suggest that a general underlying problem with language sometimes extend to difficulty in learning, and the findings imply a need for emphasis on language development.
Peter Westwood (1998) reports his experience as a remedial teacher of primary and secondary special classes that a vast majority of children with reading problems exhibit poorly developed phonic knowledge and inefficient word attack skills. They benefit from a carefully structured supplementary phonic approach in order to develop the skills, which they currently lack.

Ramaa (1992) dealt with different aspects of learning disabilities in his handbook on learning disabilities. The major focus is on enabling the teacher education to develop proper insights in the teachers with respect to the nature of learning disability, procedures in providing remedial help to learning disabled children in regular classrooms. The book has been prepared on the basis of practical and research experience acquired by her in the area of learning disabilities.

Reddy, Ramar and Kusuma (2001) have done exhaustive works in the field of learning disabilities. Their book ‘Learning Disabilities A practical guide to practitioners’ provides practical information of assessment and identification practices and discusses instructional strategies such as meta-cognitive instruction and social skill training. Further this book suggests effective interventions for dealing with a variety of behaviour and attention problems. Classroom instructional interventions for teaching specific subjects such as language and Mathematics are also suggested in it. This book is an outcome of a rare blend of theoretical assumption at research level and practical relations in real classrooms.

Sivakami (2000) has dealt with the effectiveness of instructional strategies in her thesis on ‘Effectiveness of certain instructional strategies to overcome learning disabilities in English at Primary Stage’. The major focus is on the remedial instructional strategies to be adopted for the children with reading, writing and spelling difficulties. The post-test achievement scores are higher than the pre-test achievement scores. This throws light on the effectiveness of the remedial instructional strategies used in the study.
Swan (1995), Swan and Goswami (1996) report that dyslexic children may be delayed or handicapped in developing high quality phonological representations at the different linguistic levels and their reading difficulties may contribute to this developmental problem. Wiig, Semel and Abele (1981) found that the ability of 12 year old learning disabled students to interpret the meanings of ambiguous sentences differed from the ability of normal students of their age and was nearly like the ability of normal 7 to 8 year olds. These findings suggest that a general underlying problem with language sometimes extends to difficulty in learning and they imply a need for emphasis on language development.

Warren and Flynt (1995) report that Attention deficit disorder and hyperactive children usually exhibit poor achievement in most school subjects. Wepman (1960) also reports that words or numbers that look or sound alike confuses the disabled learners. They may have trouble in differentiating similar sounds. Likewise, Strauss and Lehtinen (1947) and Cruickshank et. al., (1961) recognized small visual differences in disabled learners.

Watson (1993) analyzed the characteristics of retained and non-retained learning-disabled students. The major purpose of this study was to compare the characteristics of learning disabled students who had been retained and learning disabled students who had not been retained prior to identification as learning disabled.

Analysis revealed four of the six variables to be statistically different between the groups. Students in the retained group were significantly older than those in the promoted group. It appeared that this difference was due to the fact that the retained students had spent an extra year in school prior to being referred. The grade level at referral was essentially the same for the two groups. Therefore, it
appeared the retention only delayed for one year the inevitable identification of the students as learning disabled. The three remaining significant variables, IQ, reading achievement and math achievement were significantly lower for the retained group.

2.5. Studies on Factors associated with Learning Difficulties

A good number of studies have been conducted on the various factors such as biological factors, social, cultural and economic factors and environmental factors responsible for learning difficulties in children. Such specific studies are presented here.

2.5.1. Studies on Biological Factors associated with Learning Difficulties

Dennis (1994) studied the impact of the choice awareness program upon the self-concept, locus of control and interactive choices of children with learning difficulties. The purpose of this study was to determine the impact of the choice awareness program upon the self-concept, locus of control and interactive choices of children with learning difficulties in two school districts. The results indicated that the anecdotal information obtained from the instructor evaluations do suggest that improvement can occur through this program. Further, research of the choice awareness program to children with learning difficulties is suggested.

Howard et. al., (1997) report while serious sensory-neural loss is related to genetic heritance in approximately 70-80 percent of cases, noise and pollution can also lead to sensory-neural loss. There are some indications that even the ambient noise in incubators, if not closely monitored, can cause some hearing loss in premature infants. Further, the study reports that certain health related conditions of a pregnant mother could put a foetus at risk of developmental disability. These conditions include diabetes, hypertension, drug and alcohol
addiction, heart disease and eating disorders. Alcohol addiction is the leading known cause of mental retardation and usually it leads to lifelong disabilities.

Johnson, Zaba (1999) administered the New York State Optometric Association Vision Screening Battery (NYOSA) and the Developmental Eye Movement Test (DEM) on 50 adjudicated adolescents in order to isolate which of particular visual factors are most responsible for the learning difficulties of juvenile offenders. The most significant finding was the high failure rate of juvenile offenders on both tracking tests. Forty-eight percent failed the tracking subtest of the NYOSA. Sixty-eight percent failed one or more of the DEM subtests. Although adjudicated juveniles have received various psychological, educational, and vocational treatments, most of these treatments have had limited effectiveness. It is difficult for a treatment program, particularly an academic one, to be effective if the adolescent lacks adequate visual skills. Unless at-risk adolescents with visual impairments are properly diagnosed and treated, many offenders, such as those in the current study, may end up in the criminal justice system.

