Chapter 2

Review of Literature

This chapter discusses literature related to the problem under study. This chapter is divided into two parts; the first part deals with literature related to the characteristics of children with LD and the importance of intervention focusing on both the learning as well as associated problems. In the second part, literature supporting the effect of self regulated strategies for the treatment of writing difficulties and the effect of behavior modification therapy for the treatment of behavior problems is presented.

Characteristics of children with Learning Disabilities

Learning disabilities are often found with co-morbid conditions. Research has shown psycho-social and behavioral problems associated with LD. Studies have also explored the neuro-psychological profile of students with LD (Kohli, Kaur, Mohanty & Malhotra, 2006). In this section, research showing the occurrence of psychosocial, behavioral and personality factors associated with LD has been discussed.

Studies have revealed that students with LD often have poor peer relations and social interactions (Guar 2000; Lall, Hirisave, Kapur, Subbakrishna, 1997). In a study conducted by Lal, Hirisave, Kapur and Subbakrishna (1997) in India,poor social competence and poor peer relations amongst students with LD was observed. The teachers involved in this study, found that the students were poor in academics, popularity, affiliation and sportsmanship qualities.

Historically, there has been a concern regarding the consequences of damaged self on the development of students with LD. Anxiety and low self esteem has been

reported by several studies (Bender, 1967; Mukherjee, Hirisave& Kapur, 1995). In the study by Mukherjee, Hirisave and Kapur (1995), a significant difference was found in the self-esteem of children with and with out scholastic problems. The students with scholastic problems had higher state anxiety.

Stress and tension often leads to ineffective and aberrant behaviors in children with LD. Studies have shown thatstudents with LD also have co-morbid behavioral problems (Auerbach, Gross-Tsur, Manor & Shalev, 2008;Gaskins 1998; Graham & Harris, 1999;Harris 1982;Hirsave & Shanti 2002;Karande et al, 2007;Pisecco, Baker, Silva & Brooke, 1996;). A study conducted in India by Hirsave and Shanti (2002) on children with scholastic problems, revealed a number of behavioral problems. These children were assessed using a test for LD and behavior problems. The results showed both externalizing and internalizing problems accompanied by academic problems. Maladaptive behaviors such as low tolerance to failure, attention difficulties, impulsivity, disorganization, inflexibility lack of persistence, withdrawal behavior, day dreaming andfrequent absences have been observed in children with LD (Gaskins 1998; Harris 1982; Karande et al., 2007).

According to Karande (2005), 15-20% of children with LD show characteristics of attention deficit hyperactivity disorder (ADHD). Students with LD and ADHD showed more severe problems than children with LD and no ADHD (Karande et al, 2007; Mayes, Calhoun & Crowell 2000). In the study conducted by Karande et al, 30% of the students also experienced class retention which is often the cause for loss of self esteem and the development of maladaptive or aggressive behavior patterns. These children are at a higher risk for severe emotional stress (Karande, 2005; Karande et al, 2007). According to Mishna (2003), students with LD

are at an increased risk of victimization. However,the relationship between LD and bullying needs to be explored further.

Hence, it may be stated that several studies have shown that LD more often occurs with associated problems. Researchers have recommended the intervention for the associated problems along with the intervention for the specific type of LD. In the following section, the investigator presents a review of literature on the self-regulation theory.

Writing and the need for writing intervention

Writing is a complex process with multiple aspects. Writing includes both transcription and planning processes. While transcription skills include mechanical skills such as handwriting and spelling, planning processes include skills used for composition. Basic skills such as transcription skills are important for the automatic execution of higher level skills of composing which involves planning processes such as editing and revising (Graham & Harris, 2006).

The intervention in this study targeted both the processes mentioned above namely transcription and planning processes targeting the handwriting, spelling and composition aspects of the participants' writing. Extra instructions for transcription skills to children who are at-risk writers have proved to be effective not only for the target skills but also for the overall development of children's writing output. Difficulties in the basic transcription skills may hamper writing development in children and interfere with the execution of other composing processes (Berninger, 1999;Graham, 1999; Graham, Harris & Fink, 2000). Often students' written output is judged for penmanship than the overall content of the piece (Graham, Harris & Fink).

Most children with writing problems complain that their hands hurt while writing. This may slow down the writing speed of these students. According to Weintraub & Graham (1998), writing speed of students with LD has been found to be twice as less than students without LD. These students often find it difficult to match the speed of their thoughts resulting in poor productivity.

