7.1 INTRODUCTION

As man formalized his symbolic thought processes into print, in letters, numbers and graphic symbols, mankind came face to face with perhaps the most significant learning dilemma of all history – the quest for literacy. And with this the learning failures also began to achieve a focus. There emerged important concepts such as the academic achievers and academic non-achievers. The formalizing of instruction made this evidence more compelling. Wherever there has been learning there have been those who encounter unusual problems in acquisition. Each generation of man has employed a different label to characterize such problems and the explanations for such failure have varied in direct proportion to the state of sophistication but the failing learner has not been absent from the scene.

The term Learning Disabilities emerged from a need to identify and serve students who continually fail in school, yet elude the traditional categories of exceptionality (Mercer 1987). Since numerous disciplines contributed to this field, a number of terms and definitions arose from the multidisciplinary base in the Foundation Period (1800-1960), Emergent Period (1961-1974) and Public Law 94-142 Period (1975-1986) in west. However, the most widely accepted definition of LD is the one proposed by NJCLD (1994) which states that “Learning disabilities is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to central nervous system dysfunction, and may occur across the life span. Problems in self-regulatory behavior, social perception, and social interactions may exist
with learning disabilities but do not by themselves constitute a learning
disability. Although learning disabilities may occur concomitantly with
other handicapping conditions (for example, sensory impairment, mental
retardation, serious emotional disturbance) or with extrinsic influences
(such as cultural differences, insufficient or inappropriate instruction),
they are not the result of those conditions or influences”

The shifting approaches to disability have translated into very diverse
policies and practices in India. The four major identifiable formulations of
disability are the **Charity model**, The **Bio-centric model**, The **functional
model** and The **Human rights model**. India, through policies, programmes
and legislations has committed itself to providing equal opportunities to all
children by adopting learner centered teaching in mainstream schools. The
National Curriculum Framework for School Education (NCFSE, 2000) is a
major step in that direction. This document mentions learning disability as a
separate category of disability.

Mercer (1987) delineates the following characteristics of learning
disabilities: **discrepancy factor, academic learning difficulty, language
disorders, perceptual disorders, metacognitive deficits, social emotional
problems, memory problems, motor disorders & attention problems.** Of
the above mentioned characteristics, each learning disabled child does not
manifest all of these symptoms but rather a **unique combination of some of
these traits.** Except for “normal ability” and some achievement or
performance deficit(s) for membership in the learning disability pool, there
are no specific symptoms or characteristics which are necessary or sufficient
to ensure that a child will be called learning disabled. Reynolds (1985) says,
**people with learning disability have learning problems throughout their
lives. They do not outgrow learning disability, rather they develop coping
strategies.**
For the Learning Disabled students, skill deficits in the three ‘R’ s are prominent. Also deficits in Oral language ie reading and deficits in written language ie spelling and writing are quite prominent.

The reading process involves both the acquisition of meaning by the symbols and the readers own contribution in the form of interpretation, evaluation and reflection of these meanings. It is a two way process involving both recognition of a word and understanding its meaning. Reading is a skill that given the right opportunities one acquires with effortless ease. However reading difficulty is one of the most significant problems experienced by children identified with Learning Disabilities.

Numerous factors contribute to handwriting difficulties, motor problems, faulty visual perception of letters and words, poor visual memory, poor instruction, emotional problems, and /or lack of motivation (Mercer, 1987).

Spelling is the forming of words through the traditional arrangement of letters. It is a far more complex activity than reading. It involves recalling words from memory, using vocal and motor skills. In order to spell proficiently, one must be able to spell words phonetically (Nakra, 1996). Oral language skills and written language skills are interrelated and when one is talking about the learning disabled student one is not referring to reading, writing and spelling in isolation but rather as an overlapping construct.

Currently most research and special programmes derive their bases from three broad paradigms. These are:

I) Neuropsychological Processing Paradigm

II) Information Processing Paradigm

III) Applied Behaviour Analysis Paradigm
“Applied behaviour analysis is the science in which procedures derived from the principles of behaviour are systematically applied to improve socially significant behaviour to a meaningful degree and to demonstrate experimentally that the procedures employed were responsible for the improvement in behaviour” (Alberto & Troutman, 1982).

