SIX INTERVENTIONS FOR ANXIETY: SOMATIC TRAINING,
AFFECT REGULATION, AND MENTAL HEALTH

By

Stephen Brewster

March 15 2020

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Arts in
Counselling Psychology

City University of Seattle
Vancouver BC, Canada site

Approved by

Bruce Hardy, Ph.D., Advisor, Counselling Psychology Faculty
Laleh Skrenes, Ph.D., Reader, Counselling Psychology Faculty

Division of Arts and Sciences
Abstract

This thesis analyses aspects of Anxiety and Depression which are two of the most serious mental health challenges. Anxiety is rendered in upper case as A and lower case as a to indicate both generic and specific uses of the term. The paper proposes a treatment protocol of a suite of six somatic interventions for Anxiety. Each technique produces beneficial therapeutic results: calming of anxiety, reduction of arousal, and affect regulation. Reducing Anxiety is predicted to lower the incidence of a sequel disorder, Depression. The paper reviews pertinent recent literature on Anxiety, the etiology of the disorder, comorbidity with Depression, and relaxation interventions. The paper includes a historical review of neurotic anxiety. It presents evidence that chronic anxiety becomes comorbid with depression and then increases adoption of avoidant and maladaptive lifestyles. The treatment suite is designed to be performed in a twelve minute sitting. Enhanced mental health is predicted as a consequence of somatic learning and practice. Improved self regulation of affect is an intended and predicted outcome by the literature. Mental health literacy will improve as a consequence of guided somatic experiences.
Acknowledgments

Dedicated to a treatment ideal of “effications” in every case

“We'll drink, a drink, a drink
To Lily, the Pink, the Pink, the Pink
The savior of the human race
For she invented medicinal compounds
Most efficacious in every case.”

(McGough & Gorman, 1968)

Lydia E. Pinkham's Vegetable Compound, 1875, became commercially successful in addressing women's problems in part, because including vegetables and herbs, the compound contained alcohol.

“Emotional dysregulation lies at the core of many psychopathologies. Thus, anxiety regulation is central to all effective psychological treatment”. (Grecucci & Chiffi, 2016)

Dedicated to family, past, present, and future including mothers, fathers, sisters, brothers, children, and grandchildren, but especially to Michael, David, and Lara for whom bonds of attachment, love and loyalty inspire all my endeavors.
Contents

Chapter One ........................................................................................................................................... 7

Statement of the Problem......................................................................................................................... 7

Etiology of Anxiety.................................................................................................................................. 9

Education and Mental Health Literacy .................................................................................................. 10

Interventions: Relaxation Techniques .................................................................................................... 11

Somatic Power Calms Psyche................................................................................................................. 13

Six Interventions .................................................................................................................................... 14

Perspective on Anxiety; a Brief History of Neurosis .............................................................................. 15

Types of Anxiety .................................................................................................................................... 18

Anxiety is a Gateway Disorder ............................................................................................................... 18

Brain Structures: Fear and Anxiety ......................................................................................................... 21

Anxiety: Comorbid with Depression ...................................................................................................... 24

Amygdala: Threat Recognition Mechanism .......................................................................................... 27

Intervention Three: Eye Movement and Bilateral Input ........................................................................ 33

Chapter Two .......................................................................................................................................... 37

Comorbidity Issues in Anxiety and Depression ..................................................................................... 42

Therapy in Transition: .......................................................................................................................... 44

Preventing Anxiety and Depression in Adolescents ............................................................................ 45

Brain Structures and Anxiety ............................................................................................................... 49
| Anxiety Regulation | ................................................................. | 53 |
| Eye Movement and Bilateral Stimulation: EMDR | ................................................................. | 55 |
| Breath Control | ................................................................. | 61 |
| Mindfulness Based Stress Reduction (MBSR) | ................................................................. | 67 |
| Autogenic Training (AGT) | ................................................................. | 69 |
| Biofeedback as Treatment for Anxiety | ................................................................. | 70 |
| Mindfulness | ................................................................. | 71 |
| Autogenic Training (AGT) | ................................................................. | 72 |
| Progressive Muscle Relaxation (PMR) | ................................................................. | 74 |
| Quiet Mind | ................................................................. | 75 |

**Chapter Three** ................................................................. | 77 |

| Methodology: Somatic Training vs Cognitive Learning | ................................................................. | 77 |
| Terminology | ................................................................. | 82 |
| Brain Structures and Functions | ................................................................. | 85 |
| Psycho Education in Canadian Schools | ................................................................. | 89 |
| Proposed Clientele: Single Clients, Students, Small Groups and Classes | ................................................................. | 90 |
| Tracking Client Learning | ................................................................. | 91 |
| Order of presentation | ................................................................. | 92 |
| Order of Interventions | ................................................................. | 92 |

**Chapter Four** ................................................................. | 93 |
Chapter One

Statement of the Problem

Anxiety and Depression are sources of human suffering and struggle. This thesis proposes six interventions for reducing the debilitating effects of these two dangerous pathologies. (When referring to the major disease process Anxiety and Depression will be capitalized.) Effective psychotherapeutic treatment of these two mood disorders should be a core competency in psychotherapists, in the view of this author. Distinct disease entities, Anxiety and Depression are also commonly experienced as painful symptoms of daily psychological struggle. The genesis of Anxiety is in the threats we perceive to our well being or perceived threats to those to whom we are emotionally attached. We are threatened in the present when we remember painful episodes from the past. Imagination and memory are normal capacities of mind but become the enduring sources of Anxiety and of pain in the present moment. The Anxiety process is one in which we may learn to intervene effectively.

This thesis will treat two mental health challenges as inherent in the structure and functioning of mind. The brain has structures which function protectively but produce Anxiety and eventually the sequel of Depression. Humans minds appear to be commonly at hazard for developing both these pathologies. We can be educated and trained to reduce some destructive aspects of the two mood disorders. Forewarned by understanding of brain physiology, we can help manage psychological, somatic, and emotional suffering cause by them. An enduring mission for therapists, in the view of this author, should be to effectively counsel clients to manage the negative impacts of Anxiety and Depression. Mental health professionals can collaborate in delivering long term management strategies for these
afflictions. These two diseases constitute seventy per cent of the mental health costs in Canada, according to reports from the Canadian Mental Health Association (CMHA, 2020).

This thesis offers a treatment protocol in the form of a Suite of six short interventions for Anxiety. Each intervention is a relaxation technique. Each is a distinct, intentional body mind experience, which has the proven capacity to mute hype arousal and reduce psychic and somatic pain. The collected techniques in the protocol involve somatic experiencing (SE) which is calming and aimed at affect regulation. Practicing this treatment Suite results in reduced arousal and reduces anxiety. Clients engage in six techniques which are designed to calm hyperarousal. The reduction of arousal reregulates emotion or affect. The collective effect of using this method addresses the mental health risk of chronic anxiety and the expected sequel of Depression. Diminishing present suffering helps reduce ongoing negative life experiences commonly associated with untutored, impulsive reacting to anxiety and Depression. Primitive avoidance tactics often lead to pathological personal habits such as substance abuse which are believed to have roots in anxiety and Depression.

Anxiety and consequent Depression produce a host of mental, emotional and social problems. Therapists need new treatment modalities and efficacious interventions to reduce psychological and somatic suffering. New interventions are necessary. Researchers like McLuckie et al., assert that twenty percent of Canadians will experience a mental health disorder which will require professional intervention (McLuckie, Kutcher, Wei, & Weaver, 2014). Anxiety Canada (2019) reports that forty percent of Canadians are dealing with Anxiety issues on any given day.

Anxiety will be treated in this paper as both a specific and a generic disease. It is given enhanced special status and written Anxiety in this paper as well as anxiety. Anxiety is,
unfortunately, far too common. Disorders of mood will predictably appear in a therapist’s personal life. No person appears to be immune from the problems associated with Anxiety and Depression. Anxiety Disorders takes up a large section (forty four) pages in the DSM V. Depressive Disorders take up thirty three pages (DSM V, 2013). Loss of quality of life by so many millions of afflicted people suggest that all therapists should assemble a varied tool chest of effective interventions for addressing the two pathologies. Treating various disguised manifestations of the diseases will loom large in the professional life of a therapist. Half of humanity will be eventual victims of clinical levels of Anxiety or Depression. The challenge represented by Anxiety and Depression should not be understated. Deep understanding and effective interventions should be viewed as critical competencies in the art of psychotherapy. Since emotional dysregulation lies at the core of many psychopathologies, anxiety regulation is central to all effective psychological treatment (Grecucci & Chiffi, 2016).

**Etiology of Anxiety**

This section of the paper deals with the etiology of Anxiety and Depression and points at predictable sequelae. Typically, Anxiety elaborates, becomes comorbid with Depression and then contributes to widening emotional dysregulating effects. Anxiety and Depression have psychological features which invite the victim down a path of avoidant behavior. Often these avoidant behaviours have attached health risks and can become potentially lethal. Smoking tobacco can be viewed as anxiety avoidant behavior. As with so many pain avoidant tactics too many individuals enlist a “solution” with dangerous and addictive aspects. Nicotine for example is a potent drug with powerful addictive properties. Alcohol and narcotic substance use and abuse are psychic pain avoidant techniques which have their genesis in Anxiety and
Depression. The two related disorders and widespread human attempts to avoid discomfort become critical public health issues when the scale and extent of the problem of notional treatment of Anxiety and Depression are considered. Lam asserts the commonly encountered statistic that Depression is the second leading cause of disability worldwide (Lam et al., 2016a).

**Education and Mental Health Literacy**

Education, in the form of mental health literacy, is potentially the most effective and efficient way to inform and warn the general population about the mood disorders, Anxiety and Depression (Cuijpers, Van Straten, Smit, Mihalopoulos, & Beekman, 2008a). This paper is intended as a guide for therapists or counsellors who encounter anxious clients especially in elementary and secondary schools. The six interventions proposed have well established reputations for reducing Anxiety according to the many academic articles reviewed for this paper.

The Suite is meant to be completed in one twelve minute sitting. The paper is also an in-depth exploration of these six therapeutic techniques and how to use them with individual clients. One intention of the paper is to support mental health literacy by destigmatizing mental health interventions (Stan Kutcher, Wei, & Morgan, 2015). Destigmatizing mental health issues is a critical step in public health delivery and wide social acceptance of active treatment for mood disorders. On a micro level this paper examines causes and effects of Anxiety and Depression and evidence-based interventions. The six interventions for Anxiety and affect dysregulation include five time honored ones and one relatively new treatment EMDR for hyper arousal (Stan Kutcher, Bagnell, & Wei, 2015b)
Interventions: Relaxation Techniques

The truncated interventions proposed can be seen nonverbal approaches; they are delivered as somatic therapies. They are not content heavy nor cognitively focused. Words are used sparingly in these treatments. The experience of the six interventions aim to produce a relaxation experience aimed at the somatic or body level. The presumption in training sessions is that students and children normally feel a mild background level of arousal to ambient stress. The experience of the relaxation Suite should lower this level of arousal level palpably and induce a felt parasympathetic calming or rest and digest state. In later sessions, the therapist may add some recall of trauma in the expectation that the clients will be able to invoke a mildly traumatic memory and then treat their trauma and Anxiety with the six parasympathetic calming techniques. The intention and the clinical experience of the present author is that clients experience this calming effect and are not upset by recalling old uncomfortable memories. Clients understand the intention in the treatment is for them to control and manage negative emotional reactions.

An anxiety spike with associated adrenalin loading is usually felt as a quick, sharp and uncomfortable event which occurs over a few seconds. The parasympathetic recovery side from a hyperarousal spike may last an hour or more. This thesis presents evidence that six relaxation techniques accelerate this parasympathetic process of a return to calm or equilibrium. When mind alarms the body, the amygdala is triggered and produces a fight or flight response. But a calm body can influence and calm an agitated mind. Somatic pain is a common symptom and indicator of Anxiety, particularly generalized anxiety disorder (GAD). Reducing pain by using a somatic technique has a marked beneficial effect on mind.
The relaxation Suite has a long term psychological goal of conditioning the client to consciously relax the mind by relaxing the body. If mastered in practice, the positive somatic experience will eventually result in a population of students and youth who can and will practice somatic interventions. One of the challenges for therapists in delivering psychotherapy in the adult world is the low average numbers of sessions in which clients will return for therapy. One in five clients drop out of therapy. There are ruptures in relationship between client and therapist. Premature discontinuation, or therapy dropout, has been described by many as a significant problem that limits the effectiveness of the interventions that are offered to individuals who suffer from mental and behavioral health problems (Swift & Greenberg, 2012). The reported average number of attended therapy sessions is below six. Six sessions are not enough to create effective learning or trust in psychotherapy. The Suite of six interventions is meant to become a base practice and experience of therapy. Using the Suite is intended as a kind of vaccination for regulating emotions. Practicing relaxation and associating it with somatic therapy is an intentional strategy which seeks to produce a sense of trust in therapeutic processes over a lifetime, beginning with children and teens.

Students are reluctant to talk about emotional challenges. This view is based on the author’s thirty plus years in a counsellor role. Students are more open to do what is somatically comforting. Engaging students in activities which are anxiety reducing, physically relaxing, and done in small groups is quite doable in a school context. Group activities, like mindfulness and dancing, are increasingly common in schools and create confidence in engaging in what are fun but also somatic therapeutic activities. There is little stigma around such group activity when compared with any individual talk therapy for student clients. Group practices detoxify processes which, when used with individual children, are seen as
suspect. A child is likely to engage in dancing or yoga with a class but is not likely to do so if required by a counsellor.

**Somatic Power Calms Psyche**

Mind has the strong effects on the body in the matter of Anxiety. The relaxation interventions proposed here change the causal body to mind direction of action, i.e. in this thesis soma is seen to have the power to alter psyche. In this system a calmed body can calm the mind. It is a fact that whenever the brain is alarmed, the amygdala is involved. The right amygdala detects a threat and produces anxiety and a sympathetic reaction of fight or flight. This thesis argues that a trained therapist can influence expected mind to body trauma and reverse it so that the body relaxation interventions calm the body and then calm the mind. Body interventions can lower hyperarousal. This relaxation Suite intentionally produces somatic feedback which calms and regulates hyperarousal. The process invokes parasympathetic responses in the Autonomic Nervous System (ANS) which is tasked with survival of the organism.

Mental Health experts assert that schools can be an effective setting for mass interventions in Anxiety and Depression (Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). In Somatic Experiencing (SE) sessions, clients are encouraged to tune into physical sensations which create the space for our bodies to connect with our innate healing response. The process resolves symptoms by gently discharging high levels of nervous system arousal and help our bodies return to a more manageable level of functioning (Levine, 1997). The Levine technique is similar to the six interventions because both enlist a somatic effect for emotional regulation.
Six Interventions

The choice of six interventions is deliberate. There are many ways to achieve affect re-regulation. For example, yogic breath control and attention to breathing have been employed in emotional somatic control for 5000 years. The paper presents clients with a variety of modalities, in which all six will be experienced in twelve minutes. Since we know individuals react differently to different treatment interventions, we do not presume to know what works better for each person. The choice of six offers an opportunity for individuals to pick what works for them. Exploration is one intention of this design. Examining the somatic experience in post training sessions facilitates individual learning. Offering instruction in small groups, in private, in schools, help destigmatize what is a mental health process, but which is not perceived that way. The process is not about mental health and anxiety; it is about relaxation and body control.

Limitations of this Approach

This paper does not address treatment for Anxiety and Depression using pharmaceuticals. It does not address modalities like Cognitive Behavior Therapy (CBT), Narrative Therapy (NT), Emotionally Focused Therapy (EFT), or a host of similar treatments which deploy complex verbal constructs requiring many hours of intense client-therapist engagement. The Suite of six are physical and attentional interventions. All six have been truncated in the combining of techniques so they can be experienced collectively in one twelve minute sitting.