Joy Plack and Elizabeth Waller (1997) observe that the speech sounds vary from very low frequency (vowel sounds) and low frequency (g) to high frequency (f, r, t and especially). If for instance, a child has a high frequency hearing loss; it will not hear these unvoiced letter sounds in words spoken.

Kusuma Harinath (2001) studied certain factors related to learning difficulties in English among school students. The objectives of the study were to develop diagnostic tests to identify reading, writing and spelling difficulties in English, to find out the intelligence of students with reading, writing and spelling difficulties; to study the personality characteristics of students with learning difficulties and; to study the awareness of teachers and parents about learning difficulties. The study revealed that (1) boys experienced more reading difficulties than girls, (2) age and class had no effect, (3) community
influenced on their spelling difficulties, (4) parents educational qualifications influenced learning difficulties, (5) location of school influenced the learning difficulties, (6) medium of instruction also influenced learning difficulties particularly spelling difficulties, (7) mass media had no influence, (8) parents income influenced learning difficulties but not writing difficulties etc. Thus this study delineates various factors related to learning difficulties in English among school students.

The study of Maples (2003) reveals that both race and socio-economic status are correlated to performance in the classroom. These two factors are inter-related, since minorities, proportion-wise, are more highly represented in the lower socio-economic strata. Inefficient visual skills have been shown to be more prevalent among minority groups and in low socio-economic groups. These inefficient visual skills have impact on the students/learning. This study was undertaken to discover the visual skills which were significantly correlated with academic performance problems.

A total of 2659 examinations on 540 children were administered over three consecutive school years. Socio-economic, racial and standardized academic performance data (Iowa Test of Basic Skills - ITBS) were furnished by the families and the school system. The visual and demographic data from the examinations were then compared to performance on the 21 subtests of the ITBS. Some Visual factors were found to be much better predictors of scores on the ITBS than either race or socio-economic status. Even though the significance of these two demographic variables was small, race and socio-economic variables were significant in about a third of the 21 ITBS scores. Visual factors are significantly better predictors of academic success as measured by the ITBS than is race or socio-economic status. Visual motor activities are better predictors of ITBS scores than binocularity or accommodation. These latter skills were also significant predictors, but to a lesser degree.
Michael McCarthy (1999) in a study on ‘Brain abnormalities common is teens born prematurely’ reported that a team of researchers in the UK evaluated 72 boys and girls, age 14-15, who had been born more than five weeks early. For comparison, they also evaluated 21 ‘controls’ teenagers of the same age who had normal births. All the subjects underwent a battery of neurological, cognitive and behavioural assessments and had brain scans with a magnetic resonance imaging (MRI) scanner. The researcher found that compared to the controls the premature teenagers were almost 12-times more likely to have abnormal brain scans. Of the 72, 40 had brain scans that were clearly abnormal compared to only one in the control group. Another 15 from the premature group had equivocal scans – meaning they had slight abnormalities but the significance of these abnormalities was uncertain. The common abnormality found was damage to brains’ white matter, an area of the brain made of millions of nerve fibers that carry signals between the brain and spinal cord. This is due to oxygen starvation. The results note that damage to white matter can interfere with the ability of different areas of the brain to interact and work together. This damage explains problems of the people born prematurely. The teenagers from the premature group were also found to be twice as likely to have abnormal neurological exams, but the researchers were surprised to find that there seemed to be no clear relation between the extent of brain injury seen on the scans and their neurological tests’ results.

The subjects were much more likely to have behavioural problems, such as having difficulty in school. The researchers used the reading age averaging about fifteen and half years. The reading ages of the premature teenagers averaged around 13-14 years. This difference may be due to social factors, the researchers said, because more of the controls hail from families with a higher socio economic status. The researchers opined social class advantage might explain some of these findings. The effect of the damage is seen more in behaviour than in obvious neurological problems.
Nicolson and Fawcett (1995) in their study 'dyslexia is more than a phonological disability' revealed that weakness in motor control and time estimation functions were under the direct control of the cerebellum. This could also affect the motor and timing aspects of speech processing. Thus the phonological impairments would be explained as consequences of a more general deficit which also affects balance.

Paulesu et. al., (1996) conducted a brain imaging experiment on five well-compensated adult dyslexics. The dyslexic volunteers taking part in the study had been assessed as children or adolescents when they had severe reading and spelling difficulties. All except one were university graduates. The tasks given were rhyme judgment (does B rhyme with T) and memory. The findings are that the dyslexics could not easily evoke internal speech sounds. Simple phonological tasks are performed very differently. This study on brain imaging supports the assumption of a specific failure in one particular brain system.

Pennington (1995) is of the opinion reported that it is quite possible that the quality of a child’s literacy experiences will be significantly affected by living with one or more parents who have encountered difficulties in learning to read, it is highly likely that there is also a biological explanation to reading difficulty. Pumfrey (1996) in a ‘Review on current research’ concludes that while it is unlikely that a specific gene defect will be identified, they may prove to be a genetic susceptibility for some individuals, which can be minimised or maximized by subsequent life-experiences.