Similarly, spelling difficulties may also hinder the development of writing skills. Children with poor spellings score less than the students who have fewer or no spelling errors for writing quality (Graham & Weintraub, 1996). Students with spelling problems seem to have limited vocabulary because they prefer to use only those words that they think they can spell. This increases the number of common words and reduces the number of uncommon words in their compositions (Graham, Harris & Fink, 2000). Graham, Harris and Fink (2000) conducted a study with 30 first grade children with difficulties in handwriting, spelling and composition skills. These children were randomly distributed into two groups matched on word-recognition skills and intelligence. One group was assigned to the intervention designed by the researchers for extra handwriting and spelling instruction and the other group was assigned to the phonological awareness program. The researchers found that compared to the phonological awareness program, the extra handwriting and spelling instruction program increased the spelling, handwriting legibility & fluency, sentence writing, and vocabulary diversity in their compositions. Hence, instruction in handwriting and spelling not only leads to improved legibility and spelling but also improves sentence construction and vocabulary diversity.

The ultimate aim of instruction for writing is to make children better writers. Good writers self-regulate their behavior before, during and after writing. Often

students with LD or students at risk for writing fail to use these strategies. They lack the essential knowledge required for writing. In addition they may also experience problems such as negative attitude towards writing. These students need instruction that will make them goal oriented and reflective. To write well the students need to have a good word choice that comes from a diverse vocabulary. In addition, the grammatical rules involved in the language are also important. Finally, the students need to plan, revise and edit the written material to produce a good writing material. Some researchers also see the need to focus on the audience of the written material as well. The writers need to know the reason they are writing and for who they are writing the paper. This allows them to present their ideas in accordance to the demand. Instruction for good writing skills should involve training in sentence combining, organization of thoughts, spellings, grammar and planning.

Studies comparing the writing of students with and without LD have shown that the writing of students with LD is shorter, less cohesive and poorer in overall quality. Hence, students with LD need an intervention program that targets all the areas of writing including transcription and composition skills.

Self regulation and writing

"Self regulation refers to the self-directive process through which learners transform their mental abilities into task related skills" (Zimmerman, 1986, 1989, 1994). Self-regulation is a method that has both behavioral and educational outcomes. By using self-regulatory skills, learners learn to manage their thoughts and organize them to use it for learning a desired task. It involves constant monitoring of one's progress. This method has been found to be useful in engaging students proactively in the activity. According to Bandura (2001), people's thoughts and their behaviors are

interlinked through self-regulatory processes.

Self-regulation finds its place in the social cognitive approach that believes that one's behavior is influenced by one's thoughts, belief systems and emotions. According to Harris, Reid & Graham (2004), there are four components of self-regulation: Self monitoring, self-instruction, goal setting and self reinforcement. While others think self-observation, self-judgment and self reaction composes self regulation (Bandura, 1986: Schunk, 1994). Self regulation techniques can be used independently or in combination. Successful people already use self-regulation techniques. They constantly check their performance on a given task. On the other hand, children who have problem acquiring a particular skill do not use these techniques.

As mentioned above, self-regulation techniques have been widely used for educational as well as behavioral outcomes. Researchers have been using self regulation strategies in various combinations for a variety of problems. One of the most popular methods of using self regulation techniques is the Self Regulated Strategy Design (SRSD).

Graham and Harris have been working on students with writing problems using the SRSD for over 20 years. SRSD was developed as a model to improve students' expressive writing skills. Through this model students are taught to plan, revise and edit during writing. According to Graham & Harris (1997b), students who have writing problems do not engage actively in the planning, revising and editing processes while composing. This model includes six stages: 1) Build Background Knowledge. 2) Discuss it. 3) Model it. 4) Memorize it. 5) Support it. 6) Independent performance. This model incorporates self regulation procedures such as self-

instruction, goal setting, self-monitoring, and self-reinforcement. Not all stages may be required for every student. This model allows for individual improvisations. In this model, like any other self regulation technique, the teacher and student work together until the student achieves complete autonomy over the strategies. The teacher scaffolds the learning and self regulation techniques and gradually leaves when the student is ready to use the techniques independently. Through internalization and generalization, students learn to use these techniques automatically on a regular basis and for a variety of tasks (Harris, Graham, Mason & Saddler 2002).

