CHAPTER I
INTRODUCTION

The modern society is viewed as a knowledge society that grows with the advancement of knowledge. In this society, reading is considered as one of the basic skills, which is required to accommodate the constantly changing demands for new information. It will not be out of place to consider it as ‘survival skill’ in the age of information. Therefore, in any literate society, a lot of significance is attached to reading (Jena, 2013).

With an ever increasing emphasis on education and literacy, reading has become an indispensable part of our lives. Children with dyslexia who find 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).

Children with dyslexia often have fears, thinking, what will happen if they are asked to read anything. They usually prefer to skip reading and they feel unhappy whenever they have their library period. They also have the fear of being rejected, fear of failure, criticism and judgement.

These children are intellectually average or above average, but their academic growth lags behind. Therefore, it has become essential that schools diagnose the dyslexic students, so that they can be helped to overcome this disability.

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).

Specific learning disorder is a neuro developmental disorder with a biological origin (interaction of genetic epigenetic and environmental factors affecting the brains ability to process verbal or nonverbal information) that is the basis for abnormalities at a cognitive level that are associated with the behavioral signs of the disorder. Specific learning disorder is persistent difficulties in learning basic academic skills with onset during the years of formal schooling. Key academic skills include reading of single words accurately and fluently, reading comprehension, written expression and spelling, arithmetic calculation, and mathematical reasoning. Academic skills
unlike other developmental skills, e.g. walking, talking have to be taught explicitly (APA, 2013).

Specific learning disability (SLD) was included in “The Rights of Persons with Disability Bill-2016” and only dyslexia has got the recognition as SLD in mainstream, because of the concern of the parents (Thomas & Whitten, 2012).

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 and its effect on reading anxiety, reading ability and self-esteem of students with dyslexia were studied.

1.1 DYSLEXIA

Dyslexia is a developmental reading disorder (DRD) that occurs in children with normal intelligence. It is a reading disability despite intelligence, motivation, and
educational opportunities that occurs when the brain does not properly recognize and process certain symbols. Dyslexia is caused due to impairment in the brain’s ability to translate information received from the eyes (Shirole & Chari, 2016). Dyslexia is one of several distinct learning disabilities. It is a specific language-based disorder, characterized by difficulties in single word decoding, usually reflecting insufficient phonological processing (Troia, 2011).

Dyslexia is the most common form of language based disability. It literally means “poor language” and affects around 15% of the population (Castro, 2016).

“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).

1.1.1 Characteristics of Dyslexic children

According to Smallridge (2009)

Dyslexic learners may confuse symbols, letters and words that look similar; e.g., saw and was, b and d, or x and +.

- Dyslexic learners may have difficulty copying words from the board; e.g., the order of letters in words seen is not remembered in sequence so copying becomes full of errors.
- Dyslexic learners may have difficulty paying attention to classroom tasks; e.g., during writing time other things happening outside the classroom window or inside the classroom will easily catch the student’s eye.
- 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.
- Dyslexic learners 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; e.g., pet, pat, pin, bin, bit and bet may be easily confused.

• Dyslexic learners may mispronounce the multisyllabic words; e.g., “ephelant” instead or “elephant.”

• Dyslexic learners may have poor listening skills especially if the classroom is noisy.

• 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 to cut accurately; e.g., student cuts something in half that was only supposed to have a small cut in it.

• They may have difficulty handling classroom materials carefully such as books and other learning materials.

• They may appear clumsy and bump into objects and people regularly.

The other characteristics, according to Davis (1992), are:-

• They have high I.Q but poor at academics.

• They have poor self-esteem and get frustrated easily.

• Get confused by letters, numbers, words, sequences, or verbal explanation.

• While reading or writing they repeat, add, transport, omit, and substitute.

• They read and re-read with little comprehension.

• They have difficulty in fine and/or gross motor skills.

• They have difficulty in telling time and managing time.

• They are unable to learn the information in sequence.

1.1.2 Causes of Dyslexia

The exact causes of dyslexia are still not completely clear, but anatomical and brain imagery studies show differences in the way the brain of a dyslexic person
develops and functions. Moreover, people with dyslexia have been found to have problems with discriminating sounds within a word, a key factor in their reading difficulties. Dyslexia is not due to either lack of intelligence or a lack of desire to learn; with appropriate teaching methods dyslexics can learn successfully (International Dyslexia Association, 2000).