It is a discipline devoted to the understanding and improvement of human behaviour. Applied behaviour analysis focuses on objectively defined observable behaviours of social significance, it seeks to improve the behaviour under study while demonstrating a relationship between the procedures employed and the behavioural improvement. It uses the methods of science – description, quantification and analysis. The main features of this approach are:

1. Use of Individualized Programmes
2. Response definitions that allow direct observation and measurement
3. Direct observation in the setting in which the behaviour occurs
4. Continuous measurement of behaviour
5. Data presented in numerical form
6. A systematic introduction of independent variables
7. A continuing assessment of the reliability of measurement
8. A detailed explanation of the procedures, thus allowing replication
9. The work is applied
10. An effort to develop conceptual systems
Applied behaviour analysis has had a conspicuous and dominant role in the field of education. Repp (1983) states that “the contributions of applied behaviour analysis to education have not necessarily been new but that they have re-emphasized the importance of thorough and consistent application of learning principles, attention to details and systematic and objective evaluations.

As per this approach the learning disabled individual is viewed simply as exhibiting deficient academic behaviours that can be altered through techniques commonly used with other behaviour disorders.

A substantial and growing body of evidence about effective interventions exists. This literature reveals that it is possible to influence the academic performance of learning disabled pupils by very simple techniques in some cases (Lloyd, 1980). These techniques include reinforcing specific aspects of academic performance (e.g., accuracy, rate) and modeling certain academic behaviours (e.g., fluent reading).

Classrooms should be predictable environments in which children know what is expected and how to succeed. Such predictability occurs because the consequences of following procedures and rules and engaging in classroom work (e.g., task accomplishment & learning) should be rewarding to children, and often this happens (Dreikurs et al., 1982). At times however young children may not comprehend the connection between the task and the consequence, or it may be too distant to be effective. Furthermore, other activities that interfere with learning might be equally or more rewarding. Thus the operant paradigm with its emphasis on antecedent conditions (instructions from the teacher, curriculum tasks, etc.) and consequent conditions (“rewards and punishments”) is well suited to studying problems associated with academic achievement.
A great deal of research has focused on the use of techniques derived from reinforcement theory to bring classroom behaviour under control and to upgrade academic functioning (O’Leary & Becker, 1967). In many instances in special education the teacher must contrive special contingencies for students to increase the frequency of desired responses, thereby resulting in providing the type of reinforcement not commonly employed. Token economy procedures refer to one such contingency. An extensive body of literature indicates that a wide range of behaviours in diverse populations can be modified within a token economy milieu (Kazdin & Bootzin, 1972).

“Token economies are systems that arrange conditions in a manner where the students can earn tokens for appropriate behaviour/criterion which can then be exchanged for something that is of value to them (i.e. something rewarding)” (Repp, 1983). This procedure has two components: The token production component, wherein the student meets some stated response requirement and receives a token; The token exchange component, wherein the student meets some token accumulation requirement and exchanges tokens for backup reinforcers.

**Advantages of tokens:** A number of attributes of tokens as potential reinforcers can be identified:

1) Tokens allow a highly individualized programme
2) Tokens do not close their reinforcing powers when more responses are required for reinforcement, if the change is made gradually.
3) Tokens are a concrete non-varying source of feedback i.e. they are non-ambiguous.
4) Tokens are quite easy to pair with attention (which is more natural to learning environments).
5) Tokens are easy to administer, providing reinforcement without disrupting the learner’s activities.

6) Token reinforcement can occur immediately after correct responding (i.e. they bridge the time gap between responding and the eventual reinforcer).

7) Token system allows not only variation in reinforcers for the same student, but it also allows variation in the eventual reinforcer across students.

8) Token systems have an element of feedback i.e. token delivery provides information that appropriate responding has occurred while token removal provides information that inappropriate responding has occurred.