The Suite of six include: breath control, progressive muscle relaxation, autogenic training, eye movement, auditory attentional focus and mindful meditation. Absent from these interventions are lengthy dialogue between the client and the therapist. Dialogue is usually
normally a core feature of psychotherapy. The six interventions are not left brain verbal rational activities. They are somatic right brain enactments. What is not done, as in not thinking and not speaking, is important. The intended goals are therapeutic. Goals include calming and silencing the mind and especially calming the alarmed amygdala. One of the advantages of a somatic approach is that many therapeutic physical behaviours like breath control and progressive muscle relaxation do not include what might culturally alarm parents. Social taboos, some religious, and political or beliefs, tend to produce stigma around treating mental health issues in schools. Doing therapy with a student client risks raising cultural and social alarms, But somatic interventions are seen as group activities and do not trigger mental health stigma.

**Perspective on Anxiety; a Brief History of Neurosis**

Psychotherapy has a historical connection to neurosis. The genesis of psychotherapy was in myriad attempts to deal with anxious neurosis. The term neurosis was in use for many decades to describe mental, emotional, or physical reactions that are drastic and irrational. At its root, neurotic behavior is an automatic, unconscious effort to manage deep anxiety (North, 2015). Written records from ancient Egypt dating back 4000 years described a syndrome known as hysteria, which was characterized as manifestations of multiple physical and behavioral dysfunction. Hysteria came to be conceived as products of witchcraft, demonic possession and sorcery. The term is derived from the Greek word hysteria (signifying the uterus), dates back to at least the time of Hippocrates. In 1697, the English physician Thomas Sydenham conceived of hysteria as an emotional condition rather than as a physical disorder, moving the source of the disorder from the uterus to the central nervous system (North, 2015).
Sydenham referred to hysteria as “Proteus,” acknowledging the powerful protean disorder’s capacity to simulate almost any disease. The allusion to the Greek god and shape changing abilities, is a caution to mental health workers and therapists. We are not trained to recognize the multiple manifestations of Anxiety. But they are commonplace and dangerous. The sequel disorder Depression produces a widespread parasympathetic slowing down, a pleasureless, painful, and extended reaction to chronic hyper arousal. Both Anxiety and Depression will manifest in one form or the other over the course of a lifetime for the majority of humans. Both disorders are a major source of human suffering and struggle. Therapists must be attuned to the manifestations of pathology in these disorders of mind. This author argues that Anxiety and Depression are what brings clients to therapy. Both are painful and distressing. Sometimes they are debilitating, and they often become a gateway to avoidance and of pathological soothing techniques like substance abuse. Avoidance of pain often creates risks as we see in substance use and the daily risk of lethal overdose.

Nineteenth Century View of Hysteria

The nineteenth century French neurologist, Charcot, described patients who exhibited dramatic physical symptoms such as hysterical vomiting, and neurological problems including selective anesthesia, paralysis, deafness, bizarre movements, and epileptic like seizures. We now view these as highly dysregulated states with multiple somatic manifestations as extreme forms of Anxiety. Charcot used hypnosis with his patients and concluded that only hysterics could be hypnotized. Both Charcot and his contemporary, Janet, believed the hysterical phenomena in their patients represented mind based or neurodegenerative disease. Freud emphasized the psychological origins of hysterical conversion phenomena in which ideas or memories too unpleasant for conscious awareness are repressed into the unconscious and
converted into physical symptoms to resolve unbearable psychological conflicts. Freud’s work with hysteria formed the theoretical basis for the development of the field of psychoanalysis and the techniques he used to treat hysteria and neuroses. Today we recognize this ancient adversary as the disease complex known as Anxiety.

**Genesis of Talk Therapy**

Talk therapy is often deployed in the treatment of Anxiety. Talk therapy known as psychotherapy evolved in Vienna in 1880. Josef Breuer, an Austrian physician and physiologist, was acknowledged by Sigmund Freud as the principal forerunner of psychoanalysis. Breuer, whose medical practice included hypnosis found that he could relieve some symptoms of neurotic hysteria in his patient, Bertha Oppenheim. Bertha used the pseudonym, Anna O to protect her anonymity. Anna O was being treated for severe cough, paralysis, disturbances of vision, hearing, and speech, as well as hallucinations. She decided, with Breuer, to end hypnosis sessions and merely talk to Breuer, saying anything that came into her mind. She called this method of communication "chimney sweeping", and it served as the beginning of free association. Anna coined the phrase talking cure.

**Late Freudian View of Anxiety**

Talk therapy emerged as a primary intervention for neurosis and Anxiety. Freud took a strong interest in Anxiety. His thinking about the subject changed significantly as his psychoanalytic theories evolved. By the end of his life, Anxiety had become central to his theory of the development and functioning of the mind. The new perspective led Freud to a complete reversal of his former position. Whereas before he had posited anxiety as a result of repression, he now understood it as preceding repression and giving rise to it. In the late 1920s, Freud began
to introduce a new and very different theory of Anxiety. This final phase in Freud’s theories give Anxiety a much more central place in the workings of the psyche. Instead of being a side-effect of repression it was now possible to think of the very contours of the mind itself, with its defenses and symptoms, as above all, a means of avoiding Anxiety (Bankart, 1997).

**Types of Anxiety**

There are various types of Anxiety. Existential anxiety normally occurs when person faces a physical survival crisis. People can also develop somatic anxiety, stage fright, test anxiety, phobias, and social anxiety or generalized anxiety and panic attacks. Separation anxiety is a natural developmental stage for two-year-old children. Social anxiety and stranger anxiety occur when people are apprehensive around strangers or other people in general. Anxiety can be either a short term state or a long-term trait. Whereas trait anxiety represents worrying about future events, anxiety disorders are a group of mental disorders characterized by feelings of anxiety and fear. Anxiety disorders are partly genetic, with twin studies suggesting there is a thirty to forty per cent genetic influence on individual differences in Anxiety. Neurotic hysteria is not diagnosed in our current era. But there are thousand of cases of Anxiety and Depression diagnosed every year in Canada; these are the most common psychological maladies. Mental disorders are estimated to affect one in three Canadians in their lifetime with mood and anxiety disorders being the most common accounting for approximately seventy percent of all mental disorders (Public Health Agency of Canada, 2015) in (O’Donnell et al., 2016).

**Anxiety is a Gateway Disorder**

Jamie Howard of the Child Mind Institute Anxiety Clinic in New York writes that Anxiety is a gateway mental health problem. Anxiety is significantly comorbid with Depression. We should appreciate that Anxiety represents a double threat. Depression is often a
sequel to chronic anxiety in which the anxious patient becomes depressed, then becomes more anxious, and then more depressed. The effect of one disease becomes the cause of another (Wolk et al., 2016). The common medical practise of prescribing antidepressants for Anxiety is evidence of the strong link between Anxiety and Depression. The are many variants of Depression. Major depressive disorder (MDD) and generalized anxiety disorder (GAD) are prevalent and debilitating (Kessler et al., 2005). These mood disorders are strongly connected, as their symptoms frequently co occur and show strong overlap. Comorbidity rates between the disorders have been reported to be as high as forty to sixty percent (Bekhuis, Schoevers, Van Borkulo, Rosmalen, & Boschloo, 2016).

Grecucci et al., (2015) point out that emotions may be accompanied by excessive anxiety as a result of conditioning in a family or any problematic attachments. Anxiety then may elaborate and becomes a conditioned response indicating that increasing anxiety could endanger a critical attachment relationship. Anxiety triggers defense mechanisms like cognitive distortion and behavioral avoidance that cause patients’ new symptoms and new presenting problems. The combination of emotion and excessive anxiety interact to create a wide dysregulated state. A person’s feeling state may be perceived by them as a threat in their essential relationships. Anxiety then becomes its own threat and cause of further suffering; the afflicted are left to confront the disease which replicates itself. For them there is painful truth in the expression that what we have to fear is fear (or Anxiety) itself.

In an anxiety response, activation, of the amygdala occurs quickly, cutting off a coherent logical muting and calming message intended for the prefrontal cortex (PFC). The amygdala hijacking the brain is commonplace in chronic Anxiety. The amygdala activation creates a variety of anxiety related symptoms in the body. When Anxiety is discharged in the
striated muscles (somatic nervous system), patients experience symptoms caused by tension in the striated muscles as in tension in voluntary muscles, clenched hands, and sighing (Grecucci, Theuninck, Frederickson, & Job, 2015).

The brain’s hyper reactivity results in over arousal and then becomes proof in the hippocampal memory that any perceived threat is a valid threat. A chronic process implies there will be more threats to come. The overreaction pattern is maladaptive over time and ANS exhaustion leads to systemic Depression. The ANS system can downregulate or depress reactivity on a wide font to escape chronic high level of perceived threat in an apparently hostile environment. Tsiouris explores the etiology of Depression in his paper in which he metaphorically compares Depression to hibernation. *Metabolic Depression in Hibernation and Major Depression: an Explanatory Theory and an Animal Model of Depression* (Tsiouris JA, 2005).

**Complications in Depression**

The cascade of complications that starts with Anxiety and proceeds to Depression spins off many threats. Depression has clear links to suicidal behaviour and substance abuse disorders. Anxiety and Depression should therefore be respected and treated as dangerous double jeopardy mental health challenges. The interaction of Anxiety and Depression potentiates pathology in both disorders. Simple pain and suffering associated with somatic discomfort from Anxiety and Depression prompts avoidant behaviors. It is not only that Anxiety and Depression in themselves are so somatically painful, but the two are emotionally dysregulating causing loss of control and adoption of more extreme behaviours. The avoidance efforts are a testament to the apparent power of avoiding psychic pain which produce extreme behaviours consistent with high levels of physical pain. Control is lost when dysregulation occurs. Emotion dysregulation
lies at the core of many psychopathologies. Thus, Anxiety regulation is central to all effective psychological treatment (Grecucci & Chiffi, 2016).

When the twin afflictions of Anxiety and Depression become comorbid they can be lethal. Lethality is associated with Depression clearly in increased risk of suicide. Suicide is the third leading cause of death in young people aged fifteen to twenty four years and the eighth leading cause of death among the general population. In addition to depressive disorder and substance abuse, hopelessness has been recognized as a risk factor for various types of suicidal behavior, including completed suicide, suicide attempts, and suicide ideation. The anxiety, depression, suicide, and substance abuse connection is a powerful one (Kuo, Gallo, & Eaton, 2004).

**Brain Structures: Fear and Anxiety**

In all mammalian species, there are three distinct sites in the brain where electrical stimulation provokes a full fear response: the lateral and right amygdala, the anterior and medial hypothalamus, and some specific areas of the Peril Aqueduct Grey (PAG). An electrical circuit coursing from the lateral and central nuclei of the amygdala, throughout the ventral anterior and medial hypothalamic areas, down to the mesencephalic PAG constitutes the executive system for fear. A primary role of the Pre Frontal Cortex (PFC) is the logical analysis and synthesis of complex stimuli or situations and then the rational muting of emotional responses. This is a left brain function and is in the domain of logical rational and verbal processes (Steimer, 2002). The left brain works well when it is not overwhelmed by Anxiety. Although Anxiety is a natural survival reaction it can become pathological and interfere with the ability to cope successfully with various challenges and or stressful events, and produce further pathological body conditions as in formation of gastric ulcers (Steimer, 2002). We can reliably conclude that the
fight flight mechanism of the evolved brain produces destructive outcomes with monotonous regularity, and it would appear to be a wise course of action for humans to learn techniques to mitigate the effects of chronic predictable anxiety.

Individual differences in affective or coping styles, also observed in nonhuman species, are directly associated with vulnerability to psychopathology. There are sex related differences which will give interesting clues about the brain mechanisms of anxiety. Genetic predisposition and environmental influences during early development influences determining vulnerability traits and anxiety prone phenotypes. These subtypes of anxious are certainly becoming one of the major domains of contemporary research with respect to our understanding of the etiology of anxiety and mood disorders.

**Anxiety as Maladaptive**

Flight or flight sympathetic responses are believed to have helped homo sapiens survive predation from animals like leopards. Ancient reactions to perceived threats have today evolved into a modern problematic threat recognition systems or overactive amygdala which produces too many false positives. False positive minds are anxious minds. Chronically anxious minds can become depressed minds and then be subject to overcompensation like drug use to find solace from painful chronic arousal. Some overactive patterns are labeled Generalized Anxiety disorder (GAD) or Social Anxiety disorder (SAD) or panic attacks or produce “anxiety clusters” as in Post Traumatic Stress Disorders (PTSD).

Brain processes which were once protective of life are maladaptive to healthy functioning. Anxiety can certainly be viewed this way. The fight or flight mechanism which takes only parts of seconds to invoke requires hours of recovery time. The parasympathetic return to equilibrium, or the rest and digest phase, requires time and energy. Survival is partly
about energy conservation. Anxiety is energy extravagant. A therapeutic intervention for Anxiety needs to support an efficient, rest and digest, or parasympathetic phase of re-establishing ANS equilibrium. The instant fear response causes considerable collateral suffering. Factors that have shaped anxiety regulation mechanisms can explain prepared tendencies to associate anxiety more quickly with certain cues than with others. These tendencies lead to excess fear of largely archaic dangers, like snakes, and too little fear of new threats, like cars. An understanding of the evolutionary origins, functions, and mechanisms of anxiety suggests new questions about anxiety disorders (Marks & Nesse, 1994). Whatever the theoretical explanation, the human psyche needs help recovering from the frequent over functioning of the amygdala, which is instantly alarmed, long in recovery, on the way back to ANS equilibrium.

Hyperarousal, Hormones, and Somatic Discomfort

In perceived threat the hypothalamus sets off the ANS alarm system. The amygdala produces nerve and hormonal signal that prompt the adrenal glands to release a surge of hormones including adrenaline and cortisol. Adrenaline increases heart rate, elevates blood pressure and boosts energy supplies. Cortisol, the primary stress hormone, increases glucose in the bloodstream, enhances the brain’s use of glucose and increases the availability of substances that repair tissues. Cortisol also curbs functions that would be nonessential or detrimental in a fight or flight situation. Such events are somatically discomfiting. The events alter immune system responses and suppresses the digestive system, the reproductive system, and growth processes. The complex natural alarm system also communicates with the brain regions that control mood, motivation, and fear. The long term activation of the stress response system and the overexposure to cortisol and other stress hormones disrupt body processes. The persistent invocation of these responses creates increased risk for many health problems simply as a sequel
to too many false positive reactions to perceived threat. The fight or flight cascade of adrenaline and cortisol chronically discomfit the body. These repeated events create a feedback loop which can condition the brain to believe that all the ANS sympathetic alarms were warranted. This validates false positive reactions. Often the somatic insult and discomfort were provoked by a false perception of threat. Also, there is great variability among people. Some are easily provoked into fear or reaction. Some are far more prone to Anxiety and Depression than others (Grecucci et al., 2015).

**Anxiety: Comorbid with Depression**

Anxiety’s comorbidity with Depression is an explanation relating dangerous mood disorders as the main sequel of chronic anxiety. Depression, therefore, is also clearly a major focus of the treatment Suite explored in detail in this paper. The theory is that Anxiety is the fuel for Depression and the logic is if we reduce Anxiety, Depression will wane. Some versions of anxiety exhibit high rates of morbidity and even lethality. This is true when we accept a causal relationship between depression and suicide or depression and addiction. The Anxiety and Depression connection is a source problem. This thesis makes the argument that the Anxiety and Depression connection is an ongoing major medical and psychological challenge. The long evolution of the brain in this regard is problematic. These problems are not new. Anna O, the original psychotherapy patient, was afflicted by a number of maladies including Anxiety and Depression (Zavaglia & Bergeron, 2017b).