As mentioned earlier, self-regulation technique via the use of SRSD has been used by experts with students to overcome their academic difficulties. SRSD has been used in areas other than writing as well (Harris & Graham, 1992; Johnson, Graham & Harris, 1997; Paris & Paris, 2001). A discussion of studies using SRSD technique is presented here. These studies used this technique to help students with difficulty in written expression. Some have used this model to teach story writing and narrative writing, while others have used it for specifically teaching planning and revision.

Graham with his colleagues has compared different writing intervention techniques through meta-analysis. SRSD has been found to be a powerful and effective technique with a larger effect size than the other techniques. Amongst studies conducted with students in grades 4 through 12, they found that SRSD had an average weighted effect size of 1.14 which was the highest amongst all the writing interventions (Graham and Perrin, 2007). Similar results have been reported by two other studies with primary grade students with poor writing skills (Graham, Harris, & Mason, 2005 & Harris, Graham & Mason, 2006). SRSD had a great impact on the overall writing quality of the students in all the above mentioned studies.

A study conducted with six second grade students using SRSD showed improvement in the length and quality of the written paper. These children learnt to plan and draft the material before writing the final piece (Lieneman, Graham, Leader-Janssen & Reid, 2006). Saddler, Moran, Graham and Harris (2004) also used SRSD for narrative writing with six students from the 2nd grade.

Graham, Harris and Mason (2004) conducted a study with a large sample of 73 third grade students from a total of twelve classes across four schools. In this study, the participants were randomly distributed into three groups. The students from each of these groups were assigned to one of the three treatment groups; SRSD only, SRSD plus peer and comparison.

Sexton, Harris and Graham (1998) conducted a study with six students belonging to the 5th and 6th grade. The students were taught the SRSD strategies for composition. The intervention had a positive impact on the students writing. They planned well before writing and the length of their written piece also increased. Another study involving three fifth grade students also produced positive impact on the students' writing (Troia, Graham & Harris 1999). They modified SRSD by using goal setting, brainstorming and organizing instead of the six stages normally used in the SRSD model.

All the above studies were conducted with students with LD and having writing problems. SRSD has also been used with students without LD and Emotional and Behavior Disorders (EBD). In a study using multiple probe design with six second grade students with EBD and writing problems, SRSD was used to teach the students to plan and draft stories. At the end of the intervention, the students wrote stories that were complete, long, and the overall quality also improved. Furthermore,

the students and teachers also found the technique favorable (Lane et al., 2008). Similar results have also been found in three other studies (De La Paz, 1999; Graham, Harris & Mason, 2005; Harris, Mason & Shriner, 2006 & Mason, Harris & Graham, 2002). SRSD also emerged as an evidence-based practice in the meta-analysis conducted by Baker, Chard, Ketterlin-Geller, Apichatabutra and Doabler (2009). They identified 49 articles that involved studies where SRSD was used for writing intervention with students with LD. Out of these they found 21 articles that met the inclusion criteria for their analysis based on criteria for group research studies suggested by Gersten et al. (2005) and single-subject research studies suggested by Horner et al. (2005). This study that aimed at evaluating the quality of research and evidence base for the SRSD model, found that the five experimental and quasi-experimental studies (De La Paz & Graham, 1997a; Graham, Harris & Mason, 2005; Harris, Graham & Mason, 2006; MacArthur, Schwartz & Graham, 1991 & Sawyer, Graham & Harris, 1992) and the sixteen single-subject studies(Danoff, Harris& Graham, 1993; De La Paz, 1999, De La Paz, 2001; De La Paz & Graham, 1997b; Graham & Harris, 1989; Graham & MacArthur, 1988; Graham, MacArthur, Schwartz & Paige-Voth, 1992; Harris & Graham, 1985; Lienemann, Graham, Leader-Janssen & Reid, 2006; Mason, Snyder, Sukhram & Kedem, 2006; Saddler, Moran, Graham & Harris, 2004; Sexton, Harris & Graham, 1998; Stoddard & MacArthur, 1993 & Troia, Graham & Harris, 1999) met the proposed standards for an evidence-based intervention. Some of these studies have been discussed here.

