Chapter-3

REVIEW OF LITRATURE

There is sufficient literature to suggest that high test anxious students experience decrement in performance in evaluative situations. They perceive such situations as personally threatening and respond to them with intense emotional reactions. Thus, psychologists have become increasingly concerned with understanding the nature of test anxiety & effective methods for its treatment.

The trend in the recent research is on reducing test anxiety by using EMDR therapeutic intervention in individual and group setting.

The following chapter attempts to highlight important studies and investigations conducted in the field of test anxiety and EMDR. Since the orientation of the current research is psychological, especially touching upon test anxiety's traumatic nature, studies relevant to the psychological nature have been emphasized upon.

Test anxiety is a kind of performance anxiety that is psychological in nature, where a person feels nervous before, during and after the examination.

Test anxiety is composed of three major components: cognitive, affective, and behavioural. Students who experience test anxiety from the cognitive perspective are worriers, lacking self confidence. They may be preoccupied with negative thoughts, doubting their academic ability and
intellectual competence (Sarason & Sarason, 1990). The affective symptoms of anxiety may include "feelings of apprehension or dread, trouble in concentration, feeling tensed or jumpy, anticipating the worst, irritability, restlessness, and feeling like one's mind has gone blank. The physiological symptoms include heart palpitations, fatigue, nausea, chest pain, shortness of breath, stomach aches, or headaches. Physically, the body prepares the organism to deal with a threat. Blood pressure and heart rate are increased, sweating increases, the immune and digestive system functions are inhibited (the fight or flight response). External signs of anxiety may include pale skin, sweating, trembling, and pupil dilation. Someone suffering from anxiety might also experience it as a sense of dread or panic.

The Cognitive attentional theory of test anxiety (Sarason, 1980) claims that anxiety can be regarded as composed of cognitive and emotional elements. This theoretical perspective was started earlier by Libert & Morris (1967) who made a distinction between worry and emotionality as separate components of test anxiety. Worry refers to cognitions about performance consequences of failure, poor self evaluation etc. and emotionality refers to the physiological arousal that is experienced in threatening situations.

While the 20th century has been regarded as the "age of anxiety" by Sarason, the concern about the phenomena of anxiety has been as old as the history of humanity. Sud (2001) observed that for many years, theories of text anxiety were rooted primarily in the experience of clinical workers and the insight of sensitive observers of the west.
Further, at the University of Chicago, systematically investigating individual differences in test anxiety, Brown (1938), developed the first psychometric scale to identify test anxious students. In a series of studies, students who scored high on this scale were found to be more nervous before examinations and performed more poorly than relatively calm students. The potentially serious consequences of test anxiety were also noted by Brown (1938), who attributed the suicide of two university students to worry over approaching examination.

Anderson & Sauser (1995) provided a comprehensive review and evaluation of about more than forty five, most widely used scales that have been developed over the years to assess test anxiety and its related constructs. Bedell and Marlow (1995) examined the evidence of the convergent, divergent and predictive validity of selected test anxiety measures.

The 1950’s, saw the spawning of test anxiety research in earnest (Sud, 2001). Almost fifty years ago, Sarason and his colleagues at Yale University identified specific examination conditions that cause high test anxious students to perform more poorly than low test anxious students (Doris & Sarason, 1955; Mandler & Sarason, 1952; Sarason, Davidson, Lighthall, Waite and Ruebuish, 1960; Sarason, Mandler & Craighill, 1952). These investigators convincingly demonstrated that evaluative instructions and failure feedback interfered more with the performance of high than low test anxious students and that high test anxious students did relatively better on examinations in which evaluative stress was minimized. This line of research
was further advanced by Sarason (1958a, 1960, 1961), where high test anxious students reported to have performed more poorly when achievement was emphasized and showed improved performance in situations designed to ally anxiety. However the reasons for these observed performance differences were not so clear.

3.1 Dynamics of Test – Anxiety

Attempts to understand the dynamics of test anxiety have taken three fundamentally different types of approaches over the last several decades. The first of these was guided by Hullian motivational concept (Spence & Spence, 1966). In this view, persons with test anxiety become aroused when their anxiety responses are cued by evaluative testing situations. When drive or arousal becomes too high, behaviour becomes disorganized and performance impairments occur. Persons having low test anxiety presumably have lower drive levels in the test situations and thus do not suffer the disorganizations or the resulting performance impairments.