**Substance Abuse in Common Use as “Treatment” for Depression**

Substance abuse disorders that appear to be a sequel of Depression, or the offspring of Anxiety, are major mental health challenges according to the World Health Organization (WHO). Depression induced avoidance of pain are sequelae and then a causes of further human
suffering. Effective interventions for Anxiety and Depression should be core therapeutic competencies in the toolkit of all therapists in the view of this writer. The main test of the skill of the therapist to effectively alleviate client suffering which requires both scientific knowledge and skill. Corzine wrote in 1989 that psychotherapy is a healing art based on science (Bankart, 1997). Therapists must be both an effective applied scientists and artful healers. Treatment of the two disorders are an ongoing challenge for any therapist.

Khantzian and David Duncan co-founded the theory of addiction as a self-medication process naming it the Self-Medication Hypothesis (SMH) (Fletcher, Nutton, & Brend, 2014). Khantzian revisited the SMH, suggesting there is more evidence that psychiatric symptoms rather than personality styles lie at the heart of drug use disorders. Khantzian specified that the two crucial aspects of the SMH were that drugs of abuse produce relief from psychological suffering and the individual’s preference for a particular drug is based on its psychopharmacological properties. Drugs that come under threat for SM are: CNS depressants, psychostimulants, and opiates (Mythri, 2016). Substance use disorders may be motivated by attempts to avoid physical and psychic pain and alter perception. Substance use may also be viewed as attempts to treat somatic and psychic pain and to calm affect dysregulation. The six brief treatment interventions described in detail in this paper seek to calm body or soma so that a calm body might calm the mind or psyche.

**Dysregulation of Affect**

Possible manifestations of emotional dysregulation include angry outbursts or behavior outbursts such as destroying or throwing objects, aggression towards self or others, and threats to kill oneself. Severely dysregulated individuals may face the police and since their prefrontal
cortex is not functioning the person cannot logically predict that their actions will likely result in the person being shot. Less dramatically, emotional dysregulation can lead to long term behavioral problems and can interfere with a person's social interactions and relationships at home, in school, or at place of employment. A combination of emotion and excessive anxiety creates a dysregulated affect state. The somatic and autonomic systems are activated together creating symptoms of anxiety. This activation of the amygdala occurs before the neuronal packaged message gets to the prefrontal cortex where it might mute alarm or help the logical PFC.

Our amygdala based threat recognition system is so quick to signal threat that the PFC cannot mute a fear, fight, or flight reaction. The amygdala activates the somatic and autonomic nervous systems which create a variety of anxiety symptoms in the body. When anxiety is discharged in the striated muscles, patients experience symptoms caused by tension in the striated muscles as in tension in voluntary muscles, clenched hands, and sighing. This constitutes somatic discomfort or pain and the mind will eventually maneuver to avoid this pain (Grecucci, Theuninck, Frederickson, & Job, 2015). Aaron Beck reports that, once activated, maladaptive schemas give rise to systematic distortions in the processing of information. Moreover, these distortions operate in a reciprocal manner. Maladaptive schemas are confirmed and strengthened, while more adaptive Schemas inconsistent with these distortions are suppressed (Lisspers, Nygren, & Söderman, 1997).

Old Treatment; Ancient Affliction

Anxiety is an ancient adversary. A testament to this is length of time humans have struggled with problems related to this malady. Humans have long ago developed some interventions to reduce psychic and somatic pain. The practices of yogic breath control are
estimated to be 5000 years old. Mindful meditation evolved out of Buddhism which is 2500 years old. (Jerath, Crawford, Barnes, & Harden, 2015a). Grecucci et al., (2015) point out that emotions may be accompanied by excessive anxiety as a result of conditioning of attachments. Anxiety can become a conditioned response increasing negative feelings in problematic attachment. Attachment panic is one serious outcome. Threat associations can endanger critical attachment relationships. Anxiety trigger defense mechanisms including cognitive distortion and behavioral avoidance (Grecucci et al., 2015). The beginnings of yoga were developed by the Indus-Sarasvati civilization in Northern India. The word yoga was mentioned in the oldest sacred texts, the Rig Veda containing songs, mantras and rituals to be used by Brahmans, the Vedic priests. A primary first practice in yoga is attention to breathing. The first of the six interventions is breathing and breath control (Jerath, Crawford, Barnes, & Harden, 2015b).

Buddhism has produced treatments for mind and body. Buddhism teaches compassion for all sentient beings including animals. Mindful meditation includes the concept that experience of mind and consciousness is a core condition of most human experience. Attention to consciousness has become a core tenet of Buddha consciousness. Sentience means we also have the capacity for feeling and thus for suffering, which is not simply cognitive nor physical. Sentience distinctly causes us physical distress simply as a sequel of having feelings or sentience, a mind, memory, and imagination. If mind is the source of suffering, we are driven to find ways to cope with such problematic aspects of mind.

**Amygdala: Threat Recognition Mechanism**

The right amygdala is the main threat recognition area of the brain. The fight or flight reaction of the brain and body detours information away from the rational left-brain Pre-Frontal Cortex (PFC) and therefore cannot mute a fear reaction by using logical or verbal
processes. An alarmed brain appears to be logic and talk proof. When the brain’s adjunct regulatory mechanism, the Anterior Cingulate Cortex (ACC) becomes involved, there is some integration of the fight or flight response with ration and learned experience. The ACC is active in processes related to affect regulation between the amygdala and the ACC and the Prefrontal Cortex (PFC).

The dorsal portion of the ACC relates to the prefrontal cortex and the parietal cortex, and the motor system and the frontal eye fields, making it a central station for processing stimuli and assigning appropriate action. But the Amygdala hijacking of the mind prevents the muting effects of the forebrain. The ventral part of the ACC relates to the alarm system. All forebrain segments are involved in assessing emotion and motivational information (Gold et al., 2016a). If there is dysfunction in the ACC we can expect behavioural manifestations of affect dysregulation. The alarm reaction becomes a source of dysregulation. The organism survives but at a high cost of pain and energy to the host. Anxiety and trauma reduction, consequent on using therapeutic eye movements as in EMDR, may be related to the following analysis.

The frontal eye fields (FEF) are a region located in the (PFC) prefrontal cortex specifically in the Broadman’s area 8. The frontal eye fields are responsible for saccadic eye movement, which Shapiro knew to be related to affect regulation. Shapiro discovered the muting effect of saccadic eye movements on dysregulated affect or Anxiety. Her iconic experience and the genesis of EMDR was known as her walk in the park. Eye movements are key in muting some affect. The FEF communicates with extraocular muscles indirectly via the paramedian pontine reticular formation. The mechanism of action of EMDR is poorly understood but the complex relationship of ACC, eye saccades, coordinated eye movement and the muting effect of the PFC induced by EMDR suggests a soft wired visual ocular muscle connection linking affective
and cognitive processes in the brain which assists the PFC in muting of alarm from the amygdala. To say it is complicated is to greatly understate the complexity involved.

One validation of the importance of the amygdala is apparent in an eight-week study on people doing mindfulness which produced a decrease in the size of the amygdala and an increase in prefrontal cortical activity. Being anxious grows this brain structure and predisposes it to be more reactive and produce alarm anxiety. The amygdala increase in size is measurable. The beneficial effect of mindfulness on the decreased size and reactivity of the Amygdala validates the beneficial effects of mindfulness and its calming power on the brain and some structures.

**Anxiety and Adrenaline**

The somatic arousal connected to fight or flight involves adrenaline: effects include increasing the heart rate, increasing blood pressure, expanding the air passages of the lungs, enlarging the pupil in the eye, redistributing blood to the muscles and altering the body's metabolism so as to maximize blood glucose levels primarily for use by the brain. In perceived threat, the hypothalamus sets off an alarm system in the body. Nerve and hormonal signals prompt release a surge of hormones including adrenaline and cortisol. Cortisol, the primary stress hormone, increases glucose in the bloodstream, enhances your brain's use of glucose and increases the availability of substances that repair tissues. It alters immune system responses and suppresses the digestive system, the reproductive system, and growth processes. This complex natural alarm system also communicates with the brain regions that control mood, motivation, and fear. This process puts a large burden of recovery on the ANS and parasympathetic activity.
Intervening in Chronic Anxiety

In Anxiety, the body directly experiences the immediate effects of the amygdala in alarm mode. A flood of adrenalin and cortisol in an uncomfortable body event. The causal direction of the process, from mind to body appears to be reversible by using the somatic techniques of breath control, progressive muscle relaxation, autogenic training, eye movement and the altered body awareness in yogic exercises and mindful meditation. In the reversal of the process, engaging in relaxation techniques, body calms mind. The calmer mind helps calm the body and a positive feedback loop contributes to overall ANS equilibrium and the restoration of homeostasis. It is very clear that brain of mind in the form of an alarmed amygdala can trigger the body and will dysregulate affect or emotional states. Reversing the process is possible using the Suite of interventions. Conscious exercise of relaxation techniques affects the body mind connection. This phenomenon is compelling evidence that body mind influences can run in both directions and produce equilibrium affect reregulation.

Techniques: Interventions in the Regulation of Anxiety

One goal for a novice therapist is to use interventions which have efficacy for the client, and which alleviate some suffering. The six anxiety reducing techniques presented in this thesis are used purposefully to invite the client into a process or “conversation” between mind and body. The intention of using any of the six techniques is to reduce anxiety but it also to have the felt somatic experience of multiple treatment modalities employed at the same time. The psychological effect of feeling reduction of arousal, calming, and affect reregulation will create confidence that the technique confers on the client some control over emotions especially over the upsetting ones.
The mashup of the six techniques, used collectively, is predicted to have strong additive parasympathetic calming effects. Frightening cognitions alarm us and then produce anxiety effects in the body. The Suite of six relaxation techniques are deliberately intended to have the clients use his or her body as an instrument of “communication” or control over mind by using the body as an instrument. We can imagine an image of a yogi in a pose which is known to practitioners of yoga to be calming and beneficial. The intention of the Suite is to convince the mind that the judicious use of body control can re regulate affect and reduce anxiety levels.

Cutting, as in self harm or Non Suicidal Self Injury (NSSI), is well known to be tension reducing. What the cutter seeks is tension reduction. The calming effect on hyper arousal is tension reducing and is experienced as such when parasympathetic processes occur in the ANS. The use of the Suite of six techniques has multiple purposes. One goal is to psychologically convince the client that mind can be calmed by body in several ways. We are aware that mind can dysregulate the body and dysregulated emotions contribute to more and wider dysregulation. There seems to be some inertia in the ANS so that if we start down the path of reregulation we tend to continue along it. But the reverse is true. Calming behaviour and perception also has momentum. A combination of emotion and excessive anxiety creates a dysregulated affect state (Brooks et al., 2016). There are many complex sources of Anxiety for children. In their psychological development, children may learn which feelings are allowed in their family and which feelings make their caregiver anxious. Children can unwittingly threaten the parent child relationship which necessary for the child’s survival. To adapt, some children learn to ward off the emotions that would threaten the core family relationship (Grecucci et al., 2015 and 2015b).
The intention in performing the whole Suite in one sitting is to have the client experience a complex calming event and to master steps in the techniques which deliver known calming effects. These Suite has been tried on many occasions by the present author in his capacity as school Counsellor and intern Therapist. Most clients and students confirm that the relaxation techniques work for them; they do become more relaxed and feel less anxious by the end of a 12-minute session. The redundant techniques design is intentional so that the clients know there is more than one effective technique for relaxation. They are the judge of what techniques work for them. Doing the exercises in a small group helps to destigmatise what might be seen by some as a mental health activity. Calming and relaxing techniques do not bear any stigma of being treatments for mental health issues. Therefore, training in relaxation with a small group can have advantages over treatment as a solo client which be therapy for a mental health issue.

Anxiety states are usually present moment events. Intervention includes becoming more aware of the present moment: yoga and mindfulness meditation are two ways to help focus the mind on the here and now and push Anxiety to the margins of consciousness by competing for attention. Meditation, biofeedback and stress management help with anxiety disorders. Many people with anxiety disorders also benefit from supportive counselling or couples or family therapy (Rector, Bourdeau, Kitchen, & Massiah, 2011).

**The Suite: Six Interventions for Anxiety**

**Intervention One: Breath Control and Attention to Breathing**

The first relaxation intervention technique is breath control or attention to breathing. Specific techniques include “belly breathing”, diaphragmatic breathing and many more which will be explained in Chapter Four. The roots of attention to breathing are 5000 years old and originate with yoga practises in India (Jerath et al., 2015a). The authors in Jerath propose that
breathing techniques be a front-line treatment for stress, anxiety, depression and emotional disorders. The Autonomic Nervous System (ANS) and respiratory activity are closely associated with the experience of emotions (Kreibig, 2010). Breath control is so powerful in managing pain and distress that it is regularly used to assist women in childbirth. Ma investigated these effect of diaphragmatic breathing on cognition, affect, and cortisol responses to stress (Ma et al., 2017).

**Intervention Two: Progressive Muscle Relaxation**

The second relaxation and intervention technique in the treatment suite is Progressive Muscle Relaxation (PMR). In this technique muscles which are under voluntary autonomic control are tensed for seven to ten seconds and then relaxed. The client is directed to “pay attention” to the “relaxation sensation”. One set of muscles say in the hand or fist, or forearms, thighs, calves or jaw muscles can be tensed for about 7 seconds and then relaxed in order to create a muscle memory of relaxation. The Jacobsen method of PMR was developed in the 1930’s (Gangadharan & Madani, 2018). It is still used in clinical settings today around the world.

**Intervention Three: Eye Movement and Bilateral Input**

Francine Shapiro developed an intervention for Trauma using Eye Movement. The Shapiro and Maxfield paper reviews the EMDR technique (Francine Shapiro & Maxfield, 2002). EMDR is a person centered body based interactional therapy. It has high efficacy for reducing anxiety as a treatment for Post Traumatic Stress Disorder (PTSD). Shapiro’s classic walk in the park and experience of drive reduction by bilateral eye saccades is the genesis event in EMDR. If eye saccades and attention to stress were the two simple conditions for affect re-
regulation, according to Shapiro, replicating the event is worth exploring as an anti anxiety technique. This thesis emasises the eye movement effacations of the EMDR technique. Bilateral eye movement or sacchades can be seen as a logical and predictable behaviour of vigilant predator avoidant behavior (Rezvani, Dowlatabati 2015), and (Farima, Dowlatabadi, & Behzadi, 2015).

EMDR is efficacious for allaying anxiety (Davidson, R and Parker, 2001), and (Rodriguez, 2013). EMDR was more efficacy in reducing anxiety than using beep tones. Shapiro believes that eye movement helps to adaptively process events. This is consistent with the PFC functioning intermittently to mute affect dysregulation of the right brain by invoking left brain rational muting interventions for dysregulated right brain affect. A truncated form of EMDR works in this treatment Suite likely for the same reasons that Shapiro experienced drive reduction with her hyper vigilant eye movements in her short iconic “walk in the park”.

In a typical EMDR treatment, clients are asked to hold in their minds a negative image that represents the traumatic event, a self-referring negative cognition related to the trauma and bodily sensations associated with the traumatic memories. At the same time, they follow the clinician’s finger as it moves back and forth in front of them. This procedure, or another variation of it, is repeated as the client tracks changes in negative associations or negative cognitions until the client feels no further changes. The clinician uses the standard significant units of distress scales (SUDS) to track changes. Body sensations, images and positive cognitions are also explored. Substitution of the eye movement for other forms of bilateral stimulation is allowed (Chemtob, C. M., Tolin, D. F., van der Kolk, B. A., & Pitman, R. K, 2000).

**Intervention Four: Autogenic Training (AGT) and Biofeedback: “Warm and Heavy”**

Biofeedback is a mind body technique that involves using visual or auditory feedback to
gain control over involuntary bodily functions. This includes gaining some voluntary control over parts of the body. Biofeedback teaches profound relaxation skills and ways to manage anxiety attack, as well as ways to recognize, reduce, and control stress response. This approach to regulation of body sensations aims to alter affect states. The cognitive behavioral approach of the 1990’s appear to be giving way to affect regulation in the first decade of 2000 (Allan N. Schore, 2005). New techniques do not mean that biofeedback and cognitive somatic techniques do not work to control anxiety (Aritzeta et al., 2017).