One of the benefits of the SRSD model is that it can be easily used in the classroom (Paris & Paris, 2001). This has been illustrated in the article by Graham, Harris and McArthur (2006), through an example of a study conducted on one class over a period of six weeks. Apart from the SRSD model, self regulation technique has

also been used in other forms. While SRSD embeds most of the self regulation procedures, other intervention designs have made use of one or more of these procedures. For example, self-monitoring alone has been used in several studies with students with a variety of academic and non academic problems.

Self-monitoring also has been used with students with LD (Di Gangi, Maag & Rutherford, 1991). It consists of two elements: self-observation and self-recording. In educational research, self-monitoring has been used in two forms; self monitoring of Performance (SMP)and Self-monitoring of Attention (SMA). While students learn to monitor their performance through SMP; either through the amount of work they accomplish in a given time (productivity) or the quality of work they produce (accuracy). On the other hand, through SMA, students learn to monitor their behavior while attending to their on-task or off-task behavior. The theoretical backgrounds of both these procedures are different. While SMA follows the theory of behaviorism, where attention is looked at as an observable and measurable behavior, on the other hand SMP is based in the cognitive theory. Studies have shown that students' academic performance increases with SMP and student's on-task has been improved by SMA procedures. Both the procedures have been used for the intervention procedures for children with LD and other problems such as ADHD. While it is difficult to say which one is a better mode of intervention, the under lying characteristics of the children undergoing the procedure must be taken into account before deciding on any one of these self-monitoring techniques. On comparison, SMP has been found to be more effective in increasing the academic performance of children with LD whereas SMA has been more effective for children with ADHD. Several researchers have studied the differential effects of these two studies. Some of these studies have also been conducted on writing processes such as spelling and

composing. Most of these studies have been conducted on students with LD.

A study was conducted on the spelling practice of four students with LD from the elementary grade (Harris, 1986). In this multiple baseline across participants design with counterbalancing, the students were taught SMP and SMA procedures. They were also taught a strategy to practice spellings. A tape-recorder was used to cue the child to monitor their on-task behavior and mark a 'yes' or 'no' mark on the T-chart. For the SMP procedures, the students were taught to count the number of times they practiced spellings and mark it on a graph that was provided prior to the session.

Although both the procedures increased the on-task behavior, the results on performance was inconclusive. However, the students and the teachers preferred the SMP procedures. SMP was also the preferred procedure in the study conducted by Reid and Harris (1993). This was an experimental study examining the differential effects of SMA and SMP procedures. This was a repeated measures design where both the groups received both the types of treatments however the treatments were counterbalanced for carry over effects. All of the twenty-nine students with LD were randomly assigned to one of the two experimental groups. Results showed that both the strategies increased the on-task behavior. However, the students practiced more during the SMP procedure. The maintenance data was the strongest where SMP procedure was found to be more effective.

Some studies also tried to compare the two groups with a combination of the two groups. For example, Rooney, Polloway and Hallahan (1985) tried to study the effect of the combination of these two procedures. On-task behavior and performance was recorded during the SMA, SMP and SMA plus SMP phase. SMA plus SMP

phase resulted in social and academic gains. Although the results were inconclusive to establish any differences in the three procedures, overall the students did gain.

Few researches have also improvised the self-monitoring technique by including self-graphing and other such components (Harris, Graham, Reid, McElroy & Hamby, 1994& Di Gangi, Maag & Rutherford, 1991). Harris et al. presented two studies where they compared SMA and SMP procedures. In addition they also included a self graphing component. This study followed the procedures of the previous experiments conducted by Harris except for the self-graphing procedure. Results show that the on-task behavior was improved by both the conditions; however the performance on the spelling practice during SMP improved for two out of the four students with LD. The students and teachers both preferred the SMP procedures. In the second study by Harris et al. (1994), they compared the two self-monitoring procedures for story writing. Performance on story writing was measured by the number of words generated. The study used a counterbalanced multiple baseline across participants design with four elementary grade boys. They were taught a strategy for writing stories before teaching them SMA and SMP techniques. Here again, like the previous studies, both procedures improved the students' on-task behavior. However, the results were inconclusive for academic performance.

