CHAPTER VI
SUMMARY, CONCLUSIONS AND EDUCATIONAL IMPLICATIONS

A brief summary of the study is very important. This chapter includes introduction of the dependent and independent variables, rationale of the study, statement of the problem, operational definitions, objectives, hypotheses, delimitations, sampling, tools and statistical techniques, findings of the study, general discussion of results, educational implications and suggestion for future research.

6.1 Introduction

With an ever increasing emphasis on education and literacy, reading has become an indispensable part of our lives. A dyslexic child who finds it difficult to acquire these literacy skills, can suffer a lot of anguish and trauma, when they may feel mentally abused by their peers within the school environment, because they have a learning disability (Hodge, 2000).

Effects of dyslexia may not be limited to academics only as other areas like a child’s self-esteem, self-confidence and social life with peers at school and at home may get affected too (Sheikh, 2007).

Dyslexia is the most prevalent learning disorder. So, there is a need to train dyslexic students to overcome this disability, otherwise it will hamper their achievements and personal growth. A good training can help them to learn ways to overcome their disability and emerge as a successful person in life. Intervention selected should be sound and feasible, having scientific background. Since, dyslexia is caused due to the defect in the brain’s processing, so, intervention selected should work directly on the brain of dyslexic child.

Mindfulness meditation is one such intervention which demonstrates the changes in brain structure (McGreevey, 2011). Mindfulness practice involves multiple aspects of mental function that use multiple complex interactive networks in the brain (Tang, Hölzel, & Posner, 2015). The reading improvement induced by mindfulness sheds light on the intricate relation between attention and reading. Mindfulness reduces impulsivity and improve sustained attention, and this, in turn, improves reading among individuals with developmental dyslexia and Attention Deficit
Hyperactivity Disorder (ADHD), by helping them to read via the straight path of the lexical route (Tarrasch, Berman & Friedmann, 2016). It has been shown to affect many of the symptoms of dyslexia and ADHD, improving attention and cognitive processes, reducing impulsivity, and generally improving ADHD symptoms. So, it would be expected that mindfulness training might be helpful with the reading problems of students with dyslexia (Castro, 2016).

In the present research, mindfulness intervention is used to observe its effect on reading anxiety, reading ability and self-esteem of students with dyslexia.

6.1.1 Dyslexia

“Dyslexia is a neurological learning disability, characterized by difficulties with word recognition, by poor spelling, and limited decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede the growth of vocabulary and background knowledge.” (International Dyslexia Association, 2002).

6.1.2 Characteristics of Dyslexic Children

According to Smallridge (2009)

- Dyslexic learners may confuse symbols, letters and words that look similar and may have difficulty copying words from the board.
- Dyslexic learners may have difficulty paying attention to classroom tasks and may have poor listening skills especially if the classroom is noisy.
- They may have slow difficult reading because they don’t have the ability to make fast eye jumps across text like good readers tend to do and may mispronounce words because they can’t discern details of sounds; e.g., ships instead of chips
- They may be slower than peers to write decodable words and may mispronounce of multisyllabic words.
- Dyslexic learners may have difficulty throwing and catching a ball.
- Dyslexic learners may have difficulty learning to write. Student may have an awkward and/or tiring pencil grip. Students may avoid writing and tire very easily.
They may have difficulty controlling scissors and handling classroom materials and may appear clumsy and bump into objects and people regularly. According to Davis (1992), are:

- Get confused by letters, numbers, words, sequences, or verbal explanation and they have high I.Q but poor at academics.
- They have poor self-esteem and get frustrated easily
- While reading or writing they repeat, add, transport, omit, and substitute and they read and re-read with little comprehension.
- They have difficulty in fine and/or gross motor skills.
- They are unable to learn the information in sequence and they have difficulty in telling time and managing time.

6.1.3 Mindfulness

Mindfulness is the cognitive propensity to be aware of what is happening in the moment without judgment or attachment to any particular outcome (Napoli, Krech, & Holley, 2005).

It refers to a particular way of paying attention, and has been described as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience” (Kabat-Zinn, 2003.).