Taylor Kulp, Edwards and Mitchell (2002) conducted a masked investigation of the relation between visual memory and academics. It was performed in 155 second through fourth-grade children (mean age = 8.83 years). Visual memory ability was assessed with the Test of Visual Perceptual Skills visual memory subtest. The school administered the Otis-Lennon School Ability Test and Stanford Achievement Test. Age and verbal ability were controlled in all regression analyses. Visual memory score was significantly predictive
of below-average word decoding, total math score, and Standard complete battery score. Visual memory score showed a positive trend in predicting reading comprehension related to below-average reading decoding, math, and overall academic achievement (as measured by the Stanford Achievement Test) in second-through fourth-grade children, while controlling for age and verbal ability.

Wilkins (1995) states that the cognitive causes of literary failure include visual problems such as exaggerated effects of visual stress, which can be alleviated by reducing glare. Wimmer (1996) asserts that the factor considered to cause the learning problems of students with a specific reading disability is weakness in processing oral language. This is the most evident, in their inability to deal effectively with the phonological (sound) aspects of oral language. This problem is reflected in their poor performance in word recognition and spelling, two areas where efficiency in mapping speech sounds to letters or letter clusters is required. Poor phonological skills are also evident in most students with so-called garden variety reading problems.

Witelson (1997) in her ‘Developmental dyslexia’ maintains that dyslexic children have a different kind of hemispherical dominance or laterality pattern due to a neural deficit. The theory attempts to account for the differing incidence of reading disability in boys when compared with girls, there being something like four boys to one girl with a reading problem. Specifically she maintains that dyslexic boys have cerebral hemisphere, which both functions as if they are right hemispheres. So they are good at form and colour perception but poor at language.

2.5.2. Studies on Social, Cultural and Economic Factors associated with Learning Difficulties

David (1996) studied social skill intervention in a residential summer camp setting for children with learning difficulties. The purpose of the study was to investigate the effects of direct social skill
instruction in a medicated learning context on the social skills use behaviour and the social information processing skills of 94 children and adolescents with learning difficulties. The results showed that social information processing skills improved. In general, participants with high self-concept outperformed participants with low self-concept on social information processing. It was concluded that the structure and positive medicated nature of the intervention supported growth. It was also concluded that cognitive awareness preceded actual observable behavioural change.

De Fries and Alarcon (1996) stated that culture influences the outcome of dyslexia through the writing system it adopts, which in the case of a complex and inconsistent orthography can act as a risk factor. The phonology of a particular language may itself play a role in the case for difficulty of learning to speak; not all languages are equal in terms of the complexity of their phonology or their grammar. Edwards (1994) evidences that the dyslexic children are treated harshly, feel humiliated, are discriminated against or undervalued, experience a range of highly negative emotions, and as a result develop a diminished sense of self.

Falvey and Rosenberg (1995) in their study state that for positive social interaction and to establish friendships to occur among children with and without difficulties, at least three conditions must be fulfilled. They are:

1. Opportunity: With proximity of their children frequent and meaningful contacts are to be made.

2. Continuity: Children will be made involved with the same group of children over a relatively long period of time and also seeing some of the same children in their own neighbourhood out of school hours.

3. Support: Children are helped to make contact with other children in order to work and play with them: and if possible supporting directly in maintaining friendships out of school.
Farmer and Farmer (1996) observe that with the inclusion of students with difficulties into general education classes, the composition of classroom social networks can influence whether students with special needs make positive social gains or become entrenched in a social system that supports and maintains their problematic or deficient social characteristics.

Hastings and Schwieso (1995) state that on-task behaviour is significantly better and students are more productive when they are seated in rows rather than grouped. They conclude that seating arrangement in the class too influences the behaviour and achievement of children in general and learning difficulty children in particular. Henderson (1981) points out that social class is not in itself an explanatory variable for a lack of school success but is related to the behaviour attitudes, values and living conditions of families of various socio-economic levels. Honing and Wittmer (1996) and Lowenthal (1996) opines that if children with difficulties are to be socially integrated, group work situations and co-operative learning should be used frequently in the pre-school, primary and secondary settings.

Lyle (1996) in a research paper on ‘An Analysis of collaborative group work in the primary school and factors relevant to success’, states that the success of collaborative group work depends on classroom organisation, the nature of the tasks set for the students to work on and to composition of the working groups. Mare’s (1981) study projects an increasing dependence of educational attainment on social origins of a child. Marion (1980) states that culturally different or minority parents seem less overwhelmed than non-minority parents. Feelings of protections and acceptance of children with difficulties are more typical than in other families, probably because of the support from strong extended family networks, the unique role of religion in their lives or both. Margalit (1995) research reported that students with intellectual disability still reported, feelings of loneliness even after
successfully participating in social skills programme. They find difficult to make friends.

Odom and McLean (1996) suggested that young children with special needs, when served in programme with typically developing children, are often isolated and not engaged in play and other learning activities with their peers. Power et. al., (1967 and 1972) find large differences between schools in delinquency rates and claim that these differences could not be attributed to variations in the catchment areas. Roy and Fuqua (1983) report that the socio economic status of the family and the child’s age at the time of parent’s separation make a difference in the learning disabled children.