Another study that included self-graphing was conducted by Di Gangi, Maag and Rutherford (1991). In addition, the study also studied the effect of self-evaluation and self-reinforcement. On-task behavior and academic performance in arithmetic of two students with LD was studied using a single subject multiple treatment design. Students recorded their on-task behavior during the self-monitoring (SM) phase, in the next phase the student recorded and in addition plotted the total number of tally

marks for their on-task behavior on a graph. In the third phase, the students continued to SM and self-graph (SG). In addition they would give themselves some verbal reinforcement. In the final phase they evaluated themselves. This was also verbal. For example, if they finished and had 8-10 tally marks they would say "I did okay". In addition they also self-monitored, self-graphed and self-evaluated their on-task behavior. Finally, data was also taken from the fading phase. Both students showed improvement in their on-task behavior and academic performance during the SM phase and it increased during SM plus SG phase. However, not much improvement was noted during the self-reinforcement and self-evaluation phases.

While the previous study involved the self-monitoring of on-task behavior, Shimabukuro, Prater, Jenkins and Edelen-Smith (1999) studied the effect of self-monitoring of academic productivity and accuracy on the on-task behavior and academic performance on students with LD and ADD/ADHD. They used self-monitoring and self-graphing techniques in this multiple baseline design across three academic areas of reading, mathematics and written expression. All the three students showed improvement in their on-task behavior and academic performance through this technique.

Hence, self-monitoring can also be independently used for intervention for students with LD. Self-monitoring of performance has been found to be more effective with students with LD. All the above discussed studies prove that self-regulated procedures have a positive impact on students with LD. Students with LD often have problems managing their behavior and ideas before writing. Self-regulation helps them to self-regulate their behavior and use their knowledge while writing. Students with LD also have additional problems such as behavior problems.

Studies discussed earlier show the co-occurrence of LD and behavior problems. These problems make the process of writing even more difficult for these students. Graham & Harris have recommended that intervention programs should aim to remove the academic as well as non-academic roadblocks in students with LD. The next section discusses behavior modification therapy for the intervention of behavior problems in children.

Behavior modification therapy:

This therapy is based on the theory of behaviorism. Existing since the early twentieth century, this theory believes that only observable behavior can serve as a basis for understanding human behavior. The behavior, the stimuli and the reinforcing conditions that control it are all important in understanding behavior (Hall, Lindzey & Campbell, 1998). Behavior therapy is organized around the theme of learning. The behaviorists' believe that all behavior is learned. They focus on the learning process to understand how learning occurs. They tried to learn this by focusing on the environmental conditions that play the role in the acquisition, modification and possible elimination of various types of response patterns.

Through conditioning experiments the behaviorist found the effect of reinforcement for a desired behavior. These experiments showed that through appropriate reinforcement, a desired behavior could be produced (Hall, Lindzey & Campbell, 1998). While a positive reinforcement promotes a desired behavior, a negative reinforcement eliminates or reduces the undesired behavior. Many researchers have debated the use of negative reinforcement, while others believe that harmless negative reinforcements such as time-out are useful to weaken or remove an

undesired behavior. Furthermore, processes such as generalization, discrimination and extinction increases the scope of the learning.

Before administering the therapy, it is important to get a functional assessment of the behavior. A simple way of doing this is through the ABC technique, where A stands for Antecedants, B stands for Behaviors and C stands for consequences (Skinner, 1985). According to behavior therapist, it is important to understand what happens before the behavior, what the behavior looks like and what happens after the behavior. Once this is determined, the therapist uses appropriate techniques to deal with the target behavior.

Appropriate reinforcements should be decided for a one or more types of behavior. For example, constantly interrupting while someone else is talking may lead to a negative reinforcement of lost chance to tell a story or give their opinion when the turn comes. On the other hand, finishing the task without distraction or distracting fellow classmates may be a reason to win an extra opportunity to tell a story or receive additional points. In a study conducted by Kodak, Miltenberger and Romaniuk (2003), attention and escape were used as reinforcers for the treatment of behavior problems. In this study they compared the effect of two techniques; differential reinforcement of other behavior (DRO) and non-contingent reinforcement (NCR) keeping attention and escape as reinforcers. They found that both the techniques were effective in reducing the problem behaviors and increasing compliance. Skiba, Casey and Center (1986) investigated single-subject studies on aversive reinforcement in the treatment of classroom behavior problems of students. They studied the number of parameter of reinforcements and their efficacy in reducing behavior problems.