Mindfulness teaches us to pay attention in the present moment, not the past, not the future, but where you are right now. It allows us to respond more skillfully, more appropriately to what is actually happening (Weare, 2013). Mindfulness is the deliberate, conscious awareness of what is happening (Wells, 2016).

Mindfulness practices range from brief and simple breath awareness practices such as counting the number of in-breaths from one to ten, beginning again whenever thoughts stray from the sensation of breathing, to guided body-scan meditations that progressively lead the focus on physical sensations throughout the body as a way of centering, to more abstract emotion-based exercises focused on sending goodwill, or loving kindness, to the self and others (Kriynovich, 2015).

Interventions based on training in mindfulness skills are becoming increasingly popular. Mindfulness involves intentionally bringing one's attention to the internal and external experiences occurring in the present moment, and is often taught through a variety of meditation exercises (Baer, 2003).
6.1.4 Aspects of Mindfulness

Mindfulness has three different aspects that operate together seamlessly to bring about a state of mindful awareness (Alidina, 2014):

1. Intention – One’s intention is what one hopes to get from practicing mindfulness. One may want stress reduction, greater emotional balance or to discover one’s true nature. The strength of one’s intention helps to motivate that person to practice mindfulness on a daily basis, and shapes the quality of his mindful awareness.

2. Attention – Mindfulness is about paying attention to one’s inner or outer experience. One’s mindful attention is mainly developed through various different types of meditation – either formal, traditional, or informal e.g. while talking, cleaning or driving.

3. Attitude – Mindfulness involves paying attention to certain attitudes. And these attitudes develop the capacity to be mindful and enables a person to live a more mindful life. These are as follows: Curiosity, Acceptance, Kindness, Letting go, Trust and beginner’s mind.

6.1.5 Characteristics of Mindfulness

Gunaratana (2011) suggests eight basic characteristics of mindfulness:

1. Nonjudgmental Observation - Mindfulness involves the ability to observe one’s own experience by remaining non-judgmental. There is a sense of noticing thoughts, feelings, sensations, people and events just as they are.

2. Acceptance - Mindfulness includes the quality of acceptance. It involves acceptance of thoughts, feelings and sensations. In order to become more mindful, one must be willing to accept the fact that one will not always experience pleasant states of being.

3. Impartial Watchfulness - Mindfulness means remaining impartial. This open minded attitude allows greater possibility for coming up with creative ideas.

4. Non-conceptual Awareness - Mindfulness involves non-conceptual awareness, which means one is not get caught up in ideas and memories and nor does it feel the need to label or categorize it. It allows a person to look upon the familiar and unfamiliar with a pair of fresh eyes, wonder, and curiosity.
7. Awareness of Change- Mindfulness involves watching the natural change of experience and all life as it flows along in the present moment.
8. Participatory Observation- Mindfulness requires the meditator to be both the participant and the observer simultaneously.

6.1.6 Reading Anxiety

Reading anxiety is a specific, situational phobia toward the act of reading that has physical and cognitive reactions. Physical reactions to anxiety include the release of adrenaline (‘‘fight or flight reaction’’) and physical symptoms, such as sweating, feeling shaky or faint, a pounding heart, rapid breathing, ‘‘butterflies’’ in the stomach, headache, a stomachache, or even throwing up. Cognitive reactions to anxiety include an overwhelming sense of dread, low self-esteem, feelings of helpless, and expectations of public humiliation. These physical and cognitive reactions also interact, as when a child thinks, ‘‘my hands are shaking.’’ or ‘‘I know my face is getting red’’. As the child becomes overwhelmed by emotions and worries (e.g., ‘‘What if the other kids laugh at me?’’) it leaves few cognitive reserves to deal with the task of decoding and comprehending print (Zbornik, 2001). Anxiety is the most frequent emotional symptom reported by dyslexic adults. Dyslexics become fearful because of their constant frustration and confusion. These feelings are exacerbated by the inconsistencies of dyslexia. Because they may anticipate failure, entering new situations can become extremely anxiety provoking (Aston, 2016).