Slavin (1991), Sale and Carey (1995) studied that the results obtained from most studies of integration and inclusion do not support the belief that merely placing a child with a disability in the mainstream spontaneously improves the social states of that child. In fact there is actually a danger that the child will be marginalized, ignored or even openly rejected by the peer group. Sagroï (1989) reported that learning disabled men sometimes offend against children, staff and members of the public with their behaviour.

Young, Collier-Gary and Schwing (1994) studied about the primary cause of failure (visual factors) in beginning reading. In a longitudinal study of 144 beginning readers in public school, data on 25 measures of visual efficiency were subjected to two-and three-way Analyses of Variance. Binocular function, visual acuity, discrepancies in acuity, and color deficiencies were all found to be statistically significant in impeding beginning reading. Significant differences were also found in the sequence of visual development between sexes, between eye and dominance for different tasks, between specific factors for 6-, 7-, and 8-year-olds and first and second grades. It was concluded that visual factors are a primary cause of beginning reading failure and that most current school screenings are inadequate in scope and rigor.
2.6. Studies on Awareness of Teacher's about Learning Difficulties in Students

There are special needs children who require special initiative on the part of teachers. The special and normal school teachers are able to meet the special learning needs of disabled children if they are willing and well-informed about the disabilities in children. Better awareness about the concept, causes, characteristics, teaching and learning methods helps to modify the learning environment and improve the quality of education. Here, an attempt is made to present the studies related to teacher awareness on different aspects of children with difficulties.

Beth (1997) studied the perceptions of paraprofessionals and classroom teachers concerning paraprofessional roles in working with the students with difficulties in general education settings. This study was designed to investigate the types of duties and responsibilities assumed by paraprofessionals working in second and third grade classrooms serving students identified as having mild difficulties. This study found that these employees do assume instructional duties but many do not have any training which would enable them to address the educational needs of students with mild difficulties.

Brent et al., (2003) highlight the importance of teachers’ self-awareness when they teach students with emotional and behaviour disorders. This article identified questions and strategies to help teachers become more self-aware regarding their interactions with students of behavioural and emotional disorders. The five key questions to increase teacher self-awareness are:

1. Am I taking proactive steps to identify and defuse my own emotional triggers?
2. Am I paying attention to what I need to pay attention to?
3. Am I using effective strategies to reduce burnout and nurture my own mental health?
4. Am I using an appropriate sense of humour to build relationships, diffuse conflict, engage learners and manage my own stress?

5. Do I regularly acknowledge that significant ways are making difference in the lives of students?

The study concluded that many teachers have not received adequate training to recognise how their own psychological histories and personalities affect their interactions with youth of emotional and behavioural difficulties. If teachers make conscious ongoing efforts to increase their own self awareness, they will likely enhance their effectiveness and their job satisfaction. They also stated that the overall attitude of the teacher and the classroom climate affect students much more than most other techniques or interactions.

Dharmaraj (2000) studied primary school teachers’ awareness about learning difficulties in mathematics at primary level. The objectives of the study were to develop rating scale to assess the awareness of primary school teachers on various aspects of learning difficulties in mathematics and to assess the awareness of primary school teachers about learning difficulties in mathematics. The result of the study showed that teachers with higher educational qualification exhibited better awareness, i.e. post-graduate teachers possess better awareness than the secondary grade and graduate teachers on different aspects of learning difficulties in mathematics.

Drury (1994) conducted a survey to investigate teacher awareness of alternative assessment of students in Mathematics. The results confirmed that the teacher grade level groups had differing views of alternative assessment techniques, practices, and nomenclature. If more was known about the teachers’ awareness of alternative assessment practices, this information would help to initiate, design and direct alternative assessment techniques, strategies and practices. The data on teacher awareness of alternative
assessment could be used to: modify a course of study on assessment, develop objectives for an in-service or pre-service program, or improve national standards on assessment.

Hoffman and Barbara (1995) studied the teacher awareness of speech and language therapies, roles and services. A researcher designed Likert Scale was administered to a sample of 67 anonymous regular education teachers. The survey provided statistical results regarding the teachers’ ability to recognize students who have speech and language difficulties, teachers’ knowledge of school-based speech and language services, and teachers’ awareness of how to access the service for their students who need them.-

Kusuma Harinath (2001) studied the awareness of teachers about learning difficulties of children in English. The objectives of the study were to study the awareness of parents and teachers about the different aspects of learning difficulties in English. 32 teachers teaching English subject for the children were selected for data collection. Awareness scale applied to teachers on learning difficulties consisted of 46 items on various aspects of learning difficulties namely—concept of learning difficulties, characteristics of learning difficulties in children, causes of learning difficulties and instructional strategies for learning difficulties in children. Out of 46 items, teachers exhibited high awareness on 17 items which are mostly falling under instructional strategies for learning difficulties in children. Moderate awareness and low awareness were exhibited in 16 and 13 items respectively.