The Second general orientation to the dynamics of test anxiety is often referred to with the terms “cognitive” and “attentional” (Sarason, 1975, 1978; Wine, 1971, 1980, 1982). In this view, the impairments resulting from test anxiety are not based in disruptive over-motivation. Rather, they are the results of cognitive tendencies that are maladaptive in themselves. These tendencies are not present or are less present among persons who are not test anxious. It was also seen that low as well as high test anxious persons display equivalent degrees of physiological arousal while anticipating and
taking tests (Hollandsworth, Glazeski, Kirkland, Jones & Van Norman, 1979; Holroyd, Westbrook, Wolf & Badhorn, 1978). Carver and Scheier (1984) pointed out that different people are anxious for different reasons. High test anxious students have chronic doubts about producing adequate performance during examinations (Ellis, 1962). The low test anxious ones, on the other hand, are less doubtful and more confident. If the task is difficult, or situational anxiety is high, thereby potentiating momentary interruptions, then these classes of people differ from each other in their responses. Further, these differences are exaggerated under the conditions of high self focus. This self focusing aspect of test anxiety has been considered to be a key construct in the cognitive attentional approach to test anxiety (Sarason, 1972b, 1980; Wine, 1980, 1982), interfering with the ability to retrieve previously learned information of high anxious students and enabling low test anxious ones, to engage in otherwise well developed skills and abilities, during testing (Wine, 1980).

In the third approach, the poor performance of test anxious examinees has been attributed directly to skill deficits (Culler & Holahan, 1980; Kirkland & Hollandsworth, 1979, 1980; Everson, Millsap & Browne, 1989). While the information processing model provided by Naveh-Benjamin, Mckeachie, Lin & Halinger (1987) suggests that both, the interference & deficit models apply to different groups of students, Zeidener (1998) clarifies that according to the interference theory, existing test anxiety could be attributed to being a consequence of poor performance, whereas skill deficit theory regards test anxiety as a consequence of poor performance (Veenman, Kerseboom & Imthorn, 2000).
3.2 Dimensionality of Test Anxiety

The controversy regarding the dimensionality of test anxiety construct has not yet been resolved. Most researchers have, since long, rejected the unidimensionality notion (Birenbaum, 1990; Dusek, 1980; Seiber, 1980; Wine, 1980). Discussion on this aspect may be traced back to the work of Liebert and Morris (1967), who conceptualized test anxiety as composed of two dimensions: Worry and Emotionality. Spielberger, Gonzales, Taylor, Algaze & Anton, 1978) followed the lead of Liebert and Morris in developing Test Anxiety Inventory (TAI) and sought to confine to the two dimensional concept of test anxiety. Not only numerous translations and adaptations of this scale have substantiated the two factors of the TAI, (Sud, Jutshi & Spielbereger, 1987; Sud & Sud 1997) several confirmatory factor analysis of the TAI also provide strong support for the two factor model as compared to the one factor model (Benson & Tippets, 1990; Everson).

The multi-dimensionality of test anxiety as a construct, has been recognized by a number of researchers (Sarason, 1980, 1984; Deffenbacher, 1980; Sarason and Sarason, 1987). The researchers have argued that test anxiety is a more complex phenomenon that may include cognitive, emotional, behavioural and bodily reactions (Hagtvets & Benson, 1997). A four-dimensional model was suggested by Sarason (1984). He introduced a Reaction to Test (RTT) Scale to assess the dimensions of Worry, Test Irrelevant Thinking, Tension and Bodily symptoms, which according to him, constitute the basic structure of test anxiety. The construct validation of
RTT failed to support the discriminate validity of worry versus tension distinction using RTT & TAI in a multitrait multimethod framework (Zimmer, Hocevar, Bachelor & Mainke, 1992). Lack of confidence (Heckhausen, 1982; Stephen, Fischer & Stein, 1983) and Self-efficacy (Schwazer & Jerusalem, 1984) have recently been included in the construct definition of test anxiety. Efforts are now being made to empirically examine the issue of just how broad the content of test anxiety is (Hagtvet & Benson, 1997).