6.1.7 Reading Ability

Mindfulness has many other benefits apart from the previously listed such as greater joy in the present moment, better sleep quality and less stress. Anxiety is a natural and normal part of the human experience however, excess of anxiety interferes with our functioning. Mindfulness offers a way of managing anxiety in an accepting and balanced way, so that when anxiety does arise, one is able to realize it and manage it and watch it evaporate in its own time, without judging or forcing it to move away. Most anxiety is generated internally by one’s own thinking. The human brain works in such a way that falling into negative thinking pattern is easy; it’s the
brain vivid imagination about possible negative scenarios running away with itself. Such anxiety can be dealt with mindfulness. Mindfulness trains an individual to stay in the present moment than obsessing about future events (Marshall, 2015).

6.1.8 Self-Esteem

Self-esteem is a psychological trait related to a person’s image of self-value and self confidence in total aspects of human activity (Rosenberg, 1965). According to Rosenberg, high self-esteem expresses the feeling that one is good enough. It is defined as a favorable or unfavorable attitude toward the self (Rosenberg & Pearlin, 1978).

A student’s self-esteem is commonly affected during the school years. High and low self-esteem can cause different experiences for students (Dedmond, 2009). Students with low self-esteem struggle with problems they face in school, whether it is academically or socially. Their daily lives outside of school can also suffer from a lower level of self-esteem. The main problem seen with self-esteem issues is that students become more focused on how they are viewed by their peers rather than focused on their schoolwork (Hughes, 2013).

6.1.9 Rationale of the Study

Reading plays an important role in school education and the success of any student in the school largely depends on the reading skills of that student. Reading is interrelated with the total educational process and the academic success depends entirely on the reading skills of a student (Smith, 1971). Today children are being made aware of sounds, letters and words as early as the age of four years, so that they find reading easier when they get admission in school. Unfortunately, many students struggle to read and due to this they suffer from many developmental problems, such as low self-esteem, anxiety, emotional and behavioral problems (Rekha, 2010). In India, out of 250 million school going children, 12.5 million (1.25 crore) children are suffering from learning disorder (Shah, Bhat, Arun, Munshi, Gupta, Nijhawan and Gautam, 2008). Dyslexia is one of the common learning disability with a prevalence ranging from 3 to 17.5% among school age children (DeFries, Fulker & Labuda, 1987; Lerner, 1989; Shaywitz, Shaywitz, Pugh, Fulbright, Constable, Mencl & Katz, 1998).
Researches show that dyslexic students exhibit feelings of academic and written incompetence along with anxiety (Carroll and Iles (2006). Children suffering from dyslexia develop a negative self-image because of their poor academic performance. The dyslexic students and sometimes had been teased or bullied because of their reading and writing difficulties (Eissa, 2010), have high anxiety and low self-esteem (Novita, 2016). During school years, reading deficiencies are often associated with embarrassment, frustration, lack of motivation and low self-esteem (Maughan, 1995; McNulty, 2003).

In the present study the investigator endeavors to study the effect of mindfulness on reading anxiety, reading ability and self-esteem among elementary school students with dyslexia. Mindfulness was chosen as the focal point of research because of its relevance as an emerging technique in counseling and psychotherapy (Stauffer, 2008). It is a technique which involves acceptance and attention to current experience without judgement (Bishop, et al. 2004).

Bringing mindfulness into the classroom increases students’ ability to maintain their attention, as the evidence suggests, it may lead to decreased stress and increased learning (Napoli, Krech and Holley 2005).

Mindfulness is an effective technique of reducing stress and improving overall well-being. On the basis of researches done on children with dyslexia and studies on the effectiveness on mindfulness, investigator assumed that mindfulness can be used to improve reading among dyslexics (Tarrasch, Berman, & Friedmann, (2016).

6.1.10 Statement of the Problem

The title of the research problem of the present study is as follows:

**EFFECT OF MINDFULNESS ON READING ANXIETY, READING ABILITY AND SELF-ESTEEM OF STUDENTS WITH DYSLEXIA**

6.1.11 Operational Definition

1. **Mindfulness:** A score on Mindfulness Questionnaire for School Students (MQSS) was the measure of mindfulness.

2. **Reading Ability:** A score on reading ability test (developed by the investigator) was the measure of reading ability, which includes five
components viz; phonological awareness, phonics, fluency, vocabulary and comprehension.