Autogenic training (AGT) is a relaxation technique developed by the German psychiatrist Johannes Schulz in which a strong relaxation response is produced. Schultz noted that physiological changes are accompanied by specific feelings. The technique involves repetitions of a set of visualizations that induce relaxation. It is produced by passive concentration of bodily perceptions (e.g., heaviness and warmth of arms, legs), which are facilitated by self suggestions. Biofeedback integrates basic elements of autogenic imagery and have simplified versions of parallel techniques that are used in combination with biofeedback. They incorporated the hand warming imagery of autogenic training and used it as an aid to develop thermal biofeedback. Hence, “warm hands” and “My hands are warm” elicit a strong parasympathetic ANS response.

**Intervention Five: Focussed Auditory Attention & Quiet Mind**

A growing body of evidence suggests that meditation practice can enhance self regulation and such processes such as memory, attention and executive functions and positively modify the underlying brain structure and function (Prächtlich, Kossowsky, Gaab, & Krummenacher, 2016). Harrison writes in The Foundations of Mindfulness: How to Cultivate Attention, Good Judgment, and Tranquility that the brain mechanism at work in Mindfulness are
present in focussed auditory attention such as listening to silence. Meditation and preparations to meditate produce affect regulation (Harrison, 2017).

**Intervention Six: Mindfulness**

A recent Mander et al paper (2019) in the Journal of Clinical Psychology seeks to integrate mindful practice into individual therapy. Because the proposed Suite of brief treatments for Anxiety includes mindfulness, this Mander paper is germane in a literature review for my thesis. The Mander paper elaborately outlines an experiment which compares treatment as usual (TAU) with progressive muscle relaxation (PMR) and compares this approach with Mindfulness a session intervention using (TAU) and mindfulness element, (SIIME), in a randomized design. The highly defined and rigorously designed randomly controlled trial RCT experiment revealed a significant reduction of symptoms and a significant increase in alliance over the course of therapy with 162 patients. But there was no significant difference between the mindfulness and the PMR group reduction of symptoms. Both were effective. This suggests that the efficacies of PMR and mindfulness are not significantly different based on this group and the test design (Mander et al., 2019). Although PMR is “not modern”, it still has the capacity to effectively reduce symptoms of anxiety. So does mindfulness. My pursuit is to identify a few efficacious interventions and use them in tandem to reduce symptoms of Anxiety.
Chapter Two

Literature Review

This paper reviewed pertinent literature relating to Anxiety and Depression, the etiology of Anxiety, some features of the disorders, sequels, interventions and treatments. The paper investigated literature related to interventions for Anxiety. Interventions for Anxiety were selected for their utility and efficiency in training young school students to relax and to experience calming and affect regulation. The literature review showed all six interventions are efficacious and effective with adult populations.

The truncated versions of these interventions deliberately assumed low levels of verbal competence in the client population. The rationale for this approach is that many students are assumed to be quite young and untutored with a low level of verbal skill. Low English language verbal ability is also often encountered in schools where, for example, there are many immigrants in school and where literacy levels may not be high for a multitude of reasons. This author can attest to the literacy challenge, having worked in Metro Vancouver as a Counsellor and Teacher for more than 35 years. In addition, this paper does not assume that Educational authorities will offer adequate curriculum hours to acquire Mental Health literacy. Therefore, the truncated somatic versions and are presumed necessary to the success in efficient effective delivery of the techniques. Despite the implementation of a Social and Emotional learning aspect to the new BC public schools’ curriculum Mental Health and Mood Disorders do not have a high profile yet. The Social and Emotional (SEL) school curriculum adopted by the B C Ministry of Education in 2017 has not been widely implemented yet.
Mental Health Literacy in Schools

The Kutcher et al (2016), paper reports on the evolving concept of Mental Health Literacy and the importance of early intervention in the treatment of anxiety and depression in children and youth. Mental health challenges arise early in life and early interventions offer some powerful health advantages. Early interventions are increasingly attractive in a modern population beset by an increasing medical, social, and economic burdens of mental health challenges. Canadian schools present opportunities for improving health especially mental health on a wide scale through the education and training of students and staff using brief proven modalities which counter affect dysregulation (Stan Kutcher, Wei, & Coniglio, 2016).

The Canadian funded Chisholm article in the Lancet establishes an economic rationale for investing in action against common mental health issues. A World Health Organization (WHO) publication points out three to eight billion dollars is lost annually around the planet to mental, neurological and mental health related for example to substance abuse disorders. The global incidence of anxiety is 7.3% of the world adult population and the depression rate is four-and one-half percent. Across the largest thirty six countries there are twelve billion days of lost work due to anxiety and depression (Chisholm et al., 2016).

Mental Health Literacy (MHL) is conceptualized as knowledge and beliefs about mental disorders which aid their recognition, management, and prevention. The Kutcher et al., paper points to a search by one of the authors of over four hundred MHL related studies. The paper suggest the Canadian Psychiatric Association play a role in developing a section on MHL. Core principles should include knowledge, attitudes around stigma and help seeking efficacies. The BC Mental Health and Substance Abuse Service contributed to the preparation of the Kutcher manuscript (Brooks Sarah and Kutcher Stan, 2004a) and (Stan Kutcher, 2006).
The Kutcher paper asserts that schools can play an important role in the promotion of positive mental health as well as an integral role in the pathways into mental health care for adolescents. For schools to effectively address the mental health problems of their students, educators must improve their mental health literacy. The current study examines the impact of an educator training program designed to support educators in the delivery of a high school mental health curriculum within their classrooms, such as health class. Eighty-three educators participated in the training, and survey data from seventy-nine were included in the final analysis (Stan Kutcher, 2006).

The McLuckie et al (2014) paper reports his is the first study to demonstrate the positive impact of a curriculum-based mental health literacy program in a Canadian high school population. Twenty per cent of young Canadians will experience a mental disorder requiring professional care. A pattern of remission and then relapse over a lifetime is common. Schools are an ideal venue to embed mental health literacy at the individual and population level. It normalizes mental health activities and engages teachers to become professionally literate around youth mental health (Mcluckie et al., 2014a).

In 2012 The Mental Health Commission of Canada identified child and youth mental health as a priority for the transformation of mental health systems in Canada. Half of all mental health crisis start by age fourteen (Kessler et al., 2005). Early intervention is important both in MHL (Mental Health Literacy) and professional intervention when mental health disorders being so early. SEL (Social and Emotional Learning) is formally promoted by the BC Ministry of Education Curriculum. The new (2017) curriculum education represents an important step in formally promoting mental well being across the province. The Hymel et al., (2017) paper identifies anxiety as the most commonplace disorder seen in schools with a prevalence of ten to
twenty-two per cent. Anxiety BC was established in 1999 as a non-profit to increase resources and awareness of how to treat anxiety (Hymel, Low, Starosta, Gill, & Schonert-Reichl, 2017).

The Vancouver written paper outlines a BC Children’s Hospital initiative for promoting internet based mental health literacy. The paper points to the high incidence of mental health disorders at twenty percent in Canada at any given time and that the onset of the issues are in childhood or adolescence. 84,000 children or youth in BC are experiencing significant mental health challenges in any given year. The initiative described in the paper is designed to improve mental health literacy and support families in BC. The paper identifies the stigma of being perceived as mentally ill as a barrier to treatment. The intention of the paper written by master’s students in public health and sociology, is to engage youth in their own education and treatment of mental health issue.

The internet and phone based apps described in the paper are particularly appropriate to contemporary youth. Mindchek.ca is a site to assess feelings and self care tools with connections to social media Facebook Twitter You Tube and Instagram. Stop Wondering, Start Knowing is a teen targeted video to improve awareness and designed for the classroom. Mind shift is an easy to use mobile app to counter anxiety. Stresslr is a web based site designed to help understanding and management of the effects of stress for youth. Breathr is a mindfulness app for youth. These apps and sites are valuable in themselves as well as having the effect of destigmatizing the issue of taking care of our own mental health issues (King, Cianfrone, Korf-Uzan, & Madani, 2015).

**Mental Health Literacy in Canada**

The Kutcher (2015) paper reviews the efforts over the last decade in British Columbia to promote positive mental health. Half of all mental health crisis start by age fourteen. This paper
references Kutcher at Dalhousie who identifies four distinct competencies for educators including providing educators with a better understanding of mental disorders. SEL (Social and Emotional Learning) is formally promoted by the BC Ministry of Education in 2015. The new (2017) curriculum education represents an important step in formally promoting mental well being across the Province. This paper points out that promotion of SEL at the nine University Level teacher training institutions in BC is already in place (Stan Kutcher, Bagnell, & Wei, 2015a).

Social and Emotional Learning (SEL) an BC Ministry of Education initiative locates mental health disorders in a social domain and not in a medical health one which may prove problematic. Anxiety disorder is not normally conceptualized as a disease shared by a group through the agency of a virus. To conflate social problems like bullying with mental health issue like Anxiety is a strategic mistake in this author’s opinion. This paper identifies Anxiety as the most commonplace disorder seen in schools with a prevalence of ten to twenty two percent. Anxiety BC was established in 1999 as a non-profit to increase resources and awareness of how to treat anxiety (Hymel et al., 2017).

The school environment provides an efficient context to deliver Depression and Anxiety prevention programs. The Werner Seidler et al., paper used Medline, PsycINFO, and the Cochrane Library sources to identify eighty one studies related to Psycho Education interventions addressing anxiety and depression involving more than 31,000 American students between five and nineteen years. Mass prevention and targeted group intervention were explored. Although the effect sizes of point two three (.23) for treating Anxiety and point two zero (.20) for Depression were relatively small but there were some beneficial effects. Any effective intervention is important as Depression and Anxiety run a chronic and recurring course
over a lifetime and have a ten to fifty percent comorbidity for the two disorders. Depression is the leading cause of disease burden in many countries (Werner-Seidler et al., 2017).

The Cuijpers et al., paper indicates that prevention programs have advantages. Prevention programs in some cases may prevent a disorder entirely. Research indicates that it is possible to prevent twenty two percent of new cases (Cuijpers, Van Straten, Smit, Mihalopoulos, & Beekman, 2008b). Introducing people to prevention programs at an early age improves outcomes. Types of interventions included manualized Psych. Ed. Programs, individuals, groups and computerized interventions including relaxation and progressive relaxation and mindfulness techniques. The programs were endorsed by the school and delivered in the schools during school hours.

**Comorbidity Issues in Anxiety and Depression**

This Canadian Psychology paper reviews comorbidity of Anxiety and Depression. Comorbidity is of interest to the therapist and clinician because the presence of one should alert a therapist to the likely presence of the other disorder. This strong relationship has major implications for teaching Mental Health Literacy as well as the therapist developing a nuanced interventions and treatments for both disorders concurrently. This paper points out there is much evidence that Anxiety and Depression interact; one disorder seems to invoke or provoke the other. The relationship between depression and suicide as one of the two biggest lethal threats to youth emphasizes the importance of treating anxiety and depression in tandem.

Unipolar depression is often comorbid with other psychiatric disorders in youth, particularly with anxiety and disruptive disorder such as ADHD, ODD, and CD. Angold et al., (1999) found that sixty nine percent of anxious adolescents and fifty percent of adolescents with disruptive disorders were also depressed. For youth (thirteen to fifteen years) with Depression,
disruptive disorders were more prevalent in middle adolescence than later (sixteen to nineteen years of age (Zavaglia & Bergeron, 2017a).

**Anxiety and Depressive Disorders: Collectively a Major Mental Health Challenge**

The Lam et al., (2016) paper re-asserts the commonly referenced statistic that Depression is the second leading cause of disability worldwide. The annual prevalence of Depression is five percent and the lifetime occurrence is eleven percent. The paper identifies therapeutic alliances, evidence informed interventions and treatment, supported self-management, and measurement-based care as initiatives which will optimize care, quality of life and functional outcomes for Major Depressive Disorders (MDD) (Lam et al., 2016b). The reality that Depression yearly affects eleven percent of the population points to the importance of education around Depression and Anxiety. Social impairment and close relationship issues are features of MDD but are often seen as causes of the disorder. The paper makes the point that a very wide social and medical perspective should be taken with respect to the disorders of Anxiety and Depression to appreciate the challenges of identifying and treating these mental health threats. It is a monumental challenge to support the health of those who suffer with the disorders or who are touched by the effects of these two major mental health threats (Lam et al., 2016b).

The Canadian Psychology paper reviewed comorbidity of Anxiety and Depression according to age and sex in youth. Comorbidity of is of interest to the therapist and clinician; the presence of one should alert a therapist to the likely presence of the other disorder. The strong relationship has major implications for teaching Mental Health Literacy. The therapist needs to deploy nuanced interventions and treatments for both disorders concurrently. Comorbidity is usually defined as the coexistence of at least two distinct mental disorders in the same individual, either within the concurrent comorbidity or across different phases of the life span. For early
teens with Depression, disruptive disorders were more prevalent in middle adolescence (Zavaglia & Bergeron, 2017a).

**Therapy in Transition: From Cognitive Emphasis to Affect Regulation**

Allan Schore’s conference presentation in Toronto in 2016 was a landmark review of the evolution of attachment theory and an emerging paradigm shift towards the new scientific emphasis and clinical attention paid to emotional dysregulation and the right brain. Anxiety is an affect regulation issue. Schore’s presentation outlines advances in developmental neurobiology and research in infant brain development; he explains emotional Meta communication, or the failure of it, between the infant brain and the mother’s when nursing as the critical genesis of emotional dysregulation of the right brain (A. N. Schore, 2016a).

The multidisciplinary field of affect regulation requires a very wide-ranging expert integration of many academic disciplines. Schore displays this expertise in many areas. He links clinical psychoanalysis with developmental psychoanalysis, psychology and with developmental neuroscience (Reebye, 2006). Schore investigates traumatic attachment, right brain pathomorphogenesis, right brain dysfunction and self-psychological deficits. These rarified subjects seem a long way from relaxation therapies designed to calm the anxious student mind but they are definitely in the same theoretical arena of mental health care (Stan Kutcher et al., 2016).

**Preventing Depression: Interventions**

This Cuijpers (2008) article appears in the American Journal of Psychiatry relating to preventing the onset of depressive disorders. A meta analytic review of the Cuijpers paper notes that depressive disorders are associated with a substantial loss of quality of life for patients and their relatives. Chronic recurrent nature of an illness imposes a lifelong burden of some members
of a family. Depression is expected to rank first as a disease burden in high income countries by 2030. This Cuijpers paper references 3833 abstracts which were analyzed for the review. The meta analysis discovered that preventative intervention can significantly reduce the incidence of depression by up to twenty two percent (Cuijpers et al., 2008b).

**Treatment of Anxiety: Guide to Anxiety Disorders**

The Rector paper (Neil A. Rector, Bourdeau, Kitchen, & Joseph-Massiah, 2011) is a Canadian publication which identifies many psychological treatments for anxiety disorders including relaxation training, meditation, and biofeedback and stress management. Some of the six anxiety subtypes share features, including irrational and excessive fear, apprehensive and tense body feelings and difficulty managing daily tasks and distress related to these tasks (American Psychiatric Association, 2013). Chronic debilitating anxiety is common but distinctly not normal; it is a disorder. Such anxiety leads to changes in three systems of functioning; it changes the way we think cognitively, the way a body feels and works physically, and the way we act, behaviorally.

Cognitive Behaviour Therapy (CBT) is a well-established, effective, evidence-based treatment for anxiety. CBT deserves mention in this review of Literature but is deliberately left outside the scope of this thesis because CBT interventions are highly theoretical, verbal, cognitive and require many therapy sessions, taken over some weeks, to be effective. This thesis focuses on six brief nonverbal interventions for Anxiety which can be ritualized and performed in one short twelve-minute session.