Further, going beyond the existing data, which was only concerned with the feeling and cognitions of high test anxious people, Wine (1980) proposed a bidirectional model of test anxiety, highlighting the feelings and cognitions of low test anxious individuals as well, thus regarding them, not as opposites to the high test anxious, but providing them with an independent status of their own. A detailed analysis of test anxiety seen as a process has been found to be fruitful in many studies as an assessment of therapeutic interventions (Sud, 1993, 2001; Sud & Prabha, 1995, 1996; Sud & Sharma, 1990). The superiority of the situation specific test anxiety measures in predicting test performance, as compared to measures of general trait anxiety has been established now (Hodapp, Glanzman & Laux, 1995; Sud, 2001).

3.3 Alleviating Test Anxiety

While the research on test anxiety has dealt with a wide variety of topics (Phillips, Martin & Mayers, 1972; Sarason, 1980; Spielberger & Vagg, 1995; Sud, 2001), the major thrust of recent literature, in contrast to early
work in test anxiety research, is a search for means of reducing test anxiety and alleviating its negative effects.

Thus, dealing with the treatment of test anxiety, two major approaches came to the surface: one is related to laboratory experimental literature and the other to certain therapeutic interventions.

The Laboratory Experimental literature has provided very rich information regarding the procedures for improving the cognitive functioning of high test anxious individuals, while not interfering within the performance of low test anxious.

Sarason, has been a major contributor to the exploration of experimental manipulations beneficial to the performance of test anxious persons. He provided valuable clues for developing means of reducing the debilitating effects of test anxiety. Even attention directing and task orienting manipulation seem to have facilitated the recall and cognitive performance of test anxious individuals (Sarason, 1980, 1984; Tobias, 1980; Wine, 1980; Sud & Sharma, 1990). Reinforcement in the form of praise has been found to be effective for high test anxious students having low levels of intelligence on easy task (Verma, 1973, Verma & Nijhawan, 1972, 1976, 1984). In two studies, (Nijhawan, 1972; Agrawal & Kaur, 1987) no knowledge of result condition appeared to be most beneficial for high test anxious students.

With a hope to expand the data base of certain western theories and to cross validate some, efforts were made to replicate (Sarasons 1975; 1981 & 1984) studies in Indian settings, by Sharma and Sud (1982) and Sud and Prabha (1987).
Academic performance has been considered as an interactive function of many psychosocial and demographic variables. The present study attempted to explore the nature and degree of relationship between test anxiety and selected demographic variables (such as, gender, birth order, parents’ education, family income and occupation and age of the parent, number of siblings).

3.4 Test Anxiety and Gender Difference

The current society has been labeled as a “test-oriented” (Zeidner & Most, 1992) society. Test scores are extensively used for various purposes, and most uses can greatly impact our educational and vocational lives.

Available research has indicated mixed results about difference between males and females on test anxiety. Some studies have also pointed out that there are significant differences in test anxiety specifically with regard to mathematics and science courses (D’Ailly & Bergering, 1992; Onwuegbuzie, 1995; Williams, 1996; Yates, Hannell, & Lippett, 1985; Zoller & Ben-Chaim, 1990).

Schonwetter (1997) found that low test anxious males showed higher achievement outcomes, perceived more success over their performances, and felt more confident than high test-anxious females. Hong, (1999) found that female students reported higher trait test anxiety and statistics course anxiety than males did. This view was corroborated by Williams(1996) where females were reported to experience higher worry than emotionality, while little difference in components was found in males.
It has been repeatedly shown that test anxiety is negatively associated with achievement at both school and college levels (e.g., Alpert & Haber, 1960; Hill & Sarason, 1966; Wigfield & Eccles, 1989).

Methodological issues relevant to research across cultures, have also been researched by Sharma and Sud (1990). Females, across cultures, have higher test anxiety, worry and emotionality as compared to their male counterparts. Greater role expectation conflict in females seems to be the major factor for such a consistent gender difference.

In a cross cultural study conducted by Sharma and Sud (1990) it was found that female high school students experience higher level of test anxiety than do males, irrespective of cultural background. It was concluded that the major factor involved in gender related differences in test anxiety among high school students was greater role expectation conflict among females than among males.

In a study done by Singh and Broota,(1995) on socio-personal variables and examination anxiety, it was seen that girls are more test anxious, worrisome and emotional as compared to boys; also, parental pressure elevates the test anxiety of school children;

3.5 Test Anxiety and Birth Order

Birth Order does contribute a lot to personality development and through the years, researchers have examined whether birth order has influenced anxiety levels. Birth order theorists believe that the children's
position in the family determines their personality characteristics, which influence a person’s behavior outside the home.