Logo-Delello and Ellie (1998) investigated classroom dynamics and 13 young children at risk for the development of Serious Emotional Disturbances (SED) as compared to 13 typical peers. Students at risk of SED were generally rejected by teachers, spend less time academically engaged, and received more negative or neutral non-academic teacher feedback.
Nagomi Ruth (2000) studied the awareness on learning difficulties among regular school teachers. Objectives of the study were

(i) to assess the knowledge among regular school teachers on learning disabilities,
(ii) to organise awareness programmes,
(iii) to give knowledge about identification and remediation for learning disabled, and
(iv) to evaluate the impact or effect of knowledge gained by regular school teachers.

The result of the study showed that the awareness programme was found to be effective.

Sarojini (2000) conducted a study on the awareness of primary school teachers about learning difficulties in English at primary stage. The objective of the study was: to develop awareness scale to assess the awareness of primary school teachers about learning difficulties in English at primary stage. The result showed that the primary school teachers exhibited low level of awareness and the study revealed the need to generate awareness among primary school teachers towards learning difficulties in English. The personal variables such as years of experience, type of school, locality of school also influenced awareness of primary school teachers about learning difficulties in English at primary stage.

Selvakani (2000) conducted a study on creating awareness on integrated education of the disabled children to the regular teachers. The objectives of the study were: to find out the previous knowledge of the regular school teachers about disabled children, to prepare instructional materials on various concepts related to the education of disabled children, to organize an awareness programme for regular school teachers, to develop knowledge about the role of teachers to meet the special needs of the disabled children and to evaluate the
imparted knowledge gained by regular school teachers. The result revealed that the knowledge about the role of teachers to meet the special needs of the disabled children was improved by organizing awareness programme and the developed awareness programme was found to be effective.

Swartz and Diana Denise (1995) studied teacher’s awareness and willingness to report suspected child abuse. The purpose of this study was to determine what factors contribute to teachers’ decisions to report suspected child abuse. Factors investigated in this research came from four main areas: teacher training, knowledge, severity of abuse, child behaviour, and family characteristics.

Subjects were elementary school teachers who completed a two-part questionnaire. Part-I consisted of questions designed to obtain information about experience and knowledge in the area of reporting child abuse and Part-II consisted of a set of three experimental vignettes. Vignettes were designed to manipulate five variables: gender, ethnicity, socio-economic status, behaviour, and severity of abuse. Respondents were asked to indicate whether they would report abuse for each vignette. Data were analysed by using chi-square analysis and ANOVA. Results indicated that at least 3-4 hours of in-service training were needed before a relationship was shown to the probability of reporting abuse, and teachers’ decisions to report abuse were affected by the socio-economic status of the child’s family and the severity of abuse.

The studies reviewed (Kusuma Harinath, 2001 and Sarojini, 2000) reveal that teachers exhibited low and moderate awareness on concept, causes and characteristics of children with disabilities. The quoted studies also point out the dearth of such specific studies and highlight the need for to assess teachers’ awareness about different aspects of disabilities in children.
2.7. Studies on Attitude of Teachers towards Students with Learning Difficulties

Teachers’ attitude towards students with learning difficulties is a major and important aspect in the education of students with learning difficulties. Right type of teacher with right type of attitude can do better justice to the children with learning difficulties. Hence, research on teacher attitude paves way for better promotion of education to the students with learning difficulties. Studies on these aspects are presented here.

Adams, Kimberly et al., (1998) studied the differences in parent and teacher trust levels. They suggested the implications for creating collaborative family school relationship. Parents (N=123) of regular and special education teachers and students (N=152) in three urban middle schools were surveyed regarding their attitudes about home-school collaboration. Findings indicated that parent trust was significantly higher than teacher trust. Implications for schools personnel working to build trust between families and schools were drawn.

Bearn et al., (1998) investigated how learning support was perceived by mainstream colleagues. Six British teachers were interviewed to investigate the commitment of mainstream subject teachers’ to special needs pupils. Findings confirmed that territorial boundaries and other factors continued to inhibit support teaching and that teacher attitudes and possible antipathy remained stubborn stumbling blocks to the implementation of whole-school policies.

Bill et al., (1982) studied the elementary teachers’ attitudes toward mainstreaming educable mentally retarded students. This study examined elementary teacher attitudes towards mainstreaming EMR children on the basis of teacher age, academic training and teaching experience with mainstreamed EMR children. Multivariate analysis of variance revealed no significant overall differences in teachers. A consistent pattern, however, of positive attitudes toward mainstreaming was clearly evident.
Bowers et al., (1998) conducted a study on the code in action: Some school perceptions of its user-friendliness. A British study investigated the attitudes of 160 centrally employed local educational agencies, 290 educators, and 296 parents towards the Special Education Needs (SEN) Code of Practice. Results found that overall the code had been well received by its users; however, there were identifiable areas that would need some modification.

Brownlee et al., (2000) studied the Opportunities for authentic experience and reflection. It was a teaching programme, designed to change attitudes towards disability for pre-service teachers. Eleven pre-service Australian teachers were interviewed concerning their beliefs and attitudes about students with difficulties, both before and after meeting and interacting with a teaching assistant severely disabled by cerebral palsy. Findings were reported concerning students’ perceptions of the teaching assistant, effectiveness of the current teacher education programme and effectiveness of the interview process.