3. **Reading Anxiety**: A score on reading anxiety scale with five situations viz; Silent reading in the class, Reading aloud in the class, Group reading in the class, Reading in the family, Reading alone in the leisure time (developed by the investigator for this study) was the measure of reading anxiety.

4. **Self-Esteem**: Self-esteem inventory with three dimensions viz; General, school and Family (developed by the investigator) was the measure of self-esteem for the study.

5. **Dyslexia**: The profile obtained from Teacher referral form (developed by the investigator) and Diagnostic Tool for Reading Disorder (DTRD) helped to identify students with dyslexia. Also Standard Progressive Matrices (SPM) was used to assess I.Q. level of the students. DTRD and SPM collectively were used in this study to identify dyslexia in the children.

### 6.1.12 Objectives of the Study

1. To study the differences in pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Control Group.

2. To study the differences in pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Control Group.

3. To study the differences in pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Control Group.

4. To study the differences in pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Control Group.

5. To study the differences in pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Experiment Group.

6. To study the differences in pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Experiment Group.

7. To study the differences in pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Experiment Group.
8. To study the differences in pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Experiment Group.

9. To study the effect of Mindfulness intervention on Reading Anxiety of students with dyslexia (Mean Gain score differences of CG and EG).

10. To study the effect of Mindfulness intervention on Reading Ability of students with dyslexia (Mean gain scores differences of CG and EG).

11. To study the effect of Mindfulness intervention on Self-Esteem of students with dyslexia (Mean gain scores differences of CG and EG).

6.1.13 Hypotheses

1. There will be no significant difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Control Group.

2. There will be no significant difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Control Group.

3. There will be no significant difference in the pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Control Group.

4. There will be no significant difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Control Group.

5. There will be no significant difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Experiment Group.

6. There will be no significant difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Experiment Group.

7. There will be no significant difference in the pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Experiment Group.

8. There will be no significant difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Experiment Group.

9. There will be no significant effect of Mindfulness intervention on Reading Anxiety of students with dyslexia.

10. There will be no significant effect of Mindfulness intervention on Reading Ability of students with dyslexia.
11. There will be no significant effect of Mindfulness intervention on Self-Esteem of students with dyslexia.

6.1.14 Delimitations of the Study

The present study was delimited in the following aspects:

1. Due to the elaborate identification procedure and experimental design, the sample size and sites were limited.

2. The study was delimited to government schools of UT, Chandigarh.

3. The present was delimited to the elementary school students of 6th class.

6.2 Review of Related Literature

Review of related literature includes; studies related to mindfulness and reading anxiety, mindfulness and reading ability, mindfulness and self-esteem.

6.2.1 Studies Related to Mindfulness and Reading Anxiety

In the light of the literature reviewed details in section 2.2.1 of chapter II, it is observed that the mindfulness intervention has been widely investigated with respect to its effectiveness and its impact on anxiety, stress, aggression, worry and psychological well-being. Most of the studies have shown that this intervention helps in reducing anxiety (Peterson & Pbert, 1992; Semple, Reid & Miller, 2005; Hofmann, Sawyer, Witt & Oh, 2010; Semple, Rosa & Miller, 2010; Vollestad, Sivertsen & Nielsen, 2011; Kelley & Lambert, 2012; Dundas, Thorsheim, Hjeltnes & Binder, 2016), controlling the aggressive behavior (Singh, Lancioni, Winton, Adkins, Wahler, Sabaawi & Singh, 2007; Sharma, Sharma, Marimuthu, 2016), helpful in reducing performance anxiety (Lin, Chang, Zemon & Midlarsky, 2008), reduces social anxiety (Schmertz, Masuda & Anderson, 2012), somatic anxiety (Sharma, Mao & Sudhir, 2012), decreasing stress (Roberts & Danoff-Burg, 2010), reduction in stress and anxiety of parents and educators of children with special needs (Benn, Akiva, Arel and Roeser, 2012; Costello & Lawler, 2014), decresing depression Nejati, Zabihzadeh, Maleki & Tehranchi, 2012), reducing the negative cognitions Jennings & Jennings (2013), reduction in anxiety, stress and depression level & Alrich, 2013) reducing depression, anxiety and rumination in adults with autism spectrum disorder
(Spek, Van Ham & Nyklicek (2013). It is a significant predictor of well-being, stress, anxiety and depressive symptoms (Hue & Lau, 2015) and effective in improving well-being (Bernay, Graham, Devcich, Rix & Rubie-Davies, 2016). There is a significant difference in optimistic and pessimistic attitude of adolescents (Chobe, 2016). Also, emotional coping was positively correlated with avoidance coping Ramasubramanian (2016). However, a few studies have shown no significant effect of mindfulness on anxiety and behavior. There is no improvement in trait anxiety (Bergen-Cico, Possemato & Cheon, 2013); no significant changes in mindfulness (Mayorga, De Vries & Wardle, 2016). Also, there is no statistically significant effect on the measurement of mindfulness, perceived stress, anxiety and class room behavior Solar II (2013). So, in order to reduce the gaps in the findings, more research is required with its impact on the students.