The probable reasons or causes of dyslexia as given by Hammond and Hercules (2000), are:-

- The dyslexic brain is different from ordinary brains. Studies have shown differences in the anatomy, organization and functioning of the dyslexic brain as compared to the non-dyslexic brain.
- Some researchers suggest that dyslexic people tend to be more ‘right brain thinkers’. The right hemisphere of the brain is associated with lateral, creative and visual thought processes.
- Dyslexia is not related to race, social background or intellectual ability but there is a tendency for dyslexia to run in families and this suggests that the brain differences which cause dyslexia may be hereditary.
- These neurological differences have the effect of giving the dyslexic person a particular way of thinking and learning. This usually means that the dyslexic person has a pattern of cognitive abilities which shows areas of strengths and weaknesses.

1.1.3 Dyslexia and Brain

Dyslexia is a neurobiological disorder which means the issues are located inside the brain. There are real structural differences in the brains of people with and without reading disabilities. The brain is made up of two types of material: grey matter and white matter. Grey matter is mostly composed of nerve cells and its primary function is to process information. The white matter is found in the deeper parts of the brain and acts as the connective fibers that create communication between nerves. The white matter is also responsible for information transfer around the brain. People with dyslexia have less grey matter in the left part of the brain than non-dyslexic individuals (Quinn, 2016). The brain of a person with dyslexia process differently at
the levels of phonological processing, as compared to the brain of a person who has no dyslexia (Georgiou, 2015).

1.2 MINDFULNESS

Mindfulness can be defined as living fully in the present moment, with intention and without judgment. It involves the acknowledgement and immediate release of thoughts, emotions, and sensations, enabling a more levelheaded means of reacting and responding to the world. It has Buddhist roots, and the term “mindfulness” is related to the Pali word sati, meaning “awareness,” but mindfulness has become more than a strictly spiritual practice. Over the last few decades, the practice of mindfulness, which is most often based on an attention to breath as a way of anchoring in the present moment, has grown in popularity and in respect (Kriynovich, 2015).

In simple terms, mindfulness means awareness of every single moment with acceptance and without judgement.

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).

As mentioned earlier, mindfulness has ancient roots in Buddhism and other religions but now rapidly gaining recognition as a secular practice that can help manage and reduce chronic pain, depression and anxiety (Marshall, 2015). 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).

It is the practice of living in the present moment, by focusing on the breath. One may find this practice too simplistic and useless, but the fact is this practice can bring a huge difference in one’s life. It is believed, albeit wrongly, that the complex practices are more effective and useful. In this belief, simple practices are being
ignored. The main reason for people’s sufferings is that they don’t live in the present moment. Our mind wanders either in the past thoughts or in the future worries. Through being mindful, one can learn to live in the present moment. Mindfulness is that technique/practice by which an individual gets trained to live in the present moment in a harmonious way. This technique/practice is so simple that it can be practiced anytime and anywhere. The only effort required is to remember to be mindful and this can be achieved through intentional regular practice.

Our mind keeps on jumping from one thought to another, the practice of mindfulness helps to direct our attention on the present moment. Mindful breathing is one of the main component. It is a promising practice to discipline the mind and to be more alert and focused.

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 the 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).

1.2.1 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 hope 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 enable a person to live a more mindful life. These are as follow:-

i. Curiosity – To become curious about one’s own experience.

ii. Acceptance – Mindfulness is about accepting how one feels right now.

iii. Kindness – Bring a sense of warm and caring compassion to one’s own moment to moment experience.

iv. Letting go – Mindfulness is about letting go of both the pleasant and unpleasant experiences. There is no need to try and hold the pleasant experience and to push away the unpleasant experiences.

v. Trust – Have confidence in the practice of mindfulness and in one’s own inner self to guide oneself.

vi. Beginner’s mind – Nurture your sense of being a beginner rather than an expert.

1.2.2 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 does not get caught up in ideas and memories and nor does
he 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.

5. Present-Moment Awareness- Mindfulness rests in the here-and-now i.e. this very moment. This pure awareness lives only in the current moment when one is aware of his breath, the sensations in his body, and his experience as he reads the lines on this page.