Adler was a personality psychologist who was the first to do major research regarding birth order. In the 1920’s, his research generated a lot of interest in the study of birth order. Adler’s idea was that second born children were the most academic-minded because the older sibling is the pacemaker and the second born child has to learn to keep up and compete with the sibling (Cloninger, 2008). However, other research has shown that first borns tend to be more academic-minded when compared to other birth orders. Since his description of the effects of ordinal position of birth on personality (Claxton, 1994), many theories have been suggested to explain apparent differences. These include dethronement of the first born, parental anxiety, economic factors, intrauterine conditions (Claxton, 1994) and historical cohort effects. Much of the debate of possible effects of birth order has focused on intellectual abilities, academic achievement (Bohmer & Sitton, 1993; Morjoribanks, 1997) and economic resources (Travis & Kohli, 1995). Adler suggested that the first-born child never recovers from the trauma of being dethroned and losing the attention of his or her parents when the second child is born. This leads to higher need for recognition and achievement as well as dependency needs (Crockett, Gates, Hubbard, & Lineberger, 1988). A study suggests that this tutoring responsibility of the first born raises his or her intelligence level (Romeo, 1994). They usually possess positive self-esteem, confidence and a strong self-image (Morales, 1994). According to Isaacson (1988), first-borns may experiment with different ways of getting attention. They often seek approval from superiors.
The middle child, according to Adler, is in a more advantageous position. He or she never has to give up parental attention and has the advantage of having the older sibling to act as the peacemaker. This maximizes the chances for healthy development in the middle sibling (Crockett, Gates, Hubbard, & Lineberger, 1988). Middle children are known to compete with the first-borns. They often feel as if they are in a race, struggling to catch up with their older sibling. They easily feel inadequate and struggle to overcome inadequacy.

The youngest child may become the boss of the family with expectations that others will take care of them and they may often face few demands (Cambell, Stewart, & White, 1995). They tend to be more sociable and friendly enabling them to be more popular and relate well to their peers (Morales, 1994).

Children, who do not have siblings, often receive a considerable amount of attention. They can attract followers and take on leadership roles for their peers to the degree to which they identify with adults (Toman, 1976).

However, numerical place in a family may not correspond to psychological birth order, or prompt development of particular archetypal characteristics that have been associated with a certain ordinal birth position. Birth order assessed according to numerical position has revealed contradictory findings in most areas that have been investigated (Ernst & Angst, 1983), potentially obscuring any true effects that may be due to the dynamics created by family constellation (Sulloway, 1996).
The reports of greater academic achievement attained by first borns (Morjoribanks, 1997) has led to questions about the effects of parental expectations and pressures for success exerted upon the first born compared to subsequent children (Rothbart, 1972). Parents with no referent for childhood achievement may set an unnaturally high standard for performance from their first born (Rothbart, 1972). This may instill a greater drive to achieve in the child, and anxiety of inability to live up to parental expectations.

Birth order does not directly influence a person’s anxiety level, but being born into a certain birth position may predispose a person into having higher anxiety levels. It may be all about how children's perceive their place in the family and how they feel about themselves.

3.6 Test Anxiety and Socio Economic Status

Research interest in family processes and their relation to children’s behavior and academic achievement has been active in the past few decades. Research has shown direct and indirect relationships between parental (dual-earner families) work conditions (work conditions, work hours) and the child’s academic achievement. Research on parental employment on children’s academic outcomes has proliferated over the past 40 years. It is researched that there is a positive relationship between socio-economic status of parents and the academic progress of the children, established by Willms (1986), Sui-chu and Willms (1996), Oluwatelure (2009). However, the majority of these research studies were conducted on maternal employment and emphasized on two major areas: effects of maternal employment on
family wellbeing (i.e. marital satisfaction, family happiness, family conflicts) and effects of maternal employment on emotional and personality development (Menaghan & Parcel, 1990, Gottfried & Gottfried 1994). The impact of mother’s work depends on many factors, including the adolescent’s age, sex, temperament; whether the mother works full or part time; why she is working, and how she feels about her work; the family’s socio economic status (Parke & Buriel, 1998).

Both boys and girls in low income families seem to benefit academically from the more favourable environment a working mother’s income can provide (Goldberg et al., 1996; Heyns & Catsambis, 1986). The gender difference in middle-class families may have to do with the boy’s greater need for supervision and guidance (Goldberg et al., 1996).