6.2.2 Studies Related to Mindfulness and Reading Ability

From the literature reviewed (detail in section 2.2.2 of Chapter II) it can be said that mindfulness intervention has positive significant effect on the executive function, cognition, performance, memory, ability, attention and academic performance. Most of these studies helps in increasing attention (Bögels, Hoogstad, van Dun, Schutter & Restifo, 2008), improving mindfulness, rumination and performance as well as attention (Chambers, Lo & Allen, 2008), improvement in executive function (Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke and Kasari (2010); Thierry, Bryant, Nobles & Norris, 2016), development of cognitive skills (Hasenkamp & Barsalou, 2012; Mrazek, Franklin, Phillips, Baird & Schooler, 2013), improves academics performance ((Harpin, Rossi, Kim & Swanson, 2016)improves sustained attention and reading (Tarrasch, Berman and Friedmann, 2016. But there are few studies which showed there was no significant effect of mindfulness intervention on behavioral and academic outcomes (Maynard, Solis, Miller & Brendel, 2017). Since the effectiveness of mindfulness on reading ability has not been explored much, especially with dyslexics so, more efforts are required to fill these research gaps.
6.2.3 Studies Related to Mindfulness and Self-esteem

From the literature reviewed (details in section 2.2.3 of Chapter III) it can be said that mindfulness intervention had positive significant effect on self-esteem, self-disclosure, high satisfaction with life. Most of the studies showed improvement in self-regulation (Kabat-Zinn, Lipworth & Burney, 1985), correlation between mindfulness, self-esteem and unconditional acceptance (Thompson & Waltz, 2008), self-esteem (Biegel, Brown, Shapiro & Schubert, 2009; Michalak, Teismann, Heidenreich, Ströhle & Vocks, 2011; Rasmussen & Pidgeon, 2011; Pepping, O’Donovan & Davis, 2013; Randal, Pratt & Bucci, 2015), self-esteem, proactive coping and high satisfaction with life (Hinterman, Burns, Hopwood & Rogers, 2012). Though numerous work has been done on the effectiveness of mindfulness on self-esteem. But very few studies are available which shows the effectiveness of mindfulness on self-esteem of children with dyslexia.

6.3 Research Design

The present study is based on pretest-posttest control group experimental design. The experimental group was exposed to mindfulness intervention and students in control group did routine activities as conducted in their class by their teachers. The effect of the independent variable i.e., Mindfulness training was studied on the dependent variables (viz; reading anxiety, reading ability and self-esteem). Though the present study is majorly quantitative in nature but the researcher tried to incorporate qualitative aspect also by collecting feedback from the students, parents and teachers in order to further strengthen the findings of the study.