**Preventing Anxiety and Depression in Adolescents**

The Wong et al., (2014) paper begins with a “should” assertion that prevention programs be a top priority around the internalizing disorders of anxiety and depression because of the
prevalence, disability and medical burden associated with the two. In the study presented, a weak effect size was noted: \( r = 0.18 \) and \( 0.16 \) was noted for Anxiety and Depression. The paper asserts that a similar design of a universal Internet based program which targeted both Anxiety and Depression would have many advantages including high implementation fidelity, scalability, low cost per unit, and the capability to monitor adherence, progress in learning and outcomes through automated data collection and feedback (Wong, Kady, Mewton, Sunderland, & Andrews, 2014).

In the Wong et al., (2014) study, General Anxiety Disorder (GAD) assessment tools were used to measure Anxiety symptoms. Students who received the depression intervention showed significant improvements of symptoms. An unexpected result in this study was the positive effect of questions on revealing suicidal ideation in the adolescent cohort. Seven percent of respondents indicated they would be “better off dead” or “hurting themselves” in the two weeks before the questionnaire (Wong et al., 2014). Since suicide is the second leading cause of death in youth fifteen to thirty five years robust interventions in treating Depression need to be powerful and effective anti suicide initiatives.

**Computer Apps and Electronic Games for Mental Health**

The King et al., (2015) publication is a Vancouver written paper which outlines a BC Children’s Hospital initiative for promoting internet based mental health literacy. The paper reiterates the high incidence of mental health disorders at twenty percent in Canada at any given time and that the onset of the issues are in childhood or adolescence. 84,000 children or youth in BC are experiencing significant mental health challenges in any given year. The initiative described in the paper is designed to improve mental health literacy and support families in BC (King et al., 2015).
The King paper also identifies the stigma of being perceived as mentally ill as a barrier to treatment. The intention of the paper written by master’s students in public health and sociology, is to engage youth in their own education and treatment of mental health issues. Mindchek.ca is a site dedicated to assessing feelings and self-care tools with connections to social media such as Facebook, Twitter, You Tube and Instagram. Stop Wondering Start Knowing, is a teen targeted video to improve awareness and designed for the classroom. Mind shift is an easy to use mobile app to counter anxiety. Stressor is a web-based site designed to help understanding and management of the effects of stress for youth. Breather is a mindfulness app for youth. These apps and sites are valuable in themselves as well as having the effect of destigmatizing the issue of taking care of our own mental health issues (King et al., 2015).

**Evolution of Stress Response: Maternal Care, Self-regulation and Anxiety**

The Hungarian Canadian endocrinologist, Hans Selye established a benchmark when he proposed the theory of General Adaptation Syndrome (GAS) which has expression in the human endocrine system. The first stage in GAS is alarm, which provides a burst of energy. In the second stage, known as the resistance stage, the body attempts to adjust to the stressor. (Uly, 1936). Selye demonstrated that over time with repeated perceived threats, stress-induced hormones cause fatigue and the breakdown of the hormonal system and lead to conditions, such as heart disease and high blood pressure, that he called diseases of adaptation. Anxiety or alarm response and Depression or retarding the threat response are maladaptive. Selye viewed these as individual variations and personal manifestations of the species wide Stress Response System (SRS) at work. Integration of these maladaptive aspects of the ANS include acceleration and deceleration of the nervous system (Nesse, Bhatnagar, & Ellis, 2016).
In SRS theory a bifurcated endocrine system is implied. Arousal is invoked in the organism in two different contexts: threats and opportunities. Once strongly aroused, the whole system needs a balancing mechanism. Hormonal fight or flight must give way to rest and digest or the hormonal system will be rapidly exhausted, become incapable and collapse. Our overreaction is the problem as Selye established. The complication of false positive perceptions of threat produces maladaptive anxiety reactions and much suffering of the individual psyche although Anxiety and its corollary, Depression, are a species wide phenomenon. Mothers providing low maternal care tend to have high stress responsiveness as do their offspring. Transmission across generations may be mediated by epigenetic mechanisms poorly understood. Regulation of stress across generations is seen in other species, and even plants. Mothers exposed to stressful environments give birth to offspring with especially responsive stress systems that may give them an advantage in harsh environments (Nesse et al., 2016).

A Rector ET paper is a Canadian publication which identifies many psychological treatments for anxiety disorders including relaxation training, meditation, and biofeedback and stress management. Many anxiety subtypes share some features including irrational and excessive fear, apprehensive and tense body feelings and difficulty managing daily tasks and distress related to these tasks (N A Rector et al., 2011). Chronic debilitating anxiety is not normal; it is a disorder.

Cognitive Behaviour Therapy (CBT) is a well-established, effective, evidence-based treatment for anxiety. CBT deserves mention in this review but is deliberately treated as outside the scope of this thesis because CBT interventions are exhaustively verbal and cognitive, and require many sessions taken over some weeks to be effective. This thesis
intentionally chose six brief nonverbal interventions for anxiety which can be ritualized and performed in one short twelve minute session.

**Calming Rituals as Intervention for Anxiety in School Children**

Rector et al., (2011) identified calming rituals for those with anxiety issues include diaphragmatic breathing and or belly breathing. The posture includes lying back with one hand over the navel. Breathing means the hand will rise and fall with each breath and is the subject of conscious focus. Yoga and mindfulness meditation are rituals which are effective distractions where there are anxiety disorders. Explaining anxiety disorders to children in Psycho Ed training helps learning but it is important to provide children with only as much information as they are mature or old enough to understand. Cognitive understanding takes second place to having a somatic experience of a calming ritual in the view of this author.

Talking about Anxiety to youth is important in treating the various disorders. According to Rector et al., teenagers can manage information. The need to talk and reflect will occur in the post Suite sessions about how the relaxation session felt to them. Teenagers can engage in conversations about anxiety disorders if information is shared with them but the somatic experience of “rest and digest” is more important from the perspective of these thesis goals. Those who work with children should reassure the anxious that the processes are safe and helpful. It is important to reassure children that are not responsible or to blame for their Anxiety (N A Rector et al., 2011).

**Brain Structures and Anxiety: The Amygdala, PF Cortex and ACC**

Van der Kolk indicates in *The Body Keeps The Score* that there are important tasks in building mental health literacy with students by teaching about brain structures and function in the section on mind and brain (B. A. Van Der Kolk, 2015). In the rapidly evolving fields of
neuroscience and neuro imaging, many recent breakthroughs in understanding of brain function and malfunction are available for our examination. Recent developments in neuroscience point to the developing therapeutic potential by studying brain structures, brain functioning, brain circuitry and manipulation or repair of malfunctioning brain circuits and therefore treatment of mental health disorders.

When people with PTSD are placed under stress, the higher brain areas involved in executive functioning become less active. The areas of the prefrontal cortex that are particularly implicated in PTSD deficits include the Prefrontal Cortex (PFC) and the Anterior Cingulated Cortex (ACC). The ACC has been consistently linked to PTSD; it plays a role in the integration of emotion and thought, and the experiential component of emotion (Van der Kolk, 2006). A National Institute of Health publication points up the neuroscience theory that the amygdala is the brain structure most associated with threat recognition and that the Prefrontal Cortex mutes, integrates or moderates threat reaction. Brain circuitry develops and connects those two regions of the brain. Anxious brain / non anxious brain activity was studied by Magnetic Resonance Imaging (MRI). Gold (2016) reviewed the field with a study involving eighty-two subjects: Fourteen anxious youth, fifteen anxious adults, twenty five healthy youths and twenty eight healthy adults. Anxious youth differed from anxious adults in the manifestation of opposite direction of the brain circuit coupling. This study implies that anxiety in adolescents is different from that of anxious adults and that developing anxiety in youth is a different variable (Gold et al., 2016b). Finding efficacious interventions for Anxiety is important because of many subspecialties of Depression and the complexity of treating mood disorders.

**Schore: Affect Regulation and the Developing Right Brain**

The three Allan Schore papers cited here were published over fourteen years during which rapidly evolving Neuroscience became focussed on affect control and emotional
regulation and the developing infant brain (Allan N. Schore, 2002). The 2005 Schore paper cited outlines core concepts in pediatric neuroscience science relating to brain structures especially right brain ones, functions, developmental errors in infant brains and the role of a malfunctioning functioning brain in emotional dysregulation. The editor the Pediatrics in Review journal saw fit to attach an introductory note to the Schore paper encouraging readers like pediatricians to invest the effort to do a careful reading of the paper to understand the new ways of looking at brain development and the social emotional effects on evolution of brain structures and coping mechanisms (Allan N. Schore, 2005). The 2005 Schore paper draws attention to an explosion in infant research that integrates neurobiological studies of brain development and psychological studies emotional social and cognitive development. The emergence of a developmental origins and health and disease is apparent. Schore emphasizes that prenatal and postnatal environments play critical roles in health and disease. The infant’s maternal social environment is critical to the development of the brain, brain regulation and full functioning.

Bowlby’s thirty five year old attachment model (Bowlby, 1988) has become the dominant psychological model of human social emotional development. The present thesis explores ways of dealing with social emotional dysregulation in the form of anxiety in children and youth. The Schore paper deals with the development of the brain and dysfunctions that occur and their genesis in the infant maternal environment. Neuro psychiatrists refer to the social construction of the human brain and propose the architecture of the cerebral cortex is sculpted by input from the social environment embedded in early attachment relationships with the mother. Research emphasis is shifting from cognition to emotion. The switches from Piagetian cognitive development to psychobiological models of social emotional development. The right brain processes affective states. Interest is especially focussed on the structures related
to affect, namely the amygdala, the hippocampus the limbic areas and the Prefrontal Cortex (PFC) as mediating and integrating activities in the emotional brain are evidence of the new attention to emotional regulation. The right brain and its affect regulation function is critical to an understanding of emotional control.

Self regulation involves the development of adaptive structures and functions in the infant brain. It is now established that emotions are the highest order direct expression of bio regulation in complex organisms. Before 2005 the underlying structures of nonverbal communications were believed to be unavailable to experimental analysis. The endocrine, autonomic and central nervous systems of both mother and infant are effected by elements of their interaction with each other (A. N. Schore, 2005 p. 207). This is deemed to be a right brain to right brain attachment communication. The meta communication of a mother and her infant with coordinated eye to eye messages vocalizations, tactile and body gestures serve as channels of communication with instant emotional effects. Such communications are built into the nervous system and change the developing brain. The right brain begins integration before the left. Neuro imaging technology allows observation of the developing brain and have permitted great leaps forward in neuro science (D. A. N. Schore, 2016).

Secure attachment optimizes right brain maturation and set up the infant’s mind for a lifetime of good mental health. Affect regulation and coping mechanisms allow basic regulation and positive affect in the face of challenges. This is one of the motivations for teaching self regulation of affect. It has a life long pay off. The basis for making and sustaining relations especially intimate ones occur at this developmental stage of birth to twenty-four months. His 2005 paper include Schore’s *Model of Affect Regulation and Right Brain Development* with three sections: mother context, infant context, and an interactive Right Brain to Right Brain context.
The Schore paper is considered a landmark in behavioral and pediatric neuroscience and bears on the regulation of Anxiety.

**Anxiety Regulation: Neural Mechanisms**

The authors Javadzadeh et al., write that Anxiety often becomes dysregulated thereby causing suffering. Anxiety regulation is essential to all psychological treatment (Javadzadeh & Hamedeyaz, 2014). The effective treatment of Anxiety is a core classical challenge for a therapist. The aim of this thesis is to produce affect regulation by leaning interventions in anxiety management and affect control (Brazier et al., 2006). Van der Kolk’s *The Body Keeps The Score* (2015) is an expert view of the etiology of trauma and contemporary state of the art treatment of trauma. Chapter five in this paper reviews the body brain connection. Van der Kolk uses metaphors for the brain structures of the amygdala as in the smoke detector and the medial pre frontal cortex with the metaphor of a watchtower. Van Der Kolk points out the top down regulation which he writes requires strengthening the capacity to monitor body sensations. Mindfulness and yoga he claims help in this. Bottom up regulation involves recalibrating the ANS using Breath Control movement or touch. Van der Kolk’s book validates the physical body approach used in this thesis since somatic treatments are an effective, efficient and efficacious in regulating affect and downregulating hyper arousal (B. A. Van der Kolk, 2016) and (B. Van der Kolk, 2015).

Gross (2015) writes that any emotion can be dysregulated. Modern psychodynamic theory proposes emotion precedes cognition. The Gross model of emotional regulation proposes a different sequence. The important brain region effected in the failed attempt at regulation is the amygdala. The amygdala or threat recognition brain structure activates the body nervous system before communication with the prefrontal cortex. According
to Grecucc and Chiffi coregulation of the emotions of self and others is possible. Anxiety is generated outside of the child’s awareness unconsciously in the brain but felt in the somatic and autonomic nervous system. Anxiety induced tension in the striated muscles causes clenching of hands and sighing. Anxiety discharge in smooth muscles can produce effects like nausea bladder urgency and asthma. The CBT client by contrast is asked to consciously control anxiety and dysregulated affect states while not being helped to address the source problem. Excessive anxiety causes painful physical symptoms due to activation of the somatic and autonomic nervous system (Grecucc & Chiffi, 2016).

**Three Pathways to Anxiety and Depression**

This thesis often makes references to validate the strong Anxiety Depression connection. The two disorders are dealt with as though they are opposite side of the same ANS sympathetic parasympathetic coin. This author concludes from good evidence that chronic Anxiety produces a sequel of maladaptive response or Depression and then induces a slowed down hibernation like state. The intensity of Depression varies from mild to moderate to extreme. Depression is often a maladaptive response to stress in the SRS (Stress Response System). Depression presents as though the body is acting like it can outwait a stressful threatening dangerous and persistent environment (Wolk et al., 2016). In severe depression the person is often bed ridden, eats little or overeats, sleeps too much or too little is not refreshed by rest, and is ahedonic. Untreated depressive disorders may last 18 months. Severe depression is immediately dangerous because it is a well-established major cause of suicide. The Wolk paper delineates pathways; one path is to anxiety and one to depression. The second treats anxiety and depression as co occurring. The third is a depression to anxiety path. Cause and effect between
the two are uncertain but the paper underscores that the Anxiety Depression connection is powerful (Wolk et al., 2016).

**Buchler Thesis: Anxiety Reduction in the Classroom**

The Buchler (2013) thesis has commonalities with this present thesis in terms of approach. Anxiety is seen as a mental health literacy and health issue and treatments may be efficiently delivered in schools. Buchler’s educational leadership thesis proposes treatments including CBT, emotionally focussed CBT and medication. Relaxation, Progressive Muscle Relaxation and consciously considered Breathing Techniques are common to both theses.

Anxiety disorders are highly prevalent in childhood and severely disrupt the developmental trajectories of affected children and adolescents. Considered gateway disorders, they predict adult mental health problems, including Anxiety, Depression, and substance use. These disorders can be treated in the short term with cognitive therapy (Ginsburg et al., 2014). Gifted children often display a different presentation of anxiety; they have issues with knowing how to handle anxious feelings and their response often manifests itself as inappropriate acting out, such as becoming louder, abnormally active, acting out by or becoming belligerent (Haberman, 2010; Sullivan, 2011), and in (Buchler, 2013). The present author’s experience with behaviorally disordered elementary school student clients indicates there are many categories of students who manifest behaviour altering anxiety.

**Eye Movement and Bilateral Stimulation: EMDR**

An EMDR like technique forms part of the Suite of six treatments proposed in this thesis. Francine Shapiro is the originator of eye movement and desensitization reorganization (EMDR) technique. Shapiro and Louise Maxfield of Lakehead University in Thunder Bay Ontario point to twenty controlled outcome studies in EMDR, identifies the eight phases of EMDR treatment
and provides six pages of transcript of EMDR therapy sessions with a single client. Lynne, who had an earthquake and driving phobia had her issues resolved by four sessions of EMDR (Francine Shapiro & Maxfield, 2002).