Factors like home influence (Fehrmann et al, 1987; Blooms, 1984), deliberate effort by the home to reinforce academic performance, (Fehrmann et al, 1987; Fontana, 1981; Karraker, 1972) and general academic guidelines and support by the family (Blooms, 1984) seem to be contributing to the student’s overall examination performance.

3.7 Therapeutic Interventions

Numerous studies have reported the treatment of test anxiety (Allen, Ellias & Zlotlow, 1980; Deffenbacher, 1980; Sharma & Rao, 1984; Spielberger & Vagg, 1995; Sud, 2001).

Since test anxiety is consistently correlated with lower performance on examinations and lower grades (Hembree, 1988; Sharma, 1988; Sharma &
Rao, 1984; Sud, 2001), strategies of coping with such a problem have been of major concern to teachers and researchers.

Over the past three decades, a number of treatment strategies have been used with test anxious students and the development of new treatment techniques continue to proliferate (Vagg & Spielberger, 1995). Earliest attempts at the reduction of test anxiety were with the use of different behaviour therapy techniques. From the beginning of the mid 1960’s, a wide range of behavioural methods have been used in the treatment of test anxious clients, including relaxation training (Bedel, 1976); anxiety management training (Richardson & Suinn, 1974); covert reinforcement (Finger & Galassi, 1977; Wisocki, 1973); massed desensitization (Richardson & Suinn, 1974); implosive therapy (Cornish & Dille, 1973; Smith & Nye, 1973) & study counselling (Allen, 1971,1973; Annis 1986; Gonzalze, 1976). Many review articles specify that most of the research in the seventies, focused primarily on relaxation training and systematic desensitization (Sarason, 1980, Vagg & Spielberger, 1995).

However, Allen et al. (1980), in their review noted that during 1970’s, the development of therapeutic techniques was carried out only with “minute variations” of standardized therapeutic interventions, confusing the construct validity of treatment endeavour and promoting the growth of clinical gimmickry.

It has been observed that over the past two decades, cognitive-based therapies have evolved into popular therapeutic methods for the treatment of test anxiety (Kreitler & Kreitler, 1987; Sud, 1993, 1994; Sud & Prabha, 1995,
Over the years, cognitive based therapies have proliferated, many of them explicitly drawing on treatment components used in behaviours therapies, thus subsumed under the general term cognitive-behavioural modification/therapy.

The goal of any therapy outcome study is to unequivocally demonstrate that a particular treatment does indeed reduce test anxiety. It was generally assumed that reducing test anxiety would facilitate improvement on academic performance of students (Gonzalez, 1995; Spielberger Gonzalez & Fletcher, 1979). However, in spite of reducing test anxiety, improvements in grades were rarely achieved through behavioural approaches (Allen et al, 1980; Gonzalez, 1978b; 1995; Sud & Prabha, 1995). Researchers believe that there is a need to measure and improve faulty study habits of test anxious students and question the idea that test anxiety is a major cause of poor academic performance (Sud & Prabha, 1995).

3.8 EMDR

Eye movement desensitization and reprocessing (EMDR) is a recently developed psychotherapeutic method which is best known as a treatment for traumatic memories and their psychological sequel. In 1987, a psychology graduate student named Francine Shapiro (1989) noticed that her own upsetting thoughts faded when her eyes spontaneously moved rapidly from side to side. Over the next several years, she and her colleagues developed and refined this discovery into a systematic therapeutic approach.
EMDR is a complex method which combines elements of behavioral and client-centered approaches in a manner which is hypothesized to stimulate and facilitate the innate psychological healing processes (Shapiro, 1995). To oversimplify, the client is asked to concentrate intensely on the most distressing segment of a traumatic memory while moving the eyes rapidly from side to side (by following the therapist's fingers moving across the visual field). Following the initial focus on the memory segment, after each set of eye movements (of about 30 seconds), the client is asked to report anything that "came up," whether an image, thought, emotion, or physical sensation. The focus of the next set is determined by the client's changing status.

Studies have reflected a higher fidelity to the revised EMDR protocol and they have been quite positive, essentially consistent with Shapiro's initial findings. EMDR's efficacy (and superiority) is already supported by more controlled studies than any other psychotherapeutic treatment for trauma (Shapiro, 1996). Greenwald (1994, 1996b) and Shapiro (1995, 1996) have discussed EMDR's history and status in some detail. EMDR is becoming widely recognized as highly efficacious and is considered by many to be the treatment of choice for traumatic memories and related applications.