6.3.1 Population and Sampling Frame

A population is the group of people that the researcher intends to study or infer about. The target population of the study was the students with dyslexia of 6th grade. The researcher had delimited the study to students with dyslexia studying in 6th grade in the Government Model Schools located in Chandigarh. The sampling frame of Government Model Schools of Chandigarh was prepared by the researcher on the basis of the list available on the website of Department of Education, Chandigarh Administration (http://www.chhdeducation.gov.in/schoolslist.asp).
6.3.2 Sampling

Sampling depends upon the identification of the population of interest and the feasibility of that technique. Two schools were selected randomly out of those four schools wherein the principals had given the permission for experiment. From these two schools, students with dyslexia were purposively selected using Teacher referral form, Standard Progressive Matrices (SPM) and Diagnostic Test for Reading Disorder (DTRD). Further the identified students with dyslexia were randomly assigned to two groups viz; Experiment Group (EG) and Control Group (CG). There were 22 students in both the groups.

6.3.3 Tools and Techniques

The research instruments which are used to collect data are termed as tools and techniques. Selection of appropriate tools depends on the type of research and objectives of the study, nature of the sample and design of the study. For the present study following tools were employed:

I. Identification Tools
   i. Teacher referral form developed by researcher
   iii. Diagnostic Test of Reading Disorders (DTRD) by Swarup and Mehta (2003)

II. Assessment Tools
   i. Mindfulness Questionnaire for School Students (MQSS) developed by researcher
   ii. Reading Anxiety tool developed by researcher
   iii. Reading Ability test developed by researcher
   iv. Self-esteem Inventory developed by researcher

III. Intervention Tool
   i. Mindfulness Modules

6.3.4 Data Collection Procedure

Data collection took place in three phases and these have been discussed below
Phase I: Pre-testing

In the pre-testing phase, the researcher administered assessment tools, viz; Mindfulness Questionnaire for School Students (MQSS), Reading anxiety tool, Reading ability test and Self-esteem inventory.

Phase II: Intervention/Treatment

During this phase the mindfulness based training intervention was given to the experimental group for six weeks. The intervention was given six days a week and each session was of 35 minutes. On the whole, approximately 1,260 minutes’ mindfulness training was provided to the Experiment Group.

Phase III: Post-testing

In this phase, post-testing was done so as to measure the effect of the intervention by collecting data through re-administering of assessment tools viz; Mindfulness Questionnaire for School Students (MQSS), Reading anxiety tool, Reading ability test and Self-esteem inventory.

6.3.5 Statistical Techniques

Following statistical techniques were used to analyze the data and to test the hypotheses of the present study:

- **Descriptive Statistics:** Descriptive statistics like mean (M), median (Md), mode (Mo), standard deviation (SD), skewness (Sk), kurtosis (Ku) were calculated to understand the nature of distribution of scores on assessment of mindfulness, reading anxiety, reading ability and self-esteem of the students with dyslexia.

- **Inferential Statistics:** t-test was used for both paired and independent samples to study and compare the effect of the intervention on the scores of mindfulness, reading anxiety, reading ability and self-esteem of the students with dyslexia.

6.3.6 Findings and Conclusions

The findings of the present study have been summarized as below:
Results on Mindfulness level of students with dyslexia:

1. There exists significant difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Control Group. Mindfulness scores are significantly reduced in Post-test (Table 5.2.2.1a).

2. There exists significant difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Experiment Group. Mindfulness scores of students exposed to intervention are significantly improved (Table 5.2.2.2a).

Results on Reading Anxiety of students with dyslexia:

1. There exists significant difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Control Group. It was found that Reading Ability of students (in CG) reduced significantly (Table 5.2.2.1b).

2. There exists significant difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in Experiment Group. It was found that Reading Anxiety of students (in EG) reduced significantly (Table 5.2.2.2b).

3. There exists significant effect of Mindfulness intervention on Reading Anxiety of students with dyslexia. The mean gain score difference between CG and EG show that students in EG have shown significant improvement, i.e; there Reading Anxiety reduced significantly as compared to CG (Table 5.2.2.3a).

Results on Reading Ability of students with dyslexia:

1. There exists no significant difference in the pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Control Group (Table 5.2.2.1c).

2. There exists significant difference in the pre-test and post-test mean scores on Reading Ability of students with Dyslexia in Experiment Group. Students in EG have shown significant improvement on all dimensions of Reading Ability (Table 5.2.2.2c).
3. There exists significant effect of Mindfulness intervention on Reading Ability of students with dyslexia. The mean gain scores differences indicate that students (in EG) exposed to Mindfulness intervention have improved significantly on Reading Ability (Table 5.2.2.3b).