Butera Gretchen et al., (1998) conducted a statewide study of FAPE and school discipline policies. Telephone interviews with 141 randomly selected special education coordinators, principals and special and general education teachers analysed issues related to special education including a Free and Appropriate Public Education (FAPE), Individualised Education Programme (IEPs) and school discipline procedures. Respondents found IEPs too cumbersome and reported they did not always review IEPs prior to discipline decisions.

Cook and Bryan et al., (2000) conducted a study on teachers’ attitude towards their included students with disabilities. Seventy general education elementary teachers nominated students corresponding with the attitudinal categories of attachment, concern, indifference and rejection. Analysis indicated that students with disabilities were significantly under represented in the attachment category and significantly over represented in the concern and rejection categories.
Cornoldi and Cesare et al., (1998) surveyed teacher attitudes in Italy after twenty years of inclusion. A survey of 523 teachers in Italy was conducted 20 years after nationwide inclusion of students with disabilities in neighbourhood schools and general education classrooms. Overall, support for the inclusion concept was found but teachers responded less positively on practical items addressing their satisfaction with tone, training personal assistance, and resources provided for inclusion efforts.

De Bettencourt and Laurie (1999) examined general educators’ attitudes toward students with mild disabilities and their use of instructional strategies. The study examined the frequency of use of several instructional strategies by 59 general educators at the middle school level with time spent collaborating with special educators and course work taken in specialized techniques. Attitude towards the inclusion of students with mild disabilities was also examined. Number of instructional strategies used correlated with course work and collaboration time.

Guido (1990) studied educators attitude towards the inclusion of severely/profoundly disabled students in regular classrooms. The purpose of the study was to investigate the relationship between professional educators’ attitude and integration of severely/profoundly disabled students in regular classroom. The present research showed that increased specific special education knowledge and experience is a key factor in more favourite attitude towards case of placement of severely/profoundly disabled students in regular educational classrooms. Formatting opportunities for regular/special educators to take advantage of specialised course appears to support integration efforts for more severely disabled students in regular classes.

Harris and Mary (1998) conducted an explanatory study on the knowledge, attitudes and concerns about portfolio assessment: A survey of 209 educators taking graduate classes in general and special education examined their knowledge, attitudes, and concern about portfolio assessments. The survey found that the respondents had
some knowledge of and positive attitude towards portfolios. They viewed inadequate training and support and lack of time to design and implement portfolio assessment as major concerns.

Hoffman et al., (1997) analysed inclusion in New Jersey school districts. This study was concerned with general education teachers’ experiences and perceptions about inclusion and supports these teachers received from their administration in order to implement inclusion in their classes. The study also focused on general education teachers’ attitude about inclusion and their perceptions of possible effects, if any, students with moderate to severe disabilities had on general education teachers. To accomplish this task, a qualitative study was conducted. Standardized open-ended interviews were conducted with 22 general education teachers and five Directors of special services about (a) school operation, (b) teacher preparation (c) implementation and (d) evaluation. A follow-up survey was mailed to 40 teachers (including the 22 interviewed teachers). The purpose of the survey was to gain a broader sample.

In this study, teachers shared common experiences regarding the placement of students with moderate to severe disabilities in general education classes. Teachers reported that the integration of students with moderate to severe disabilities in their classes had a positive impact on students with disabilities, as well as on non-handicapped classmates. Teachers discussed the positive aspects of inclusion for students with moderate to severe disabilities. According to the teachers, most of the inclusion students had positive experiences in regular education classrooms and had a chance to be with positive role models.

The teachers who volunteered to have inclusion students in their classes were willing to take risk and were willing to accept the challenge of having these students in their classes. The positive reactions experienced by these teachers appeared to be due to their own initiatives and willingness to integrate students with moderate to severe difficulties in their classes. On the other hand, teachers who
were assigned by the administration to have inclusion students in their classrooms were not sure of their capabilities and they felt they did not have the knowledge, skills, and training needed to teach students with moderate to severe disabilities. Teachers reported that support from the administration and special education teachers’ initial and ongoing training and additional planning time were essential elements for inclusion.

Jena (2000) investigated the priorities of training and attitude of special educators towards people with mental handicap. Qualified special educators (N-26) attending a refresher course, were studied through a priority rating and attitude questionnaire. Most of the special educators indicated early intervention as the most preferred area of training in special education. They agreed that people with mental handicap are burden for the family and do not contribute to the society but in spite of that, parents can love them. They strongly felt that people with mental handicap should be prevented from having sex and children.

Kusuma Harinath (2001) made a study to identify the teachers’ attitude towards learning difficulties of children in English. He developed an attitude scale and the same was administered to the sample of 32 teachers teaching English subject to the children. The result showed that in 19 statements the teachers exhibited high attitude, in 16 and 13 statements they possessed moderate and low attitude towards learning difficulties in children.