Their short paper elaborates the full eight phases of treatment and what the goals are in each EMDR treatment phase. The paper indicates links in EMDR to psychodynamics, cognitive behavioral therapy, person centered, body based and interactional therapy. Shapiro and Maxwell write that “It is hypothesized that the eye movement and other dual attention stimuli enhance information processing” (Shapiro & Maxfield, 2002, p.935). This is significant as Shapiro appears to be explaining mechanism of action of EMDR which is a controversial area in EMDR. This paper will point to dual attention stimuli and EMDR which become one of six brief treatments for Anxiety.

The Lubber Shapiro (2009) paper made a significant contribution to the understanding of the effects of EMDR. The interviewer and co author Marilyn Lubber, asks Francine Shapiro directly about her iconic walk in the park. “You noticed that some of your negative thoughts disappeared when your eyes moved spontaneously back and forth... and this happened without any conscious effort” (Luber & Shapiro, 2009 p. 218). This was the genesis moment for EMDR. The park setting is significant to me as productive of both threat and tranquillity. Shapiro’s eye movements were a somatic act which caused reduction of arousal and negative thoughts. Shapiro’s lengthy investigation into this phenomenon established the efficacy of EMDR as a new trauma reducing modality of treatment.

Bilateral movement of the eyes left, and right, appears to be a vigilant predator avoidant behaviour. It is significant Shapiro, a woman, alone in a huge urban park was vigilant and likely in a moderately aroused sympathetic ANS state. There was no apparent bilateral activity
reported except for eye movement and walking. The reason it is important is the parasympathetic effect of bilateral eye movement included no other conscious effort according to the interview. If this relieving effect worked for Shapiro, it is suggestive that eye movement can be used in a short protocol to reduce affect dysregulation in children and youth.

Shapiro came from the behavioural movement and her behavioural interventions were validated because “there was almost an immediate effect”. The anti anxiety effect Luber writes about indicates that Shapiro’s approach was basically “to use her own mind and body as a laboratory”, to see what worked. This paper investigates the Shapiro effect on students with the relaxation effect help with regulating techniques that are behavioural like eye movement and not verbally based interventions. Use of the six techniques are an experiment in determining if the anti anxiety techniques, used together have an allaying effect on felt anxiety. Each client and student are the ultimate judge of the efficacy of the treatments. This design can work in the service of improving mental health literacy by the student experience with truncated anti anxiety techniques. The experience of benign, short and easy rituals to relieve Anxiety varies with the person. The time spent with this somatic intentional work builds relationships. Repeating the Suite is a reason to return to counselling therapy in the future whether the instructor is a school counsellor or a clinical therapist.

Shapiro Landmark Study

Shapiro’s (1989) paper is included in this literature review because it is considered a landmark publication in the treatment of trauma and marks the birth of a treatment modality. Post Traumatic Stress Disorder (PTSD) brings a severe dysregulation of affect. Regulation of affect in Anxiety and its sequel, Depression is a major goal of this thesis. Shapiro’s report of her EMDR procedure successfully desensitizing experimental subjects after one session and the
cognitive change results enduring for three months with behavioral shifts including the alleviation of the primary presenting complaints caused a flood of subsequent studies which attempted to replicate her results (Shapiro, 1989). Shapiro’s subjects included veterans, rape victims, victims of abuse and victims of physical assault in the group of twenty-two subjects who experienced major trauma. Intrusive thoughts, disturbing flashbacks, sleep disturbances and relationship problems are all characteristic symptoms of PTSD. Logic suggests that if PTSD was affected by one session of EMDR then an EMDR like technique might help a multimodal treatment ritual for anxiety in children and youth.

**Effectiveness of EMDR in Reducing Pathological Worry**

The Rezvani et al., (2015) paper reports on an Iranian study which focussed on a deliberately small number of subjects suffering from Generalized Anxiety Disorder (GAD). The paper identifies some features of EMDR, a complex treatment which includes exposure, desensitization, and psychotherapy. EMDR is effective in reducing the negative thoughts of GAD and producing changes in physical feelings through desensitisation. The results indicated a twenty-eight per cent improvement in GAD symptoms at the end of the experiment which grew to thirty six percent on follow up. This paper validates EMDR claims for efficacy in treating GAD and thereby suggesting possible efficacy for similar treatment approaches which employ some features of EMDR. The paper reports EMDR increases tolerance to uncertainty. EMDR is a form of confrontation with disturbing memories. Cognitive avoidance is a feature of GAD. Avoidance is considered one of the most important factors in maintaining psychological disorders. EMDR can be viewed as a confrontative treatment modality (Rezvani, Dowlatabadi, & Behzadi, 2015).
EMDR: Meta Analysis

Two Queens University authors subjected the EMDR papers to multiple analyses around test design and statistical analysis of validity and reliability (Davidson & Parker, 2001). Calculation of effect sizes for the papers were performed and comparisons made. Dismantling analyses were done to inquire into the validity of the design and questions about the variables as having the effects that were claimed for EMDR. Strong effect sizes were reported for the thirty papers. Analysis of variance (ANOVA) tests were done on a total of twenty-eight studies and ninety seven comparisons were identified. This kind of rigorous meta analysis suggests that claims of therapeutic efficacy of EMDR are taken very seriously by the two investigators.

My reading of the charts in the paper indicate an averaged effect size of six which is quite robust. Point (.6) was the mean collapsed measure of effect size for Rosenthal’s r. The addition of dual attention effects like bi lateral tapping increased the overall speed and efficiency of EMDR treatment to a measurable degree (Davidson, R and Parker, 2001). One of the problems with EMDR claims is the failure to find a stable effect size across many studies. EMDR falls into an effect size category with other treatments which have proven effective such as exposure treatment for anxiety and CBT for mood. The authors of the meta analysis stated that the effect size for EMDR were much more modest that initially claimed by EMDR practitioners. EMDR is not a single session treatment any longer.

EMDR: The Issue of Replicating Results

An EMDR related debate hinges on whether the eye movements have any benefit or whether other aspects of the therapeutic process account for patients' improvement. The first phase of EMDR is about establishing a therapeutic relationship. This common factor exists in most treatment modalities a therapist inquires about the patient's issues, early life events, and
desired goals to achieve rapport and a level of comfort. Phase two of EMDR requires a revisit the traumatic event. The memory reprocessing is like other exposure-based therapies, minus the eye movements. Some argue components of EMDR have been shown to be beneficial as in exposure therapy or CBT so the eye movements may not deserve any of credit. New studies suggest, however, that they do. EMDR's eye movements are thought to reduce PTSD symptoms is by stripping troubling memories of their vividness and the distress. A study reported in the May 2012 Behaviour Research and Therapy examined the effectiveness of using beep tones instead of eye movements during EMDR. The researchers found that eye movements outperformed tones in reducing the vividness and emotional intensity of memories (Rodriguez, 2013). This article is important because there is considerable evidence for the efficacy of EMDR, but there are challenges to the claims for efficacy relating to eyes. A lack of evidence for a stable effect size when all other factors have been controlled for. Shapiro seems to have hedged her bets by appealing to bilateral stimulation as a cofactor in the effications of EMDR especially in its treatment of PTSD.

Rhythm and Eye Movement: Effects on Anxiety

This Pastva paper is important because it challenges Shapiro’s explanations of the mechanism of action in EMDR. According to Pastva, EMDR theory has raised controversy because it lacks the support of a proven theoretical rationale. Recent theoretical explanation proposes that the eye movements reduce the vividness of the distressing images by disrupting the function of the visuospatial sketchpad (VSSP) of working memory (Pastva, 2008).

Shapiro (1995) claims that EMDR is not simply an exposure therapy and explains the beneficial effects of EMDR by her Adaptive Information Processing Model. Her model purports
to explain that eye movements help adaptively process the traumatic event. For Shapiro, eye movements catalyze biochemical rebalancing of the nervous system, which shifts information that is trapped in the central nervous system. Although it sounds logical, Allen and Lewis (1996) found this model to be neurobiologically implausible. Shapiro’s explanation is allegedly further refuted by the observation that the effects of EMDR remain the same when eye movements are replaced by other tasks such as finger tapping (Cahill, Carrigan, & Fueh, 1999). Initially, some researchers explained the therapy by claiming that it is merely an exposure therapy. However, the methodology of EMDR therapy is unlike that of other exposure therapies (Pastva, 2008).

**Interventions for Anxiety**

**Breath Control**

The Doll (2016) paper focuses on Attention to Breath (ATB). Breath control appears to effect both the amygdala and the activity of the Prefrontal Cortex (PFC) at the same time. This many in fact be the very definition of modulation of affect. i.e. A modulating conversation between amygdala which triggers fight and flight response and communicates with the PFC which engages the cognitive processes to mute alarm messages. The amygdala recognizes threats and the PFC modulates the recognition of threat by invoking cognitive functioning (Doll et al, 2016).

Bishop et al., (2004) identified that mindfulness practice is associated with reduction of psychiatric symptoms of disorders of emotional regulation like anxiety and major depression. Allowing thoughts and emotions without judgement is a mindfulness practice. ATB is a basic technique of meditation practice used by veterans of years of using mindfulness to regulate emotions. The subjects in the study cited did ATB exercises for 20 minutes a day for two weeks
to learn the breathing skill. Aversive picture processing was a part of the breathing process in this study of efficacy to ATB in treating anxiety.

**Self Regulation of Breathing as a Primary Treatment for Anxiety**

The Journal of Applied Psycho Physiology ties psychology theory to the cellular functions of the body and brain. Jerath et al., (2015). They write that sympathetic dominance of the autonomic nervous system (ANS) have been shown to be counteracted by different forms of meditation, relaxation and breathing techniques. The body speaks to the mind in forms of discomfort that are disturbing. But in the case of breathing control and meditation relaxation the process can be reversed, and the conscious mind can learn a language of body influence which is subtle and effective. Affect regulation and control of some of the uncomfortable body states can be mastered over time. The authors propose that breathing techniques be front line treatments for stress, anxiety, depression and some emotional disorders (Jerath et al., 2015a).

Kreibig, (2010) show that the ANS and respiratory activity are be closely associated with the experience of emotion. The validity of specific patterns for specific emotions is still disputed but sympathetic and parasympathetic activity and respiration are correlated with certain emotional states such as anxiety and happiness. Relaxation treatments such as meditation target the mind and the body; this stands in contrast to pharmaceutical treatment. Drugs bypass the brains processing system and act directly on some emotions but because they bypass the regulation anxiolytics have limited long term efficacy. Deep breathing and varying breath patterns influence the degree of sympathetic inhibition. It is clear in this paper that neuroscience and emotions are being studied at the molecular level and that the direction of psychophysiological bio feedback has much to offer therapy around perfectly understood affect regulation.
Above Water : Educational Game for Anxiety intervention

The Webhe et al., (2016) paper was written by a group of computer science students at Waterloo University, Ontario. The group were gamers who both play and design games; in this case the game is an anti anxiety game which is designed to improve mental health literacy and educate anxious people to seek treatment. Strategies are focussed on coping with Generalized Anxiety Disorder (GAD) and Panic Disorders. The title is partly a pun of being a Waterloo student and being capable and high functioning i.e. Above Water both in the sense of not drowning from anxiety and winning in the game of life. One goal of the game is to continue to function despite being dealt physical cards which handicap the player in the game of life. Four card types include: life goals, anxiety, treatment and sharing cards. The goal of the game is for the players to achieve their life goals while managing anxiety. In this game being dealt and anxiety card requires a treatment card in order to rejoin the game. The game raises awareness abouts treatment modalities like CBT Somatic Experiencing, Cognitive Reappraising, Exercise, relaxation techniques, and medication. The game is pro social, educational, and evidence based. The present author has designed and produced conflict games i.e. Quebec 1759 A Gamma Two Game). Playing such games has high value in teaching history, introducing the study of human behaviour in geopolitical conflict for present social purposes. The Waterloo game is played with a deck and electronic devices. The game media used are appealing to youth and help destigmatise mental health literacy and encourage open communication around seeking treatment (Webhe et al., 2016).
Screen Time and Anxiety

The Maras et al., (2015) paper from the Canadian Journal of Preventative Medicine suggests student’s use caution around the strong effects of hours spent playing or looking at videos games or interacting with computer screens or watching TV screens for many hours. Video game playing and computer use increase severity of depression and video game playing increases the severity of anxiety according to the authors of this paper (Maras et al., 2015). A case study of a treatment of an ADHD diagnosed 9-year-old boy suggests screen time induced ADHD-related behavior could be inaccurately diagnosed as ADHD. Screen time reduction is effective in decreasing ADHD-related behavior (Lisak, 2017).

The American Academy of Pediatrics (2013) recommends two hours of screen time as a daily maximum. Today the average is nine hours a day. Clearly the negative effects of screen time will increase the incidence and severity of Anxiety and Depression. The Maras et al., (2015) paper concludes that duration of screen time is associated with more severe symptoms of Depression and Anxiety in a large sample of Canadian adolescents. This paper helps inform this thesis of the importance of mental health literacy and teaching a practicing intervention with the two mood disorders at the school level.

Rituals Improve Performance: Decrease Anxiety

Obsessive Compulsive Disorder (OCD) often prompts ritual behaviour which are believed to be anxiety reducing. Healthy minds might consciously employ rituals as a psychological mechanism to engineer anxiety reduction. Restated, we can build a ritual designed to reduce overall anxiety levels. When we witness on TV a soccer star jogging onto a soccer pitch in a televised match, we often see the professional athlete performing a ritual. He may look
skyward and engage in short religious ritual gestures such as performing the stations of the cross. (i.e. saying Father, Son and Holy Ghost). Muslim players often assume a supine prayer position. We likely think the player is invoking the power of God to help the player score goals or help win or have a safe game. This invocation is clearly in the domain of the superstitious behaviour. But the applied science side of an analysis points out that ritual is often anxiety lowering and therefore performance enhancing. There is plenty of evidence that performance will improve when we are more relaxed (Brooks et al., 2016).

**Yoga and Breath Control for Anxiety Regulation**

A Canadian paper (Bock, 2017) establishes the connection between counter anxiety breath control and the ancient practice of yoga. One in five Canadians will be affected by a mental health diagnosis at least once through the span of their lifetime. Twelve percent of our population are specifically affected by Anxiety, the most diagnosed mental health disorder (Canadian Mental Health Association, 2016a). A close second is Depression, affecting nine percent of all Canadians (Canadian Mental Health Association, 2016b). Bock’s thesis is a narrative style testament to the powers of yoga and breathing in the reduction of symptoms associated with mild Depression and Anxiety. It is clear that mental health literacy should champion teaching mechanisms for control of affect and mood using body techniques (Bock, 2017).

Breath work is a foundational yoga practice; it is as it sounds, attention to breath means concentration on breathing. It is thought that in most yogic practices, breathing is the concept of creating energy (Forfylow 2011, p. 134). The rhythmical inhalation, exhalation, and preservation of breath during yoga can assists with reaching a “pure mind” (Bock, 2017 p.16). Yoga lends itself to individual and small group practices and fits well into a teaching setting. In Bock’s study, sixty students participated in the study and the findings were that most, if not all,
students found that yoga had a calming effect and they felt more relaxed during their day to day events. They had better focus at the academic level and improved concentration. The intention of my thesis is to familiarize students with techniques that palpably effect affect and reduce sympathetic drive states and thereby teach that anxiety can be partly controlled.

**Flowy App for Breath Control**

A Pham et al., (2016) paper reports on a study which uses a net based App “Flowy” which is designed to reduce anxiety including Generalized Anxiety Disorder (GAD), panic attacks and hyperventilation. The study reports that five million Britons feels anxious much of the time and 1.7 million suffer panic disorder. Eighty-five per cent of Britons do not receive treatment for their mental health disorders. Flowy was the first mental health app to operationalize breathing retraining exercises in gameplay. This author has tested the Flowy Beta App for Android and played it with a ten year old student. The concentration necessary to “keep the App sailboat off the rocks” and try win points is considerable and quite distracting which is the intention of the game. Students report that the game engaging and anxiety reducing. Eighty-nine of the participants in the trial reported by the paper, would recommend it to family and friends. However, the paper was unable to demonstrate clinical efficacy. The model of treating anxiety with a popular easy to play app has been well established by the continuing popularity and downloading of this anxiety treatment app (Pham, Khatib, Stansfeld, Fox, & Green, 2016).