DESIGNING A TOKEN SYSTEM

There are three basic considerations in the design of a token economy for a classroom (McLaughlin and Wellhains, 1989): Identification of the target behaviours to be reinforced on the token system; determining the items on the reinforcement menu, and setting the exchange rates for back up reinforcers.

7.2 STATEMENT OF THE PROBLEM:

The statement of the problem is stated as “EFFECTIVENESS OF TOKEN ECONOMY PROCEDURES ON THE ACADEMIC PERFORMANCE OF GRADE I, II & III STUDENTS WITH LEARNING DISABILITIES”.

7.3 OBJECTIVES OF THE STUDY:

To provide support to special education programmes “research needs to focus on surveys for assessing the magnitude and status of services, correlational studies to generate hypotheses, experimental and quasi-
experimental research for studying effectiveness of intervention; development studies for understanding phenomena, development of tools and techniques; case studies and ethnographic studies” (Jangira & Mukhopadhyay, 1991)

With the above in mind the present study has been directed to the following objectives:

1. To identify students with learning disabilities utilizing the listed assessment tools.
2. To identify specific problems in the academic skill areas of reading, writing and spelling for identified students.
3. To select academic objectives for identified students based on assessment results in the areas of reading, writing & spelling.
4. To design a token economy programme for the attainment of objectives selected for instruction in the areas of reading, writing and spelling.
5. To examine the optimum level of academic performance, with and without TE, of students in the three areas of reading, writing and spelling.
6. To study the effectiveness of TE procedures on the academic performance of LD students in the three academic areas of reading, writing and spelling.
7. To assess and compare differential effectiveness of TE at grade I, II, III in the areas of reading, writing and spelling.
8. To find out the interaction effect of TE x Grades on the performance in the three skill areas namely reading, writing and spelling.
9. To examine the retention of gains if any, in the three areas of reading, writing and spelling during the interval period of the two block of study.
10. To assess the **transfer effect** of TE procedures from the area of English language (ie. reading, writing and spelling) performance to maths.

**7.4 DELIMITATIONS OF THE STUDY**

1. The sample of the study is limited to students of only one convent school situated in the U.T Chandigarh.

2. Since the study involves one of the categories of exceptional children, namely learning disabled, the total sample size will be contingent on identification of the same.

3. The LD students will be drawn only from grade I, II & III of elementary grades.

4. Only three areas of academic performance namely reading, writing and spelling will be taken up for instructional intervention.

5. Behavioural problems manifested will not fall within the scope of the study.

**7.5 HYPOTHESES**

In light of the scarcity of researches and replication studies on this hidden handicap (ie LD), null hypotheses have been formulated in the present study. The first four objectives do not require hypotheses as they have to be carried out by the investigator in order to commence the TE procedure.

1. No significant differences exist between the treatment and no treatment in the rate of learning to achieve the optimum level of expected academic performance in the three skill areas of reading, writing and spelling.
2. No significant differences exist between the groups treated by the TE procedure and without TE in the three skill areas of reading, writing and spelling.

3. No significant differences emerge in the academic performance of LD students due to variations in grade levels in the three areas of reading, writing and spelling.

4. There is no significant interaction effect on account of treatment (TE & Non-TE) into grade levels (I, II & III) on the academic performance in the areas of reading, writing and spelling.

5. There are no significant differences between TE treatment group and control group in the gains retained during the interval period between two phases of the experiment in the 3 skill areas of reading, writing and spelling.

6. There is no transfer effect of TE procedure from English language skill (ie reading, writing & spelling) to maths.

7.6 DESIGN OF THE STUDY

For the present study a pre test post test control group design was used. As per its requisites, it involved two groups namely. Both the treatment and the non-treatment groups were administered Grade Level assessment device (GLADa) before the actual experiment started in order to assess Learning Disabilities and set academic objectives. Following this the teacher assembled Language achievement test (LAT) was given as a pre test 1 and post test 1. The design involved TE as the treatment (independent variable). The effect of which was seen on the dependent (criterion) variable of performance on Language achievement test. In between the pre-test 1 and post test 1, the two groups were treated differently. The experimental group was given remediation plus TE and the control group received only remediation in the
Learning Centre of the school for three non-academic periods a week. The sample was split gradewise i.e grade I, II & III.