6. Non-egotistic Alertness- Mindfulness involves letting go of the drama of self (me, my, mine and I). Through mindfulness, an individual can learn to notice sensations without getting attached to them.

7. Awareness of Change- Mindfulness involves watching the natural change of experience and all life as it flows along in the present moment. With mindfulness, one becomes aware of how his thoughts and feelings can change his experience and perception of reality.

8. Participatory Observation- Mindfulness is not a passive observation as it seems to be. In fact, mindfulness requires the meditator to be both the participant and the observer simultaneously. In this way, one is the observer of his own experience and at the same time he experiences it also.

1.2.3 Mindfulness and Brain

Our nervous system is like the electrical wiring system which is comprised of the central nervous system (brain and spinal cord) and peripheral nervous system that controls the activities of the brain. White and grey matter are the major components of the central nervous system. While the white matter allows communication with functions like temperature, blood pressure and heart rate, the grey matter is the darker tissue of the brain and spinal cord where the real processing is conducted. The structures within the grey matter process the signals that are involved in things like emotions, memory, speech, and muscle control. Grey matter makes up 40% of brain matter (Mckinty, 2015).

The neural mechanism and mindfulness is directly associated. Magnetic Resonance Images (MRI) were used to measure regional grey matter density and it was found that mindfulness practice has increased grey matter concentration in the left hippocampus, the posterior cingulate cortex, the temporal-parietal junction and in
the cerebellum. Mindful awareness practices can increase brain size in regions involved in learning, memory processing, emotion regulation, self-referential processing. Increased grey matter density in the prefrontal lobe in mindful brains, an area primarily responsible for executive functioning such as planning, problem solving, and emotion regulation. Mindful brains have also shown increased grey-matter density in the hippocampus, known to be important for learning and memory, and in structures associated with self-awareness, compassion, and introspection (Holzel, et al., 2011).

1.2.4 Mindfulness for Children

It is true that children are often much closer to experiences of mindfulness than adults. The younger the child, the more evident it is, as it can be seen in a baby’s first experience with food. He or she looks at it, touches it, feels it against his/her face, and tastes it. An infant and toddler experience everything for the first time, the way one strives for the “beginner’s mind” in mindfulness practice: every experience is fresh. Young children live moment to moment. They react emotionally in response to an immediate circumstance, and then they just as quickly let it go and move on to the next experience. One can observe this in a child crying, perhaps even throwing a tantrum, and then simply ceasing, standing up, and moving to engage in play with a toy. It is easier for children to let go of the past. One might notice this in the way a young child falls quickly into a deep sleep without thinking about the day’s activities or other worries (Fodor & Hooker, 2008).

But in a fast changing society, the natural phenomenon of being mindful among children has lost. But it is still easy to connect the children to their breath and develop the practice to live in the present moment by becoming mindful.

Children may be asked to notice their feelings thoughtfully for mindful awareness and help them to focus on their breathing by keeping a stuffed animal on their abdomen for observing the breath (Saltzman & Goldin, 2008; Flook et al. 2010). In addition, parents, teachers, and caregivers may use many experiences to promote mindful awareness by encouraging children to notice what is happening in the current moment in a purposeful and nonreactive way. For example “Where do you feel sad: in your eyes, in your throat, in your chest?” (Zelazo & Lyons 2012).
1.3 READING ANXIETY

Anxiety is a normal human emotion. Anxiety is clearly a state of mood or emotion which, if in excess, is unpleasant; it is concerned with the uncertainty and is directed towards the future rather than past (Tyrer, 1999). There is a connection between anxiety and neurotransmitter-chemical substance that communicate information throughout the brain and multiple neurobiological interactions play their role in anxiety (Lydiard, 2003).

Reading anxiety is an unpleasant emotional reaction experienced by students when reading; it is a specific phobia, situational type. (Piccolo, et al., 2017). It has been defined as an unpleasant emotional reaction towards reading that results when the students’ intellectual drives of curiosity, aggression and independence become associated either singularly or in combination with significant other’s disapproval and the reading process.

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 helplessness, 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. They 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).

1.3.1 Mindfulness and anxiety

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’s 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).