**Results on Self-esteem of students with dyslexia:**

1. There exists no significant difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Control Group (Table 5.2.2.1d).
2. There exists significant difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Experiment Group. Students exposed to Mindfulness intervention have shown significant improvement in (Table 5.2.2.2d).
3. There exists significant effect of Mindfulness intervention on Self-Esteem of students with dyslexia. The mean gain score differences show that students in EG have significantly improved on self-esteem as compared to students in CG (Table 5.2.2.3c).

**6.3.7 General Discussion of the Results**

The effect of the Mindfulness intervention has been studied on Reading Anxiety, Reading Ability and Self-esteem of students with dyslexia. The results obtained were interpreted in the light of the set objectives and hypotheses.

**6.3.7a Effect of Intervention on Mindfulness Level**

In this study, the difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in Control Group was found to be significant. The results show significant decline in the mean scores from pre-test to post-test (Table 5.2.2.1a), indicating that the mindfulness score of the students in the Control Group has reduced. Dimension-wise analysis of data reflects that the acceptance level has also gone down significantly among students of control group (CG).

Also, the difference in the pre-test and post-test mean scores on Mindfulness of students with Dyslexia in the Experiment Group was found to be significant. The result show (Table 5.2.2.2a) significant increase in mean scores from pre-test to post-
test. Also, dimension-wise analysis shows significant improvement on all dimensions of Mindfulness, viz; Awareness, Acceptance, Observing, Describing. Hence, it can be interpreted that the Mindfulness level of these students with Dyslexia (in EG) has improved after the intervention.

6.3.7b Effect of Intervention on Reading Anxiety

The difference in the pre-test and post-test scores on Reading Anxiety of students with Dyslexia in Control Group was found to be significant (Table 5.2.2.1b). It implies there exists significant difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia of Control Group, which further implies that reading anxiety of the students with Dyslexia has significantly declined over a period of time. However, situation-wise analysis shows that changes in reading anxiety of these children remained insignificant in situations, viz; reading with the family and reading alone in leisure time.

Also, the difference in the pre-test and post-test mean scores on Reading Anxiety of students with Dyslexia in the Experiment Group was found to be significant (Table 5.2.2.2b). Also, decline in reading anxiety scores were significant across all situations. Therefore, it can be interpreted that the reading anxiety of the students with Dyslexia has significantly declined after the Mindfulness intervention.

Further, the comparison of mean gain scores on Reading Anxiety of students with Dyslexia in the Experiment Group and Control Group were found to be significant (Table 5.2.2.3a). Significant mean gain score differences across all the dimensions further indicate that Mindfulness intervention has significantly reduced anxiety of students in Experiment Group. Hence, it can be interpreted that the Mindfulness intervention had significant effect on the Reading Anxiety of the students with Dyslexia. In other words, the Reading Anxiety of students in Experiment Group reduced significantly after intervention as compared to students in Control Group who were not exposed to Mindfulness Intervention.

6.3.7c Effect of Intervention on Reading Ability

This study shows that the difference in the pre-test and post-test mean score of Reading Ability of students with Dyslexia in Control Group was found to be insignificant (Table 5.2.2.1c). Even dimension-wise analysis of results yielded
insignificant differences. Accordingly, it can be inferred that the reading ability of students (in control group) remain more or less same or unchanged.

The difference in the pre-test and post-test mean scores on Reading Ability of students with Dyslexia in the Experiment Group was found to be significant (Table 5.2.2.2c). Hence, it can be interpreted that the reading ability of the students with Dyslexia in experiment group has improved after the intervention. Also, since these students have shown significant improvement on all five dimensions of Reading Ability, therefore, it may be concluded that Mindfulness intervention has brought about significant improvement in their Reading Ability.