The experiment was conducted in two phases. There was a gap of one month between the two phases. For the second phase the same experimental procedures were repeated. A LAT pretest2 was given in the beginning of the second phase which served to check for retention of gains if any in both the groups. This was followed by LAT Post Test 2. Fifteen days after the cessation of the experiment GLADb was administered in order to see whether there was any improvement in their levels of functioning in terms of Frustrational, Instructional and Independent.

7.7 SAMPLE

The sample was limited to one English medium convent school in Chandigarh, namely St. John’s High School. It is an all boys school. 34 referred cases with Learning disabilities studying in grade I, II & III and having problems in the academic areas of spelling, reading and writing were taken to constitute the sample. Thus the sample could be stated as referral sample consisting of three strata that is grade I, II & III. These students were then assigned numbers on the basis of which they were further randomly assigned to Experimental and control groups through a lottery system separately for each grade. Thus each of the three strata (ie grades) had one experimental group and one control group. Following this, each student was assigned code as S-1 (Subject 1) to S-34.

7.8 TOOLS USED FOR THE STUDY:

Owing to a wide variety of characteristics no single test or score can be used to diagnose Learning Disabilities (Richards, 2000). To gather data in
order to test the hypothesis under study. Two types of tools were used which can be categorized as:

I. Assessment Tools

II. Intervention Tools

I ASSESSMENT TOOLS

(a) Draw-a-man Test for Indian Children (Pathak, 1966)

(b) Raven’s Coloured Progressive Matrices (Raven, Raven & Court, 1998)

(c) Grade Level assessment device (Narayan, 1997)

(d) Language Achievement Test-assembled by the researcher.

a) **DRAW –a –man TEST FOR INDIAN CHILDREN (Pathak, 1966)**

This test is an adapted version by Pramila Pathak (1966) of Goodenough’s (1926) Draw-a- man test. Draw –a – man test is applicable for ages 5+ and 12+ years and can be calculated on five environmental levels. The observers of children’s drawings have noted that in the given mean age group, intelligence is the most important factor in their drawing. Analysis of the drawing activity and its development has shown the imagery, imagination, education of relations, reasoning and memory at work in children drawings. This basic fact about drawings of children has made Draw-a-man test a reasonably valid measure of intelligence. **For the present study this test was used to ascertain & ensure that the children constituting the sample have normal or above normal intelligence and also to rule out the factor of a severe discrepancy between expected and actual performance existing due to a condition other than learning disability**

- **RAVEN'S COLOURED PROGRESSIVE MATRICES (Raven, Raven & Court, 1998)**
As the name implies Raven’s Coloured Progressive Matrices is composed of a set of figural matrices that can be used as a measure of general intelligence. Due to minimal language involvement, this test is particularly suited to assessing the intelligence of individuals with language disabilities and children whose native language is not English (Reynolds et. al, 1990), thus justifying its use in the present study.

- **GRADE LEVEL ASSESSMENT DEVICE (GLAD) (NARAYAN 1966):** This tool was developed by Jayanthi Narayan (1997). It can be used by primary teachers to provide an assessment of academic achievement as well as systematic observation and recording of processing problems in children upto class IV level. GLAD was used in the present study to assess the academic achievement of students and identify the types of errors made by them in reading, writing and spelling in English.

- **LANGUAGE ACHIEVEMENT TEST (LAT)** – This test is a teacher assembled test ie the researcher herself assembled it. It was used to pre-test and post test students in both the experimental and control groups for their academic performance in reading, writing and spelling. It comprised of the following items, Alphabet names, Consonant Names, Consonant Sounds , Vowel Names, Vowel Sounds, Spelling Test (ST), Handwriting, Reading Words, Reading Sentences , Listening Comprehension, Writing Comprehension

### II INTERVENTION TOOLS

For the present study the researcher designed and procured:

1. **Tokens** to be dispensed. (Appendix ‘J’)

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2. **Token economy progress chart** with exchange rate of tokens to monitor performance and delivery of tokens (*Appendix ‘K’*)