Lombard, Richard et al., (1998) conducted a ‘Survey on school-to-work and technical preparation: Teacher attitudes and practices regarding the inclusion of students with disabilities’. This survey of secondary school-to-work and technical preparation teachers from 45 states concerning inclusion of students with disabilities found that the 169 respondents did not feel prepared to meet the needs of their students with disabilities, had received little or no in-service training regarding inclusive practices, and had not participated in developing individual education programs for students with disabilities.
Meltzer, Lynn et al., (1998) investigated the perceptions of academic strategies and competence in students with learning difficulties. The study involved 308 students with learning difficulties (LD), 355 typical students, and 57 teachers, found that students with LD rated themselves lower than average achievers in nine academic and organizational domains. While they considered themselves competent in five areas, teachers rated them as weak in all areas.

Poon-McBrayer and Kim Forg (1998) conducted a ‘study on integrating students with disabilities in Hong Kong: classroom teachers’ attitudes and beliefs’. This study surveyed 58 classroom teachers’ views and attitudes toward integrating students with disabilities in Hong Kong. Results indicated that the availability of necessary resources, training of teachers, and the suitability of instruction and services were prime concerns and priorities for respondents. Recommendations on how to promote integration considering these concerns were offered.

Praisner (2003) surveyed 408 elementary school principals to investigate relationships regarding attitude towards inclusion of students with disabilities, variables such as training and experience and placement perceptions. Result showed that about 1 in 5 principals’ attitude towards inclusion were positive while most were uncertain. Positive experiences with students with disabilities and exposure to special education concepts were associated with a more positive attitude toward inclusion. And also the principals with more positive attitudes and/or experiences were more likely to place students in less restrictive settings. Differences in placement and experiences were found between disability categories. Results stressed the importance of inclusionary practices that give principals positive experiences with students of all types of disabilities as well as provided principals with more specific training.

Reiter, Shunit et al., (1998) studied Israeli elementary school students’ and teachers’ attitudes towards mainstreaming students with difficulties. This study examined attitudes of Israeli elementary school
students (n=2845) and their teachers (n=145) towards children with
difficulties and mainstreaming. Findings indicated that students
displayed a custodial, patronizing attitude, while the teachers’
approach was of a more medical and diagnostic in nature. Previous
contacts of children with disabilities correlated with positive students’
attitude.

Schunm and Vaughn (1992) surveyed general educators at the
elementary, middle and secondary school levels to determine their
attitudes about planning as well as their planning practices for students
with difficulties. Some of the findings from their study included the
following:

(i) Planning practices differ across grade levels. Middle and
secondary school teachers frequently responded that
mainstreamed students with difficulties should be prepared to
cope with the demands of the general curriculum. To illustrate
this finding, Schunm and Vaughn include a representative
comment from a teacher expressing this belief. “There is
absolutely no time for mainstreamed students. They adapt to the
programme, the programme does not adapt to them”.

(ii) Many teachers feel under prepared by their teacher education
programme to work effectively with mainstreamed students.

(iii) Overall, teachers are willing to have students in their classrooms
‘as long as they do not exhibit emotional and behaviour
problems’.

Susan Stainback and William Stainback (1982) studied the
influence of attitudes of regular class teachers about the education of
severely retarded students. Data from an investigation on ways of
influencing the attitudes of regular class-teachers towards integration
of several retarded students into regular schools indicated that the
attitude of prospective regular class teachers could be significantly
influenced by the method used to present introductory information
about severally retarded students and their education in a survey
course on exceptional students. The results were discussed in the light of past research findings related to influencing teachers’ attitude about integrating mildly handicapped students into regular school programmes and activities.

Taplin, Margaret and White, Marian (1998) studied parents’ and teachers’ perception of gifted provision. Seventy-one parents of gifted children completed a questionnaire concerning their perceptions of the current services provided to their children and the parents’ preferences. 61 teachers completed a parallel questionnaire. Results indicated that both groups preferred services with enabled students to stay in the regular classroom and that this preference was linked to concerns about social development.

Tobin (1972) conducted a study on ‘the attitudes of non-specialist teachers towards visually handicapped pupils’. In a large sample of teachers and trainee teachers studying postgraduate and educational degree courses at Birmingham University, the majority were somewhat daunted by the prospect of including visually handicapped pupils in their classes and rated them low in terms of pupils whom they would feel confident to accept in their classes. These negative views must be faced and teachers must be given the information, training and support to overcome them. It would be interesting to see the results of such a study undertaken more recently, as since that date special education modules have been incorporated into initial teacher training.

Treder and David (2000) studied the relationship between teacher effectiveness and teacher attitude towards issues related to inclusion. The study re-examined the results of a study, which indicated that more efficient teachers were less willing to include students with special needs in their classrooms.

Westwood and Graham (2003) conducted a comparative study on ‘inclusion of students with special needs: benefits and obstacle perceived by teachers in New South Australia’. This study showed the
views of primary teachers from South Australia and New South Wales on selected aspects of inclusive education. The structured questionnaire was sent to a representative sample of schools listed in the disadvantaged schools and country area programs in both states. Major findings indicated that approximately one-third of teachers in both South Australia and New South Wales reported definite benefits associated with having students with difficulties enrolled in their classrooms. Specific problems to implement inclusive practice included class size, lack of appropriate, teaching resources, behaviour problems exhibited by some student and lack of appropriate professional training in inclusive methods.