Clinicians appropriately trained in this method may now legitimately try EMDR as a first-line treatment for children and adolescents suffering from the effects of trauma. EMDR is not a stand-alone technique, but a tool judiciously used by a qualified clinician in the context of an overall treatment plan.
3.8.1 PTSD Controlled Research:

The research that introduced EMDR to the professional community (Shapiro, 1989) was one of the first controlled studies to be published on the treatment of PTSD.

Since the initial efficacy study (Shapiro, 1989), positive therapeutic results with EMDR have been reported with a wide range of populations, including phobias and panic disorder (Feske & Goldstein, 1997; Goldstein & Feske, 1994; Kleinknecht, 1993); People relieved of excessive grief due to the loss of a loved one (Solomon, 1994, 1995; Shapiro & Solomon, 1995); Sexual assault victims (Puk, 1991a; Shapiro, 1989b, 1991, 1994; Wolpe & Abrams, 1991); People with dissociative disorders (Fine, 1994; Lazrove, 1994; Marquis & Puk, 1994); People engaged in business, performing arts, and sport (Crabbe, 1996; Foster & Lendl, 1995, 1996). There are more controlled studies on EMDR than on any other method used in the treatment of PTSD (Shapiro, 1995b).

In 1998, independent reviewers (Chambles et al., 1998) using these guidelines placed EMDR on a list of empirically validated treatments as “probably efficacious for civilian PTSD.” At the same time, exposure therapy (e.g., flooding) and stress inoculation therapy (SIT) were described as “probably efficacious for PTSD”, whereas no other therapies were judged to be empirically supported by controlled research for people suffering from PTSD.
3.8.2 Mechanisms of Action:

"Research suggests that EMDR is an effective treatment for PTSD. The possibility that EMDR could be a “variant of exposure therapy” is of particular interest because EMDR’s use of exposure is antithetical to traditional practice—it calls for interrupted rather than prolonged exposure with elements of free association (Rogers et al., 1999; Rogers & Silver, 2002; Shapiro, 1995, 1999, 2001), both of which are inconsistent with the principle and practice long espoused in the exposure literature (Boudewyns & Hyer, 1990, 1996; Chaplin & Levine, 1981; Chemtob et al., 2002; Eysenck, 1979; Foa, Steketee, & Rothbaum, 1989; Keane & Kaloupek, 1982; Lyons & Scotti, 1995).

3.8.3 Dual-Attention Stimulus:

The dual-attention stimulation component in EMDR was introduced on the basis of empirical observation. The eye movements seemed to have a direct effect on cognitive processes (Shapiro, 1989, 1995, 2001). However, it was discovered by various trained EMDR clinicians in 1990, before any other controlled research appeared, that various types of stimulation (hand taps and tones) also had a positive clinical effect (Shapiro, 1991, 1994, 1995, 2001).

The information processing mechanism may be activated when attention is elicited by or focused on the external cues (e.g. attending to tactile or auditory cues). The simultaneous focus on the traumatic memory may cause the activated system to process the dysfunctionally stored material.
Correlations between eye movements and shifts in cognitive content and attribution have been documented in studies since the 1960s (Antrobus, 1973; Antrobus, Antrobus, & Swinger, 1964). Numerous hypotheses attempt to explain how eye movements could contribute to information processing within the EMDR procedures, including: a) disruption of the function of the visuospatial sketch pad and interference with working memory (Andrade, Kavanaugh, & Baddeley, 1997; Kavanaugh, Freese, Andrade, & May, 2001). (b) elicitation of an orienting response that stimulates an instinctive affect of interest, safety, or excitement or that evokes an alternative physiological state (Armstrong & Vaughan, 1996; Lipke, 2000). Studies have found that eye movements decrease the vividness of memory images and their associated affect. It seems that etiological and autobiographical memories may be particularly affected by the dual stimulation component, whereas secondary memories born of second-order conditioning may be equally affected by the rest of the EMDR procedures (Shapiro, 2001, 2002).