Brain imaging found that meditation-related anxiety relief was associated with activation of the anterior cingulate cortex, ventromedial prefrontal cortex, and anterior insula. These areas of the brain are involved with executive function and the control of worrying. Meditation-related activation of these three regions was directly linked to anxiety relief.

Activation of the anterior cingulate cortex—the area that governs thinking and emotion—is the primary region believed to influence a decrease in anxiety. These findings provide evidence that mindfulness meditation reduces anxiety through mechanisms involved in the regulation of self-referential thought processes (Bergland, 2017). Mindfulness-based therapy is a promising intervention for treating anxiety and mood problems in clinical populations (Hofmann, Sawyer, Witt, & Oh, 2010).

### 1.4 Reading ability

Reading ability refers to the skill in recognizing directly and interpreting accurately the printed or written units of language with eye movements normally characterized by long sweeps that do not over-read their span of recognition (Good, 1959).

Reading ability is a purposeful activity. It is a combined physical and mental activity. The pictures of the printed figures of a page are formed by the reader’s eye and reflected to the brain but it is the brain that gives those pictures meaning. It is, however, true that a brain without having clear pictures cannot supply the reader with meanings, and yet pictures without the meanings, provided by the brain, have hardly any significance. Hence, reading means getting meaning from certain combinations of letters, words, phrases, sentences, paragraphs, chapters, and even whole books perceived by the eye (Al-Rufai, 1969).

A reading skill can be described as “a cognitive ability which a person is able to use when interacting with texts” (Urquhart & Weir, 1998).
National Reading Panel (2000) has given the following dimensions of reading ability.

- **Phonemic Awareness** - Phonemes, the smallest units making up spoken language, combine to form syllables and words. Phonemic awareness refers to the student’s ability to focus on and manipulate these phonemes in spoken syllables and words.

- **Phonics** - Phonics is the relationship between the letters (or letter combinations) in written language and the individual sounds in spoken language.

- **Fluency** - Fluent readers are able to read orally with appropriate speed, accuracy, and proper expression. It is the ability to read as well as one can speak and to make sense of the text without having to stop and decode each word.

- **Vocabulary** - Vocabulary development is closely connected to comprehension. The larger the reader’s vocabulary (either oral or print), the easier it is to make sense of the text.

- **Comprehension** - Comprehension is the complex cognitive process readers use to understand what they have read.

### 1.4.1 Mindfulness and ability

Reading needs lot of attention to get the meaning of written text. The moment the mind wanders, reader loses his attention from the text. Mind-wandering obstacles the reading skills and due to mindless reading many people have experienced that though their eyes have been moving across the printed page but reading has not been processed in a meaningful manner (Reichle, Reineberg, & Schooler 2010). Mind-wandering can be reduced by mindfulness (Mrazek, Smallwood, & Schooler 2012) and thus mindfulness training improves task focus and performance (Mrazek, Franklin, Phillips, Baird & Schooler 2013). It improves specific attentional component of cognitive control (Jha, Stanley, Kiyonaga, Wong, & Gelfand 2010).

### 1.5 SELF-ESTEEM

Self-esteem is an evaluation of our worthiness as individuals, a judgment that we are good, valuable people. William James, one of the founding fathers of Western psychology, argued that self-esteem was an important aspect of mental health (Neff, 2011).
Self-esteem is a complex, multi-facet aspect of life; a primary component in the building and maintenance of physical, emotional and spiritual wellbeing. The term ‘healthy self-esteem’ is often used in recognition of the fact that ‘high’ self-esteem may be (wrongly) seen as almost entirely based on feeling good about oneself. This could possibly be at the expense of other people’s feelings. Healthy self-esteem is much more than simply feeling good about oneself. It encompasses feelings of actual and perceived competency and self-efficacy and most importantly, feeling of being lovable or ‘approved’ of. This includes self-approval and compassion towards oneself, as well as a sense of approval and warmth from others. Someone with healthy self-esteem is more likely to be self-motivated and self-reliant yet still understand the importance of mutuality and so be more likely to sustain respectfully and fulfilling relationship with others. A person who has developed healthy self-esteem will be more able to make informed decisions (Plummer, 2014).