The above quoted studies under this heading promote better insight about the teachers' attitude towards students with learning difficulties apart from inclusion and mainstreaming the students with learning difficulties. The studies (Adams Kimberly, 1998; Bearn et al., 1998; Bowers, 1998; Brownlee et al., 2000; Butera Gretchen et al., 1998; Cornoldi and Cesare et al., 1998; Cook and Bryan et al., 2000; Hoffman et al., 1997; Lombard and Richard, 1998; Poon-McBrayer and Kim Forg, 1998) give an in-depth analysis of difficulties in students and the effect of inclusion. Overall, better teacher attitude towards students with learning difficulties develops a will, interest and positive views among students with learning difficulties. But most of the studies quoted are in the Western context and the studies in Indian sub continent are limited warranting urgent need for more research.

2.8. An Overview of Research Reviewed

A close observation of the studies quoted above clearly reveals the work that has been carried out on various aspects of learning difficulties in students. Above studies under learning difficulties reviewed comprise prevalence of learning difficulties, characteristics of students with learning difficulties, various factors which influence the learning difficulties, awareness and attitude of teachers towards learning difficulties among students.
The studies on prevalence of learning difficulties indicate that learning difficulties are experienced by the students in all the countries whether they are developed or not but the degree of prevalence varies from country to country. This makes learning difficulties a global issue to be addressed at the earliest with all earnestness (Badian, 1984; Morsink, 1983; Hartley, 1995; Kirk and Elkins, 1975; Koppitz, 1971; Seli Kowitz, 1993; Made Mieken, 1939).

Quite a number of studies have been conducted on specific learning difficulties. There are studies which highlight the issues related to reading difficulty in children (Lewis, 1989; Ashum Gupta and Anjin Garg, 1995; Beech, 1992; Boden and Brodeur, 1999; Nagaraja et al., 1996). Studies on learning difficulties in writing bring to light the various types of writing errors committed by the learning difficulties students in their writing (Ellis, 1982; Giordano, 1983; Lerner, 1993). Studies on learning difficulties in spelling enumerate the problems encountered by the learning difficulties students in spelling and these studies provide useful remedial measures to circumvent the spelling problem (Kasriks, 1993; Bradley, 1983; Bryant and Bradley, 1985; Nelson and Warrington, 1974).

Bhattecharya (1986; Blankanship, 1978; Cockroft, 1982; Miles, 1983; Reddy, Ramar and Kusuma 2001; Ward 1979 and Wood, 1980) have carried out studies with tangible results on learning difficulties in mathematics. Some of these studies provide effective intervention strategies to circumvent learning difficulties in mathematics.

There are some studies which deal with the characteristics of learning difficulties. They affirm how these characteristics are very useful in identification and assessment (Barr, 1974; Bryan and Bryan, 1978; Cohen and Minde, 1983; Divya Jindal, 1996; Manju Pandey, 1999; Miles, 1977; Watson, 1995). A good number of studies have brought to light the causative factors of learning difficulties. Most of these studies showed that biological factors, social, cultural and economic factors and environmental factors are mainly responsible for learning difficulties. (Howard et al., 1997; Harineth, 2001; Maples, 2003; McCarthy, 1991; Paulesu et al., 1996; Wilkins, 1995; Critelson, 1997).
Studies on awareness about learning difficulties gives a clear picture about the teacher’s lack of knowledge on various aspects of learning difficulties in students (Brent, 2003; Dharmaraj, 2000; Drury, 1994; Hoffman, 1995; Kusuma Harinath, 2001; Logo-Delello, 1998; Nagomi Ruth, 2000; Sarojini, 2000; Selvakani, 2000 and Swartz, 1995).

Right type of teacher with right attitude can do better justice to the students with learning difficulties. Any educational system can be successful only, if the teacher has right attitude towards teaching. Teachers’ pre-conceived beliefs and opinions about the students count a lot. Knowing its importance, research works were attempted on teacher’s attitude in general. Some studies have also been carried out on teacher’s attitude towards students with difficulties in learning. Adams and Kimberly, (1998; Bearn et al., 1998; Brownlee et al., 2000; De Bettem Court Laurie, 1999; Hoffman, 1997; Kusuma Harinath, 2001; Lombard and Richard et al., 1998; Meltzer and Lynn et al., 1998; Poon McBrayer and Kim Forg, 1998 and Prasiner, 2003) studied teacher’s attitude towards students with learning difficulties. These studies give insight into teacher’s positive and negative attitude towards students with learning difficulties.

However, adequate numbers of studies have not been conducted on the awareness and attitude of teachers towards learning difficulties among students in India. Moreover, studies have not been undertaken in India with special reference to awareness and attitude of higher secondary teacher’s towards learning difficulties in students, whose responsibility is vital in providing the quality education, more research studies are warranted in this direction. The present research is a modest attempt to assess the awareness and attitude required for higher secondary teachers on different aspects of learning difficulties among students.

The methodology used in the study is presented in the succeeding chapter.