3.9 Test Anxiety and EMDR

Eye Movement Desensitization and Reprocessing, or EMDR, is a powerful new psychotherapeutic technique which has been very successful in helping people who suffer from trauma, anxiety, panic, disturbing memories, post traumatic stress and many other emotional problems. Until recently, these conditions were difficult and time-consuming to treat. EMDR is considered a breakthrough therapy because of its simplicity and the fact that it can bring quick and lasting relief for most types of emotional distress. EMDR is the most effective and rapid method for healing PTSD (Post Traumatic
Stress Disorder) as shown by extensive scientific research studies. When disturbing experiences happen, they are stored in the brain with all the sights, sounds, thoughts and feelings that accompany them. When a person is very upset, the brain seems to be unable to process the experience as it would normally and therefore, the negative thoughts and feelings of the traumatic event get "trapped" in the nervous system. Since the brain cannot process these emotions, the experience and/or their accompanying feelings are often suppressed from consciousness. However, the distress lives on in the nervous system where it causes disturbances in the normal emotional functioning of the person.

The EMDR technique does two very important things. First, it "unlocks" the negative memories and emotions stored in the nervous system, and second, it helps the brain successfully process the experience. When the memory is brought to mind, the feelings are re-experienced in a new way. EMDR makes it possible to gain the self-knowledge and perspective that will enable the client to choose their actions, rather than feeling powerless over their re-actions.

The EMDR therapy uses bilateral stimulation, right/left eye movement, or tactile stimulation, which repeatedly activates the opposite sides of the brain, releasing emotional experiences that are "trapped" in the nervous system. This assists the neurophysiological system, the basis of the mind/body connection, to free itself of blockages and reconnect itself. As troubling images and feelings are processed by the brain via the eye-
movement patterns of EMDR, resolution of the issues and a more peaceful state is achieved.

Test anxiety is a common problem among students, primarily due to the importance of academic achievement and the consequences of failure. Hampel (1997) in his research study on the effect of EMDR on self-reported test anxiety in college students, finds that test anxiety appeared to be emotionally based as opposed to cognitively based problems.

Melnyk (2000) appeared to be an effective treatment for test anxiety, reducing reported physiological distress, worry, and fears of negative evaluation. The research design included two components: a comparison study, comparing Immediate Treatment and Wait List groups, and a replication study, comparing the treatment response of Immediate and Delayed (Treated Wait List) groups. At post-test, the immediate group demonstrated significant improvement, compared to the Wait List group, on the Test Anxiety Inventory (TAI) and Fear of Negative Evaluation Scale. Treatment effects were maintained at follow-up. Improvement was reflected by large treatment effect sizes and a decrease in percentile ranking on the TAI from the 90th to the 50th percentile.

EMDR is used to develop and strengthen internal resources by helping to provide what was needed and not received in early development. One session of Eye Movement Desensitization and Reprocessing (EMDR), Maxfield and (e.g. experiences of being nurtured, accepted, and respected). Failures of attachment often result in a poor sense of self, difficulties in developing and maintaining relationships, and a feeling that something is
missing in your life or within yourself. EMDR is also effective in enhancing performance, creativity, and self-confidence, and for personal and professional growth and development.

Eye movement desensitization and reprocessing (EMDR) therapy has been shown to be effective in relieving psychological traumas by empirical studies. Stevens & Florell (1999) claim that EMDR was most effective in reducing distress produced because of test anxiety. On similar lines, a comparative research study done on eye movement and finger tapping by Bauman and Melnyk (1994) suggests that one source of attenuation of elicited anxiety may be as effective as eye movement in reducing anxiety. There was a significant decrease in Test Anxiety Inventory Emotionality Scale scores from the pre test to follow up.

This chapter has reviewed the existing literature in test anxiety and therapeutic intervention EMDR. The relationship between test anxiety and EMDR was also reviewed along with the importance of test anxiety and the therapeutic intervention which was investigated with available empirical findings. An attempt was made to report studies in the area of test anxiety and EMDR. The investigator also tried to ascertain the relationship of test anxiety with other variables such as gender, birth order of the student, employment and economic status of the parent. Some studies reported a positive relationship between test anxiety and demographic variables and some view them as unrelated and independent entities.

Therefore one can conclude from this section on the review of literature, that studies mentioned in the chapter are clearly indicative of the
fact that test anxiety is a global problem. The adolescent population living with test anxiety is not miniscule enough that it can be ignored. The epidemiological studies conducted have clearly indicated the need for timely treatment so that test anxiety may be brought under effective control.