**Suffocation Songs: Breath Control and the Dark Side of Breath Control**

Tucker’s arresting title of “Suffocation Songs” was added to the literature search to underscore the long association of breathing control to powerfully alter cognitive and affective states. Frank Dattilo’s study “The Versatile Effects of Breath-Holding” (2006) asks whether
breath holding alleviates Anxiety and makes people feel better. Young people report their own breath control experiments which tend to emphasize pleasure and entertainment. It is appropriate to point out that anticipation shares many common physiological features with fear. There is one marked difference; anticipation arousal is interpreted as pleasurable. Fear and anxiety are not. Risk taking youth certainly intimately come to experience the fear and arousal interface.

Using breath control to alleviate anxiety is pro social by contrast to playing breathing games which result in death. The mechanisms which alleviate anxiety also create arousal of the sympathetic nervous system. E.C. Schneider’s “Observations on Holding the Breath” (1930) suggests that will power, not physiology, determines how long a person can hold his or her breath. There are many names for breathing “games”, including “gasp game,” “the scarf game,” “suffocation roulette,” “American dream,” “California dreaming,” “purple dragon,” “purple hazing,” “flatlining,” and “the tingling game.” Breathing “games “can have dire consequences. The negative outcomes of making mistakes with breathing control is a testament to its power.

Building upon the literature that psychologists, anthropologists, and forensic specialists have generated, folklorists can contribute to the ongoing dialogue about breath control games. Depth psychology offers one possible approach. Having applied Jungian theory to late adolescents’ ghost stories, Tucker sees potential for analysis of children’s and adolescents’ encounters with their own negative, death-seeking “shadow sides” through breath control games (Tucker, 2008).

**Mindfulness Based Stress Reduction (MBSR)**

A paper from the Journal of Child and Adolescent Mental Health reports a rigorous randomized controlled trial addressing the impact of Mindfulness-Based Stress Reduction (MBSR) on youth with mental health issues. The University of Alberta study was conducted at a CASA treatment facility of adolescents twelve to eighteen years of age in Edmonton over two
years. In the study MBSR was compared to the existing medical and psychiatric protocol for treating youth with behavioural and mental health issues. This paper establishes there is therapeutic efficacy with youth who exhibit mental health and behavioural problems. The implication is that it can also be helpful in moderating dysregulated affect in a more normal population of children and youth. Current literature suggests that youth can engage meaningfully with mind body techniques including MBSR. The comparison of the normal medical psychiatric intervention’s vs MBSR produced a resultant significant difference with a positive effect size of $r = 0.5$ in favour of the MBSR. A surprising result of the study during post hoc analysis identified MBSR treatment resulted in considerably shorter admission times in the hospital: i.e. 136 days vs 150 days (Vohra et al., 2019).

**Mindfulness Based Approaches for Children and Youth**

A paper from the *Current Problems in Pediatric and Adolescent Health Care* (Perry et al., 2016) indicates that mindfulness meditation targets regulation of emotions and coping processes. Mindfulness helps individuals accept unpleasant and painful experiences. Some Mindfulness procedures adopt a dialectical position of balancing a desire for change alongside intentional acceptance of the inevitability of suffering. This effectively teaches resilience. Dialectical Behaviour Therapy (DBT) incorporates mindfulness and acceptance practices to address severe emotional dysregulation. Mindful interventions for children typically involve shortening the formal techniques (Perry-Parrish, Copeland-Linder, Webb, & Sibinga, 2016a).

In high school, mindfulness practice has the effect of reducing elevated blood pressure. In younger student’s belly breathing and attention to breath processes shows benefits in increasing attention and improvements in executive functioning. MBSR have been shown to reduce anxiety and depression coping somatization and post traumatic stress symptoms. Mind
Up is a classroom-based social and emotional learning program (SEL) designed to enhance self-awareness, social awareness, attention, self-regulation, problem solving, and pro-social behavior (helping, sharing, and cooperating). Mindfulness is known to reduce stress and enhance self-regulation, but the Perry-Parrish (2016) paper argues the competent instructors will require rigorous training.

**Autogenic Training (AGT) and Biofeedback: Warm and Heavy**

An Aritzeta et al., (2017) paper explores biofeedback, a mind-body technique that involves using visual or auditory feedback to gain control over involuntary bodily functions. This may include gaining some voluntary control over such things as heart rate, muscle tension, blood flow, pain perception, and blood pressure. Biofeedback teaches awareness, profound relaxation skills and ways to manage an anxiety attack, as well as ways to recognize, reduce, and control stress response. This approach to regulation of body sensations aims to alter affect states. The cognitive behavioral approach of the 1990’s appear to be giving way to somatic-affect regulation (Allan N. Schore, 2005). New techniques do not mean that biofeedback and cognitive somatic techniques do not work to control anxiety (Aritzeta et al., 2017).

Aritzeta et al., (2017) reports on a relaxation program using a biofeedback technique the program consisted of five biofeedback sessions coupled with three training activities focused on deep breathing, guided imagery, and muscle relaxation. The aspects of cognition which are most heavily recruited in the cognitive educational context, are learning, attention, memory, decision making, and social functioning. They are profoundly affected by and subsumed within the processes of emotion. In students, anxiety may be accompanied by psychological symptoms such as feeling nervous before entering the classroom, tense in examinations, or incapable of
doing a task and physiological ones like sweats, racing heartbeat, chills, muscle tension, rapid
breathing, or abdominal pain.

In deep breathing, where respiration is controlled, air is inhaled through the nose and
exhaled through the mouth, which mutes severe symptoms in situations of anxiety or panic.
Heart rate can be decreased by lowering the respiration rate and this may help to counteract the
effects of an increasingly fast heartbeat and more activating of the parasympathetic nervous
system. In this regard, some research has reported seventy-five per cent success among one
thousand patients with anxiety and hyperventilation after using breathing therapy, it is clear from
studies of biofeedback that a mental state can regulate body and then affect. The paper makes it
clear that that cognitions built on guided image or somatic processes can influence deregulation
states like anxiety (Aritzeta et al., 2017).

Biofeedback as Treatment for Anxiety and Depression

A Priyamvadha et al., (2018) biofeedback paper uses an Indian setting. India is the
ancestral home of yoga with millennia long traditions of spiritual and body practices which
actively seek to regulate the mind by regulating the body and vice versa (Priyamvada, Ranjan, &
Chaudhury, 2018). The paper was built around a case study of a single male with a mixed
Anxiety with Depression profile. The paper references other studies using heart rate variability
(HRV) as a treatment intervention in Major Depressive Disorder (MDD). The intervention with
this case included relationship building, Psycho education, Jacobsen’s progressive muscle
relaxation technique Biofeedback and autogenic training. Biofeedback was done with an
electromyogram responding to affirmative auto suggestions effecting the client arousal state.
Heart Rate Variability (HRV) was manipulated and reductions in state and trait anxiety were
noted. A limitation of the study was the n = 1 and the process needs testing on a larger scale.
Stress Management Using Biofeedback

Biofeedback has a tradition of research and treatment reaching back fifty years (Kassel, 2015). Biofeedback training helps symptoms and pain. Kassel reports significant reduction of test anxiety using biofeedback with Grade nine students using relaxation training and an EmWave heart rate variable biofeedback device. Students were trained to exercise some conscious control over autonomic body functions. Stress normally increases heart rate and cardiac synchronicity. Stress increases sweating and blood flow away from the gastrointestinal tract. The training protocol reduced stress signs. Students in the experimental group were trained in the autogenic techniques of Johannes Schulz (1969). Despite the small sample size of 10 the Kassel paper establishes the concept that training for encountering stressor anxiety before the stress is manifest by affect deregulation and its negative effects.

Mindfulness

There are protective effects of brief meditation in anxious individuals. The Xu paper (2017) was published in the Journal of Consciousness and Cognition and reported on the effects of brief meditation in anxious individuals. Mindfulness is protective for highly anxious individuals. There is an apparent switch of attentional focus from the internal to present moment. A reported switch phenomenon fits well with the design of my thesis which offers an anxiety treatment protocol which attends to the neutral external phenomenal world and not our internal “noisy” or “monkey mind” (Killington and Gilbert, 2010) reported in (Xu, Purdon, Seli, & Smilek, 2017).

Eric Harrison writes that the core skill in meditation is attention. The Sanskrit word sati translates as attention in a wide as well as technical sense. In spite of the cultural additions of Jon Kabat Zinn of non judgemental activity in mediation in the 1970’s, when mindfulness
became major school of practice, Harrison suggests the core Buddhist 2500 year old practice is related to the attentional skill and not exercising a value associated with it such as non judgemental awareness in meditating (Harrison, 2017).

**Autogenic Training (AGT): Warm and Heavy**

In AGT, a warm and heavy sensation is imagined in a physical limb or body appendage. Autogenic training is a desensitization-relaxation technique developed by the German psychiatrist, Johannes Heinrich Schultz. Vogt and Schultz researched sleep and hypnosis, finding that people experienced sensations of heaviness, warmth, and other signs of deep relaxation. Their elaborated AGT protocol consists of six standard exercises that make the body feel warm, heavy, and relaxed (Mohammadi Ziabari & Treur, 2019).

Mindfulness behavior activates the Anterior Cingulate Cortex (ACC). The (ACC) is part of a network implicated in the development of self-regulation and whose connectivity changes the regulation of emotions in the brain by altering communication between the amygdala and the prefrontal cortex (PFC). Mindfulness is today considered a direct method to provide affect regulation. Mindfulness weakens the amygdala response to arousing threat stimulation (Mohammadi Ziabari & Treur, 2019).

Peper et al., (2008) write with the theme of improving mental health literacy for youth by exposing students to the concept of actively treating mental health dysfunctions an educational approach is often different from a clinical treatment approach to promote healing. Using an educational approach, eighty percent of university students who are enrolled in a holistic health course report that both acute and chronic disorders can be ameliorated or eliminated when they engage in daily self-practice of autogenic training, biofeedback self-regulation practices, and/or somatic posture awareness (Peper, Miceli, & Harvey, 2016). Peper reports on San Francisco
State University students using techniques including progressive muscle relaxation, autogenic phrases, slower breathing, changing posture, transforming internal language, and self-healing imagery. When students systematically applied these self-awareness techniques to address a self-selected illness or health behavior (e.g., eczema, diet, exercise, insomnia, or migraine headaches), eighty percent reported significant improvement in their health (Peper et al., 2016)

**Psycho Ed as Treatment**

A Schroeder (2019) paper was assembled and written by Teaching and Learning Subcommittee at Taylor Institute at the University of Calgary. The paper explicitly seeks to achieve goals like that of this thesis, which is to inform students in matters of mental health literacy and point to or teach techniques and modalities to manage and treat mental health issues commonly encountered by students. The late teens or early twenties demographic targeted in this paper encounters high levels of anxiety, stress, sadness and psychological challenges especially on leaving home for the first extended period (Schroeder & West, 2019).

The Schroeder and West paper are an annotated bibliography in twenty seven sections and three themes. This paper references the power of incorporating informal mindfulness activities into daily education curricula in K to 12. The McLuckie et al., paper in the annotated section references The *Guide*, a Canadian Mental Health curriculum which may become a staple of a Canadian mental health literacy curriculum; it is certain to be a core reference (McLuckie et al., 2014a). The paper helps identify the core interventions with anxiety and the sequel of affect dysregulation in pursuit of identifying a suite of interventions which can be practiced in one session by students age eight to eighteen years.
Progressive Muscle Relaxation (PMR)

A recent paper (Gangadharan & Madani, 2018) demonstrated that an old technique for anxiety reduction (PMR) has currency and is still under study. The study concludes that, progressive muscle relaxation technique is very effective in reducing depression, anxiety and stress among nursing students. After intervention most of the participants felt relaxed and reduced the severity of negative emotional states and returned to a normal state of emotion. Among the relaxation methods, progressive muscle relaxation technique appears to be one of the easiest one to learn and administered. This intervention is inexpensive, available, self induced and free from side effects. The paper was published in International Journal of Health Sciences & Research.

Mindfulness and Progressive Muscle Relaxation (PMR)

PMR is a systematic technique to reduce stress and attain a deep state of relaxation. As early as 1930, Dr. Edmund Jacobson had developed the Progressive Muscle Relaxation (PMR) Technique. He discovered that a muscle could be relaxed by first tensing it for a few seconds and then releasing it. Two examples of directions are given here: Hands: Extend your arms in front of you. Clench your fists tightly for five seconds. Relax. Feel the warmth and calmness in your hands. Forearms: Extend your arms out against an invisible wall and push forward with your hands for five seconds and relax (Gangadharan & Madani, 2018).

A recent (2019) Mander et al., paper in the Journal of Clinical Psychology, in part, seeks to integrate mindful practice into individual therapy. The proposed Suite of brief treatments in this paper includes mindfulness, so Mander paper is germane in a literature review for my thesis. The Mander paper elaborately outlines an experiment which compares treatment as usual (TAU) with progressive muscle relaxation (PMR) and compares this approach with mindfulness a
SIX INTERVENTIONS FOR ANXIETY

session intervention using (TAU) and mindfulness element, (SIIME), in a randomized design. The highly defined and rigorously designed experiment revealed a significant reduction of symptoms and a significant increase in alliance over the course of therapy with 162 patients. But there was no significant difference between the mindfulness and the PMR group reduction of symptoms. Both were effective. This suggests that the efficacies of PMR and mindfulness are not significantly different based on this group and test design (Mander et al., 2019). Although PMR is “not modern”, it still has the capacity to effectively reduce symptoms of anxiety. So does Mindfulness. My pursuit is to identify several efficacious and interacting interventions and use them in tandem to reduce symptoms of anxiety.

PMR Biofeedback and Anxiety Disorder

The Pangotra et al., (2018) paper reports on efficacy of Medications (L Theanine), Progressive Muscle Relaxation (PMR) and biofeedback in the treatment of Anxiety. It reports significant alleviation of symptoms for all three treatment modalities. The present task is to identify modalities that may be accessed by a psychotherapist, which does not include prescribing medications. One goal in this paper is to identify modalities which may be added to a Suite of treatments for Anxiety. The results reported by the paper that PMR and biofeedback lead to a reduction of Anxiety and this finding is durable over time and different cultures including the Indian one, in this study. The interventions indicate the two techniques belong on a list of interventions for Anxiety that do not include drugs or long sessions of verbal therapy (Pangotra, Singh, & Sidana, 2018).

Quiet Mind: Training for Anxious Children

An older study of mindfulness in treating Anxiety in young children has interesting features. Semple et al., (2005) authored this paper about mindfulness in a study of five children
who were teacher identified as being anxious. The students were seven or eight years of age. The challenge in the study was to investigate the possibility that mindful meditation could allay anxiety in these young children. The paper asserts that mindfulness can teach child clients to recognize anxious feelings and to clarify maladaptive thoughts, minimize avoidant behaviour and self monitor coping strategies. The primary mechanism of mindfulness the authors assert is self management of attention. Having to ritually return to the primary mechanism of breathing produced a stable intra psychic environment for the children the authors contend (Semple, 2005a).