In some cases the students are also allowed to choose the re-inforcement themselves. In other cases, such as token economy method, a desired behavior may win a token which may be then converted into something desirable. Token economy is widely used in facilities catering to people with mental illness. This method was first experimented by Allyon and Azrin (1964, 1965). In their work with chronic psychiatric patients, they showed that when a particular type of response was associated with a conditioned reinforcement (token), the desired response could be maintained at a higher rate. In the technique of token economy, the subjects are encouraged to collect a fixed number of tokens for a corresponding desired activity. While the desired behavior may be keeping self-care, the desired activity may be an extra hour to watch TV, or an opportunity to go outside the facility. This method has also been used with children to encourage them to practice self-care independently, or in case of enuresis or other such problems (Kazdin & Bootzin, 1972).

The efficacy of behavior therapy is comparable to medical treatment; in some cases it is even more effective and long lasting.Sigmund, Svein, Erik and Tristram (2006)conducted a study on children with mental retardation and autism exhibiting maladaptive behaviors. They compared two groups of children undergoing treatment with behavior interventions or eclectic treatments. While the two groups showed similar efficacy at pre-intervention, the behavior intervention group showed larger gains after 2 years of intervention. In another study conducted on children with ADHD and sever mood dysregulation (SMD), it was found that the medical treatment as well as behavior therapy was effective on the externalizing symptoms. The therapy also resulted in the reduction in the symptoms of SMD (Waxmonsky et al, 2008). In their study with 29 children with autism, Miranda et al (2002) found that the behavioral interventions improved the behaviors at home and in the classroom.

Behavior interventions have also found to be effective in other child hood disorders such as tourette's disorder, mental retardation, pervasive developmental disorders etc. In a study involving 126 children in the age group of 7-12 with tourette's disorder the efficacy of behavioral intervention was assessed. Comprehensive behavioral intervention for tics (CBIT) based on the habit reversal training was used found to be an efficient treatment for the management of tics in these children. Lovaas, Berberich, Perloff and Schaefer (1966) employed the principles of behaviorism to teach language to children with autism. They used punishment to eliminate self-mutilative behaviors and extinction for undesirable behaviors that were less dangerous. Their language training program is based on the concepts of shaping, reinforcement, generalization and discrimination.

Behaviormodification therapy has been used in a number of studies in the past. These studies use a combination of techniques for the intervention. It can be used individually as well as in a group. It also caters to population from all age groups. However, it has been found to be most effective with children. The techniques used in this therapy are also used by teachers in classroom environment. It has been found to be effective in reducing classroom disturbance caused by the undesired behavior of children with emotional and behavior disorders or other such problems.

Rationale of the Study

Learning disabilities have been found to occur with a host of co-morbid conditions. Psychological co-morbidity has been cited by several researchers (Cohen & Bruun 1998; John 2003; Rasmussen & Eisen 1991). Hence, intervention strategies for the treatment of LD should be arimed at both the academic problems as well as the co-existing behavior problems (John 2003).

This study is significant for several reasons. First, the study was conducted in India, where there is hardly any research done in the area of writing disability. Most of the studies have been done on reading disabilities and mathematical disabilities. Second, the study takes into account not only the writing disability but also the associated behavior problems. Third, the study's result shows the impact of intervention strategies on LD (writing) and behavior problems. Fourth, the investigator compares the impact of intervention aimed only for LD (writing) with intervention designed for both LD (writing) and behavior problems.

The lack of research in the area of writing disabilities in India and the lack of interventions studies focusing on the academic as well as behavior problems of children with LD is the rationale of this study.

Summary

Self-regulated strategies are important for the execution of higher level skills involved in the process of writing. Studies show that self regulation techniques have a positive impact on the writing intervention with children with LD. Interventions that use self regulation via methods such as the SRSD model or Self-monitoring have been proved to be effective as an evidence based practice. Self regulation techniques make the execution of the processes involved in writing automatic and fluent. Often these

skills are either underused or completely missing in the case of children with LD. Moreover, children with LD also show other associated problems such as behavior problems. Behavior modification therapy has been used for the intervention of behavior problems since a long time. Intervention programs designed for students with LD should also target the accompanying associated problems such as behavior problems (Graham & Harris, 2000).

This chapter presented the literature review of studies on LD, writing disability, interventions based on self-regulation strategies and behavior modification therapy. In addition, it also presents the significance of interventions targeting LD and associated problems. Furthermore, it presents the rationale of the study. The next chapter presents the findings of the study and the results of the analysis.