Self-esteem refers to the positive or negative way people feel about themselves as a whole, which is also often called global self-esteem or global self-worth (Brown, Dutton, & Cook, 2001).

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 & Coplan, 2010).

1.5.1 Mindfulness and self-esteem

Mindfulness entails an open, nonjudgmental awareness of what is occurring in the present. Mindfulness turned toward the mind’s contents leads to the recognition that the “me” is a mental construction and reveals that self-esteeming processes are themselves just mental activities that play out on the screen of awareness that this deeper self can observe. Thus, identification of one’s self with a concept or image
catalyzes defensive activities that, although perhaps useful to preserving self-esteem. Less mindful people under the influence of self-esteem and approval motives, likely to manifest poor decision making and experience lower well-being (Brown & Ryan, 2003). In nut shell, mindfulness is a way of living in the present moment. Through this people become more aware of their thought process and don’t get disturbed by it.

1.6 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 et al., 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 et al., 1998). The students with dyslexia have poor internal locus of control (Glazzard, 2012) and lack of understanding (Osmond, 1996). They show timid behavior and lower level of self-esteem (Humphrey, 2002). 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 students with dyslexia 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). Generally dyslexia is regarded as a ‘common’ learning disability in many schools and it is a cause of stress and concern for students and teachers (Green, 2014). The above reviews shows that poor/low self-esteem and anxiety are troublesome traits of dyslexia. Figure 1.1 shows the inter-relationship among these in a more comprehensible way.
Figure 1.1 Dyslexia -anxiety-self-esteem cycle (Dekker, n.d)
Today, dyslexia has become a major concern among educators and many researches have been conducted across the world (Lyytinen, Guttorm, Huttunen, Hämäläinen, Leppänen and Vesterinen, 2005; Saviour, Kumar, Kiran, Ravuri, Rao and Ramachandra -2008, Sampath, Sivaswamy and Indurkhy, 2010, Venkatesh, Siddaiah, Padakannaya, and Ramachandra, 2011, Nelson and Gregg, 2012, Hämäläinen, Salminen and Leppänen, 2013). India presents difficult issues in this area (John, George and Mampilli, 2004) and not much work is done for the dyslexics at the elementary level. So, there is an urgency to carry out research in this field.

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). Researches on mindfulness with children have shown success in reducing anxiety and disruptive behavior, it has improved concentration and self-control in children (Feindler, Marriott, & Iwata, 1984; Fluellen, 1996; Ryan, 2000). Research indicates that incorporating stress reduction programmes into the school curriculum is associated with improvement of academic performance, self-esteem, mood, concentration, emotional and behavior problems (Dendato & Diener, 1986; Kiselica, Baker, Thomas & Reedy, 1994; Napoli, 2002; Shillingford & Shillingford; Mackin, 1991). Mindfulness influences brain function (Davidson et al., 2003; Creswell, 2007; Goldin and Gross, 2010). 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). It helped in promoting the transfer of learned strategies in students with learning disabilities (Wong, 1994).

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 of mindfulness, investigator assumed that mindfulness can be used to improve reading among dyslexics (Tarrasch, Berman, & Friedmann, 2016). The investigator included breathing techniques, guided mindfulness meditations, yoga-
based physical activities and body scanning as the components of mindfulness intervention for children. Not much work is done on the students with dyslexia, so it calls for the need of more research in this area.

1.7 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

1.8 OPERATIONAL DEFINITIONS

Mindfulness: In the present study, state of mindfulness is to be aware of the present moment, accepting all the experiences by remaining non-judgemental, by observing the daily routine activities and describing every experience in a better way. A score on Mindfulness Questionnaire for School Students (MQSS) was the measure of mindfulness.

Reading Ability: It is the ability to read the text fluently and accurately with understanding. 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.

Reading Anxiety: It means having anxiety (feeling of nervousness, uneasiness, fear and worry) towards reading. 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.

Self-Esteem: It is the perception of an individual towards oneself, which may include both positive and negative feelings. Self-esteem inventory with three dimensions viz; General, school and Family (developed by the investigator) was the measure of self-esteem for the study.

Dyslexia: Dyslexia is an inability to read despite having normal intelligence. 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.

1.9 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).
1.10 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.

1.11 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 study was delimited to the elementary school students of 6th class.