The mean gain scores on Reading Ability of students with Dyslexia in the Experiment Group and Control Group were found to be significant (Table 5.2.2.3b). Hence, it can be interpreted that the Reading Ability of the students with Dyslexia in the Experiment group has improved after the intervention. Dimension-wise analysis shows that students in Experiment Group performed significantly better on Phonics and Fluency as compared to students in Control Group. Even on phonological awareness, vocabulary and comprehension, students in Experiment Group performed better than students in Control Group but the differences were non-significant.

6.3.7d Effect of Intervention on Self-esteem

Here, the mean difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in Control Group was found to be insignificant (Table 5.2.2.1d). Also, the dimension-wise analysis of pre-test and post-test mean score differences were found to be insignificant. It can therefore be inferred that the self-esteem of these students (in CG) remained statistically same.

The difference in the pre-test and post-test mean scores on Self-Esteem of students with Dyslexia in the Experiment Group was found to be significant (Table 5.2.2.2d). Hence, it can be concluded that the Mindfulness intervention significantly improved Self-Esteem of the students with Dyslexia. Furthermore, these students’ Self-Esteem improved significantly across all three dimensions.

The difference in the mean gain scores on Self-Esteem of students with Dyslexia in the Experiment Group and Control Group were found to be significant (Table 5.2.2.3c). Also, the mean gain score differences were found significant along
all three dimension of self-esteem, viz; General, School and Family. Hence, it can be interpreted that the Mindfulness intervention had significant positive effect on self-esteem of the students with Dyslexia.

6.4 Educational Implications

The present study examined the effect of mindfulness intervention on reading anxiety, reading ability and self-esteem of students with dyslexia. The study was conducted on 6th class students. Though the sample size in the present study was small (primarily because of experimental design and the nature of sample), yet the findings can be generalized and may have valuable implications not only for students with dyslexia but also their teachers, special educators, counsellors and parents.

- The effect of this intervention was found to be significant for all the variables viz; reading anxiety, reading ability and self-esteem which implies that the intervention can be used in general class rooms in order to help the students to reduce anxiety and to increase their performance level and also to uplift their self-esteem.
- The findings of this study can be beneficial for the curriculum developer also, as they may incorporate this intervention as a part of the school curriculum.
- Mindfulness training can be beneficial for living a stress free life, which may further enable the students to concentrate on their studies in a better way.
- Since the practice of this intervention is simple and easy so, the school teachers can also be trained to impart this intervention in schools. This may be further helpful in improving the teaching learning process.
- Since training in mindfulness also trains to be non-judgmental, it may create positive learning environment.
- The component of acceptance in mindfulness practice will ensure improved intra- and inter-personal relationships.

6.5 Suggestions for Further Research

During the course of the study, the researcher was desirous of adding more dimensions to the study but it was not practical since the work undertaken was already huge and time consuming. Considering what other aspects could’ve been meaningful, the researcher has following suggestions to make for any further research in this area:
- Mindfulness intervention can be used with larger sample to revalidate the findings of the present study using and comparing varied duration of mindfulness intervention exposure.
- The effect of the mindfulness intervention can be studied on children with Attention Deficit Hyperactive Disorder (ADHD), Autistic Spectrum Disorder (ASD) and other behavioral disorders.
- The researcher strongly feels and recommends that a study wherein qualitative data forms the core, may be conducted to better understand in what ways the subjects experienced the intervention and their narrations may provide useful inputs to customize the intervention activities.
- A study with delayed assessment or in the form of follow-up may be conducted to assess the sustainability of mindful practice.
- Researcher also feels that collective mindful practice by teachers and students can be immensely beneficial. Therefore such a study may be planned where intervention is provide together to the students and the teachers and the effect of such an intervention be studied on the teaching-learning process.

6.6 Limitations

The central focus of this study was to investigate the effect of the mindfulness intervention on reading anxiety, reading ability and self-esteem. The aim of the study was to present reliable data but despite the best intentions and efforts, many times few limitations remain. These limitations are important to be mentioned in order to avoid the same in the future researches. These limitations were:

1. Audio-video recording could have been done.
2. Triangulation method could have been successfully implemented if the researcher had planned for it prior to the conduct of the experiment.
3. Interaction with parents and teachers could have been more and better to give proper understanding of this intervention and in order to meaningfully incorporate their inputs.