3. Teaching learning material: which consisted of
   
i. **Worksheets and probesheets to record the permanent products** of the students on-task performance on reading (4 points), writing (3 points) and spelling (3 points). These worksheets were partly designed by the investigator and some were reproducibles from activity books.

   ii. Teaching aids – like story books, **flash cards**, story pictures starters, English alphabet strip, play dough, colouring sheets, crossword and pictures puzzles were procured. Details of token economy procedures are given along with theoretical **basis of Behaviours Analysis and Interpretation** in separate Chapter (ie Chapter - 4)

7.9 **CONDUCT OF EXPERIMENT**

The investigator herself carried out the remediation for both the groups i.e for the experimental group remediation with TE and for the control group remediation without TE. Nineteen sessions each were conducted for reading, writing and spelling for each student in both the groups and for both the first phase and the second phase of the experiment thereby making 19 x 3 = 57 sessions.

Students in the experimental group were explained the Token Economy Procedure. They were told about (i) **The token production component**, wherein their correct responses in reading, writing and spelling on the worksheets would earn them points ie for reading (4 points), writing (3 points) and spelling (3 points). A total of the points obtained by them would
make them eligible to receive tokens at the end of the third session. 2 points earned is equal to 1 token ie a student could earn a maximum of 5 tokens per worksheets set. (ii) **Token exchange component:** On the third day of each session, the tokens could be exchanged for backup reinforcers listed in a chart format on the notice board that is to say that they could purchase something in the Learning Centre with a token or tokens earned. For that they would have to pay through tokens earned.

The experimental and control groups visited the Learning Centre at different times ie when the experimental group of grade I visited the Learning Centre, no other experimental or control group of any grade was there for remediation and likewise for experimental groups and control groups for grade II and III. The delivery of points was contingent on permanent products of performance ie. work done in worksheets. And only the experimental group earned tokens on these points. Each worksheet set had a reading, writing and a spelling component. One worksheet set was used for 3 sessions ie one session of reading, one session of writing and one session of spelling remediation. Only the experimental group got corresponding tokens for points. The design of the tokens was changed for every session either in terms of drawing on it & colour in order to avoid duplication by students. A chart was put up which showed the number of tokens each student in the experimental group was earning as the sessions proceeded from session one to session nineteen.

Remediation for both the groups with & without TE was taken up in specific areas which were

1) **Auditory Visual Channel**

2) **Specific Spelling Rules And Cues**
3) Training In Comprehension Skills

4) Oral Expression

5) Written Expression

6) Visuomotor Perceptual Aspects

These were incorporated to enable the students to approach language in a systematic manner. The new material was presented in a variety of situations and ways. Worksheets based on all the above were used extensively.

7.10 STATISTICAL TECHNIQUES EMPLOYED

A combination of a quantitative and qualitative analyses has been undertaken in the present study.

The following statistical techniques were employed to analyze the data:

- Measures of Central tendency and variability that is mean, standard deviation, Skewness & Kurtosis for examining the nature of distribution of scores of the experimental and control group.

- Two way analysis of variance (ANOVA) was employed to evaluate the main and interactional effects of the independent variables of treatment and grade on the criterion variables of performance in the three skill areas: reading, writing & spelling in English.

- t-test was used to find out the significance of differences between means wherever F-values were found to be significant at 0.05 or 0.01 level

- Graphic presentation was done through line diagrams & bar graphs wherever these helped in the meaningful interpretation of results. In
addition percentages were worked out for use in the qualitative interpretation of the data.

7.11 FINDINGS AND CONCLUSIONS

7.11.1 Token Economy And Optimum Level of Learning

1) Across all three grade levels, experimental group remediated with TE procedure progressed in learning at a faster rate.

2) At the initial stage the mean performance of experimental and control group was almost alike but at the terminal stage experimental group predominantly outperformed the control group subjects.

3) Individuals subjects with learning disabilities characteristically demonstrated uneven performance profiles with significant peaks and valleys both in the control group and experimental group ie individual differences are prominent.

4) Remediation produces changes in student performance, but remediation plus token economy (TE) produces a comparatively significant positive change.

5) The intra individual discrepancies are evident in performance on different tasks ie reading, writing and spelling.

6) Immediate feedback is germane to learning.

7) After phase 1 both the experimental and control group had a dip in performance which was overcome immediately in TE experimental group. Whereas the control group took more trials to come to its previous performance level (at the end of phase 1).

8) After the initial period is over TE starts facilitating the learning of language resulting in a sudden spurt in the performance of
experimental group as compared to the control group which shows lower mean percentages on worksheets. This spurt continues to be maintained with one to two plateau periods in the first phase towards the end of which the optimal level of learning is reached.

9) Throughout the period of conduct of experiment that is the learning period, subjects of experimental group outperform the subjects in the control group (barring the first two-three trials.)

7.11.2 TOKEN ECONOMY AND PERFORMANCE IN READING, WRITNG AND SPELLING AND TOTAL ACADEMIC PERFORMANCE

(a) Effect of Treatment group

1) TE procedures are a significant factor in positively influencing the gains of remediation.

2) The performance of the group treated by the TE procedure (ie experimental group) in the three skill areas of reading, writing, spelling and also in total language is significantly better than the group treated without the TE procedure (ie control group)

3) It takes some minimal time for TE procedures to be significantly effective. Although the gains in learning the skills of reading, writing and spelling start appearing from the very beginning, yet for these gains to be significant over simple remediation there is a need to continue the treatment at least for more than about 19 sessions.

(b) Effect of Grade

1) Grade emerged as a significant factor of the performance of LD students in reading, writing & spelling and also their totals during Phase II.
2) There are significant inter grade differences for reading between grade I & II, II & III but not between grades I & II.

3) Significant differences exist between LD students for writing in grade I, II; grade I > III and also grade II > III.

4) Differences in performance in LD students on writing skills between grade I & III do not reach .05 levels of significance.

5) Generally, gains of remediation are reflected maximum at grade I level followed by grade II & III levels in descending order among LD students.

6) TE is more useful at the early intervention stage. Its effects start diminishing at subsequent grade II and its effects are almost negligible till children reach grade III.

(c) Interaction of Treatment and Grade

1) Interaction of treatment and grade had accounted for the significant variations in the performance of various groups in the skill areas of reading, and writing but not in the area of spelling & also in total scores.

2) Grade I students who were treated with TE procedure were the best group in the total study in terms of gain scores in acquiring the skills in reading.

3) Grade I students were more responsive to the treatment (irrespective of TE procedure) for enhancing their performance in reading as compared to grade II & grade III students of experimental and control group.

4) Treatment with TE procedure was better than without TE procedure for grade I & II students to enhance their writing skills.
5) At grade III, the TE procedure was not as effective as it was for grade I & II students.

6) TE results in facilitating maximum gains in reading at grade I. As the students with LD grow their disability is more apparent in terms of performance in reading with or without TE.

7) The interactional effect of treatment (remediation with and without TE procedures) at three grade levels does not lead to significant variations in the acquisition of writing skills among LD students neither at grade I level nor at the grade II and III levels.

8) At grade levels I & II, LD students remediated with TE procedure outdid their counter parts (i.e. LD subjects given remediation alone) on the skills of writing totals. But at grade III level LD students who were not remediated with TE procedure had a slight edge over those remediated with TE.

9) Results of the interactional effect of treatment x grades on the skills of spellings and total academic performance, broadly speaking, were similar to those obtained and reported in (i) & (ii) above for the writing skills. That is TE procedures when combined with remediation facilitate learning of skills in spelling (total academic performance) in enabling treated with TE students gain superiority over students remediated without TE procedures at grade I & II but not at grade III. At grade III level hardly any differences are noticed, whatever little differences are there, these are rather in favour of LD subjects treated without TE procedure.

7.11.3 RETENTION OF GAIN IN THE SKILL OF READIN, WRITING AND SPELLING

1) The remediation + TE leads to greater retention (at grade I) and also (b) retention plus increment i.e (at grade II & III)
2) Skills in reading, writing and spelling learnt/practiced with both remediation and remediation plus TE are retained substantially inspite of likely forgetting occurring during the interval in between the two phases of treatment (ie one month gap)

3) Retention of learnt language skills is more with TE procedure as compared to only remediation. These trends in retention reveal that remediation alone to the control group does produce relatively permanent changes in the academic behaviour potentiality of LD students to be recalled at a later stage after non-practice period whereas remediation combined with TE (given to the experimental group) does produce these changes, but as a result of reinforced practice some type of strengthening of learning takes place during non-practice period leading to increments in learning as reflected in the academic performance in the English language skills of reading, writing & spelling of LD students.

7.11.4 TRANSFER EFFECT

1) Training in skills of reading, writing and spelling with or without TE procedure leads to positive transfer but did not lead to any substantial or significant carry over, ie transfer effect in maths.

2) And that the differences in this respect between the treatment with TE or without TE group do not reach the .05 level of significance at any of the three grade levels ie I,II & III.

7.12 EDUCATIONAL IMPLICATIONS

Any educational research is worthwhile if it results into fruitful educational implications. In so far as the present investigation is concerned its findings can be initialized by special educators, mainstream teachers, teacher educators, and parents for enhancing students learning & performance through reinforcement.
• Early identification of students with LD should be done in order to provide early intervention so that they can overcome their weaknesses and develop coping strategies early in the course of the problem as well as early in their lives.

• The remedial plus TE procedure applied to the experimental groups in grade I, II & III was found to be effective in improving academic performance in the area of reading, writing and spelling. Remedial educators can include this procedure for remediation in different areas in their remedial programmes.

• The remedial TE programme was found to have a lasting effect on the area studied. Thus, parents and teachers are benefited along with the students themselves as the cause of their child’s / students poor performance can be detected and dealt with.

• TE procedures were most effective at grade I as compared to at grade II & III. Thus going on to strengthen the premise of early intervention.

• Grade III students did not perform as well as grade II & grade I thus going on to prove that the effects of learning disabilities become more apparent and disabling for the students as the grade level increases.

• Subject remediation is important for LD students as remediation in English will not necessarily improve performance in maths.

7.13 SUGGESTIONS FOR FURTHER RESEARCH

The question is not whether a particularly intervention works, but how it works and how it can work much better (Swanson & Sachse –lee, 2000). The researcher is aware of the limitations to the present study and therefore accepts that there could be limitations that pose problems regarding generalizations (to other student populations) namely:
i. The relatively small number of students with Learning Disabilities participating in this study.

ii. The model of inclusive education adopted by the school system in which the students were enrolled may be very different from the models of inclusive education adopted by other schools. The school followed the resource room (ie Learning Centre) model wherein the students were served by the Learning centre, thrice a week during non-academic periods and in the regular education classroom for the remaining study periods.

The findings of this study are only indicative of trends are to be viewed in the light of the following other limitations:

1) Subjects in the age range 5 to 9 years studying in grade I, II & III only were considered for the study

2) Sample for the study comprised of subjects from only one convent school in Chandigarh.

3) Academic performance was measured only in terms of reading, writing and spelling

4) The sample was an all boys sample

It is said that the touchstone of any research investigation happens to be its potentiality to indicate “field unknown and pastures new” The researcher offers the following suggestions for further research that could be undertaken by prospective researchers:

1. The study can be replicated using larger samples and the sample could comprise of both boys and girls at different developmental levels.

2. The present study was limited to the students of primary level. It can be extended to examine reading, writing and spelling at secondary level.
3. Subjects of age group both lower and higher to ones in the present study can be identified and given treatment. The results can then be compared with those of the present study to get a clear picture of the effectiveness of TE procedures.

4. The areas of remediation with TE can be increased to mathematics, science and social studies.

5. More remedial activities can be introduced in the programmes.

6. The length of the remediation with TE programmes can be increased and effects be seen. The study can be replicated at other places to increase generalization of findings.

7. A delayed post test can be introduced to investigate the long-term influence of treatment with TE.

8. Socio – economic status and birth order could be examined in relation to academic performance.