Two notable features of the experimental protocol were creating a worry warts wastebasket to unload worries at the start of a session and the mindful eating of a single raisin. Despite the small group size, the investigators established the clear enthusiasm of the anxious children when four of the five asked to continue the experimental program. The authors speculate that mindfulness is effective for children with internalized anxiety issues. (Semple, 2005b). A renown teacher of meditation and scholar in the field, Eric Harrison, asserts that mindfulness lowers arousal and that psychologists speculate that poor emotional regulation is primary cause of anxiety and depression (Harrison, 2017).
Chapter Three

Methodology: Somatic Training vs Cognitive Learning

To review; this paper uses a somatic method using a Suite of relaxation exercises. The approach is body training which calms the mind, reduces arousal, and regulates affect. In this method, sympathetic arousal consequent of feeling Anxiety, produces fight or flight responses and then requires parasympathetic calming to restore ANS equilibrium. A relaxation event or rest and digest phase invokes parasympathetic reduction of arousal. The bodily events calm the mind and produce affect or emotional regulation.

In the methodology used here, these events also become more cognitive on reflection and examination by the clients. Clients are invited to reflect on the felt experiences, form opinions about the effectiveness of the relaxation interventions, and are encouraged to use the techniques for emotional control. A wider goal of improving mood control and improving mental health literacy is implied in using this methodology. Reflection on the somatic experiencing is critical to effective individual long term learning. Keeping personal records and journalizing about the experience helps potentiate the effect and improves mental health literacy.

Somatic Experiencing: Fast Route to Understanding Anxiety

Theoretical considerations of Anxiety and Depression involve a vast field of knowledge. Professionals require years of study to have any sense of understanding these two fields. Some psycho education in this area can help inform clients and expedite the treatment process proposed in this paper. Enhancement of mental health literacy for youth is a focus of increasing interest for mental health professionals and educators alike today. Mental health
literacy has been defined as capacities and skills to obtain and maintain good mental health. Clients have to understand and recognize mental disorders and related treatments which will decrease stigma around mental illness and enhance help seeking behaviors (Kutcher & Wei, 2014).

Schools are an ideal site, according to many government and academic organizations, for addressing mental health literacy in the adult population. This paper intends to advocate for wider mental health literacy and training. The thesis addresses mental health challenges in school settings. McLukie and Kutcher examined the effect of a high school mental health curriculum which use *The Guide* in enhancing mental health literacy in Canadian schools (Mcluckie, Kutcher, Wei, & Weaver, 2014b). This *Guide* is a cognitive content rich net based program to inform fourteen and fifteen year old students about mental health challenges. It stands in contrast to this thesis in which the mechanism of action significantly differs in that it pursues a learning process which is somatic and not cognitive.

**Relaxation Suite: Truncated Interventions**

The core six relaxation techniques proposed in this thesis are deliberately shortened ones. The collected relaxation sessions will take approximately twelve minutes including preparation, participation and reflection time. The treatment sessions outlined here can be performed with one client, or a small group of three students, or a class of twenty students and more. The intention is to conduct a guided transformative somatic experience in which the clients feel palpable calming effects or an enhanced parasympathetic event of “rest and digest”. It is designed to be a model event of reduction of arousal. The implication of learning affect regulation is that this will become a habitual practice of good emotional mood control, affect regulation, and healthy mental health habits.
The truncated six techniques are drawn from known proven ones which are attested to in the academic literature to be efficient in producing relaxation and in diminishing Anxiety. For example, a full thirty minute mindfulness session has a powerful calming effect (Perry-Parrish, Copeland-Linder, Webb, & Sibinga, 2016b). The suite of six relaxation techniques outlined here have been truncated and mashed up in the interests of effectively using the short time available for training. Also, a concern is that children have short attention spans. The Suite can fit easily into a single fifteen minute unit of instruction when taught by an Elementary School teacher. Mind Up meditation units are presently used in BC school settings. Offering variety and mixing of techniques is used in the expectation that some of the six techniques will be more effective with different clients or students. The presumption is that each student or client will likely come to prefer some techniques over others.

**The Anxiety Process: Brain Structures and their Functions in Anxiety**

Sharon Kirksey wrote in the (Canada) National Post newspaper (October 2018), that a poll of 1500 Canadians revealed forty one percent of respondents identified themselves as “someone who struggles with Anxiety”. Anxiety is an unpleasant feeling state in the body and in emotional mind. Anxious or nervous behaviour includes an anxious person, tapping, pumping a leg, pacing back and forth, having body complaints like butterflies in stomach, heart palpitations, and ruminations of bad ideas circulating in the mind. Anxiety is the subjectively unpleasant feelings of dread over anticipated events, such as in a feeling of imminent death. Anxiety is usually anticipatory, in looking forward one expects a dreadful outcome.

Anxiety is often general and unfocused. It is usually an over response to a situation that is seen as menacing to the anxious person. It is often accompanied by muscular tension, restlessness, fatigue, and problems in concentration. Anxiety can be appropriate, but
when experienced regularly the individual may suffer from an anxiety disorder. Anxiety is not the same as fear, in which there is a response to a real immediate physical threat; Anxiety involves the expectation of future threat. People facing Anxiety may withdraw from situations which have provoked anxiety in the past. They become avoidant. Anxiety disorders are partly genetic, with twin studies suggesting a thirty to forty percent genetic influence on individual differences in anxiety. Genetic epidemiological studies report a moderate level of familial aggregation (odds ratio: four to six) and heritability estimates are about thirty to fifty percent (Shimada-Sugimoto, Otowa, & Hettema, 2015).

**Autonomic Nervous System (ANS) and Anxiety**

The autonomic nervous system (ANS), a division of the peripheral nervous system, controls smooth muscle and glands, and influences the function of internal organs. The ANS acts unconsciously and regulates body functions such as the heart rate, digestion, respiration, pupillary response, urination and sexual arousal. The ANS is the primary mechanism in control of the fight or flight (sympathetic) response. The ANS functions to preserve life, and to regulate the body's unconscious automatic and independent system. Therefore, the pain of anxiety cannot be avoided once started. The sympathetic nervous system (SMS) is one of the two main divisions of the ANS. The sympathetic nervous system's primary process is to stimulate the body's fight flight or freeze response. The SNS is antagonistic or functions against the parasympathetic nervous system (PNS) which stimulates the body to "feed and breed" or "rest-and-digest". The parasympathetic system is responsible for stimulation of "rest-and-digest" or "feed and breed" activities that occur when the body is at rest, especially after eating, including sexual arousal, salivation, urination, digestion, and defecation. Its action is
complementary to that of the sympathetic nervous system which is responsible for stimulating activities associated with the fight or flight response.

**Destigmatizing Mental Health**

Among the intentional goals of this thesis is the normalizing of school based programs for mental health literacy. One such program involves coregulation. Coregulation can be taught and modelled in schools. Adult caregivers such as parents, teachers, coaches, and other mentors play a critical role in shaping and supporting self regulation development from birth through young adulthood through an interactive process called “co regulation” (Rosanbalm & Murray, 2018). A collateral goal of this paper is the destigmatizing of treatment for mental health illnesses (Corrigan, 2016). A distant goal is to familiarize students with the process of therapy and to encourage enlightened educated people to act early and not hesitate in seeking a counsellor or a therapist in matters of emotional and mental health. The thesis logic is that the more normalized the therapeutic techniques are the more likely the client is to engage in it.

Regulation of affect can be both a somatic and a cognitive process. There is evidence that talking the self into being calm is an inefficient process. This paper advocates for a more compact and efficient teaching process which is accessible and effective. The somatic training bias is acknowledged and clear because it offers so many advantages over a cognitive approach. A collective group somatic practice (like dancing) can have powerful individual calming effects (Karkou, Aithal, Zubala, & Meekums, 2019). Some psycho educational work is necessary at the outset to demonstrate to children and youth that the techniques of somatic learning work well and they are effective and efficient in emotional regulation.

This paper makes use of a somatic approach as an educational technique in learning relaxation and affect regulation. Peter Levine’s Somatic Experiencing (SE) is a specific
approach to therapy aimed at resolving trauma by helping the client process trauma physiologically, thereby learning how to regulate arousal (Levine, 2010). Unlike conventional psychotherapy which focuses largely on verbal cognitive processes, the focus of SE is on the functioning of the deeper, regulatory, levels of the nervous system, in particular the autonomic nervous system (ANS); the emotional motor system (EMS); the reticular arousal systems (RAS) and the limbic system (LS), (Helmer and Van Hoisin, 2006).

**Technical Language**

Psychoeducation is a supportive foundational process for students who will eventually acquire some technical language involving brain, structures, processes, emotions, feelings, and skills of relaxation. We should avoid overwhelming students with complicated vocabulary. Starting with the terminology at a low level of linguistic difficulty, students will acquire basic and then more advanced technical terminology. The anatomy of the brain might involve few of the following structures: brain stem, mid brain, hippocampus (for memory), amygdala (for threats), right brain (for emotional regulation), left brain (for verbal and rational processing), pre frontal cortex (for integrating feelings and thought), and the anterior cingulate cortex. The ACC decides on which brain structure has motor control.

**Terminology**

<table>
<thead>
<tr>
<th>Anxiety</th>
<th>Alarm</th>
<th>Equilibrium (balance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear</td>
<td>Fight or Flight</td>
<td>Autonomic Nervous System (ANS)</td>
</tr>
<tr>
<td>Depression</td>
<td>Rest and Digest</td>
<td>Sympathetic Response Spike (Alarm) Arouse</td>
</tr>
<tr>
<td></td>
<td>Feed and Breed</td>
<td>Parasympathetic Response (Calm) Pacify</td>
</tr>
<tr>
<td>Emotions</td>
<td>Affect</td>
<td>Right Brain</td>
</tr>
<tr>
<td>Cognitions</td>
<td>Ideas/thoughts</td>
<td>Left Brain</td>
</tr>
</tbody>
</table>
Other terms are useful when educating students or clients about the normal function of the brain. They include consciousness or awareness, sensations, feelings, ideas, thoughts, cognitions, emotions, and mood states. Emotional regulations and dysregulation are familiar key concepts by the end of training sessions and discussion. Equilibrium is a state of balance between opposing forces of arousal and relaxation.

**System Functions**

Fear or Anxiety speeds up the Autonomic Nervous System (ANS) which is known as a sympathetic or fear spike reaction. It produces an adrenaline and cortisol cascade in the ANS the anxiety or fear event can happen in a second. The calming or parasympathetic response may take up to an hour to elicit calm and achieve homeostasis or balance. In the case of Post Traumatic Stress Disorder (PTSD) the ANS may never return to an old healthy base line arousal.
AUTONOMIC NERVOUS SYSTEM
( INVOLUNTARY )

PARASYMPATHETIC

CONSTRICITS PUPIL

STIMULATES SALIVA AND TEAR PRODUCTION

CONSTRICITS BRONCHI

SLOWS HEART

STIMULATES STOMACH, PANCREAS AND INTESTINES

STIMULATES URINATION

PROMOTES ERECTION OF GENITALS

SYMPATHETIC

DILATES PUPIL

INHIBITS SALIVA PRODUCTION

DILATES BRONCH

ACCELERATES HEART

STIMULATES EPINEPHRINE AND NOREPINEPHRINE RELEASE

STIMULATES GLUCOSE RELEASE

INHIBITS STOMACH, PANCREAS AND INTESTINES

INHIBITS URINATION

PROMOTES EJACULATION AND VAGINA CONTRACTIONS
Brain Structures and Functions

(Also see Appendices: C, D, E, F, H, and I)

Students require some basic understanding of the brain structures and their functions when learning about brain pathways of alarm, anxiety, and arousal. The brain controls our thinking, perceptions, emotions, physical activities, behaviours, and provides us with cues about how to adapt to our environment. The brain has three sections related to evolution; the brain stem at the top of the spine is the oldest evolved structure. It is in the innermost region of the brain. It is designed to control the most basic functions of life, including breathing, attention, and motor responses. The so-called reptilian brain controls the body's vital functions such as heart rate, breathing, body temperature, and balance. Our reptilian brain includes the main structures found in a reptile's brain: the brainstem and the cerebellum.

The midbrain was the next to evolve. The limbic or midbrain emerged in the first mammals. The so-called “lizard brain” is a metaphor for the amygdala, the part of the limbic system which is responsible for triggering threat. When teaching young students, it may be useful to distinguish mammalian and midbrain or emotional activity as preferable to reptilian based or threat related activity. Some midbrain structures are visibly reptilian and resemble primitive brains in many species. The mammalian brain is associated with limbic midbrain and emotions and feelings are associated with this area. The most outer region and latest to evolve is the cerebral cortex. It is the biggest structure and the newest to evolve. This outermost structure is associated with the higher brain functions like thinking, rational learning, and imagination.
The Mammalian Brain

(Also see Appendix I)

The mammalian brain includes the amygdala, which is a fundamental brain structure in understanding affect or emotion and anxiety. The reptilian brain is composed of the basal ganglia (striatum) and brainstem, is involved with primitive drives related to thirst, hunger, sexuality and territoriality, as well as habits and procedural memory. The old mammalian brain, the hypothalamus, hippocampus, amygdala, and cingulate cortex, are the center of our motivations, emotions, and memory. The new mammalian brain consists of the neocortex, processes verbal language, abstraction, reasoning, and planning (Ming & Song, 2011).

Amygdala: Threat Recognition and Anxiety

The brain structure most associated with fear and anxiety is the amygdala. It is Latin for almond because of shape and size of the two amygdalae. The right amygdala is specifically associated with threat recognition. It is the structure which will cause an animal to jump into the air in fear in one third of a second. Such a response is immediate, reflexive, and unthinking. Evolution has validated the survival value of the amygdala in many species including humans. Selection by surviving has kept the amygdala and its protective mechanism in modern man. It is the amygdala and its alarm function, which is most responsible for causing Anxiety, but it is a real psychic scourge of mankind when combined with memory and imagination. When the amygdala is triggered the whole brain does not have time to think before the amygdala has done its body shaking work creating the hype arousal associated with fear and Anxiety.
Anterior Cingulate Cortex (ACC)

The anterior cingulate cortex (ACC) is the front part of the cortex that resembles a collar surrounding the front of the brain. It resolves influences from the affective or emotional system and the rational verbal prefrontal cortex. The ACC determines and allocates which brain area should be given control over the motor system. Dopamine effects in the ACC are believed to influence this system by providing expectations about the outcomes of an event. The ACC mediates affect and rational verbal thought processes. The ACC has been consistently linked to PTSD; it plays a role in the integration of emotion and thought, and the experiential component of emotion (Van Der Kolk, 2006).

Pre-Frontal Cortex (PFC)

The ventral medial Pre Frontal Cortex (vmPFC) is associated with verbal activity, thinking, and rational functions. But the left brain PFC does not have time to function and mute alarm once the amygdala has been triggered and invokes a fight or flight ANS response. This is emphasized especially in the endocrine system which produces wide body arousal by means of adrenalin and cortisol. A system wide fight or flight nervous system response will dysregulate body equilibrium in the interests of physical survival. Survival trumps tranquility. Anxiety is a potent artifact of the fear response. Any threat, physical or psychological, however low level, like shame, can produce Anxiety. The anxiety response affects the right brain. If alarmed too often, as in chronic anxiety, the right brain affective system can become grossly dysregulated and an event like hysterical neurosis or PTSD can occur. A normal alarm reaction or adrenalin spike can occur in a second but often takes an hour or more to resolve by means of a parasymathetic response of rest and digest. Restoration of equilibrium is critical to the ANS. The ANS is tasked with conservation of energy and preserving life by using both alarm and
calming mechanisms. Thus, chronic fight or flight responses can be viewed as necessary to survival but also maladaptive and energy wasting and painful. The elaboration of Anxiety into Depression which leads to gateway disorders emphasizes the upsetting and apparently energy extravagant maladaptive response humans experience when they are chronically anxious.

**Mammalian vs The “Lizard” Brain**

It is convenient in this thesis to think of the brain as alarmable and if we are alarmed too often we are driven out of our mammalian mid brain, which requires human attachment, towards our reptilian unemotional aggressive brain. Reptiles are not pro social and will eat their own offspring. The lizard brain is functionally anti-social. Threats which are chronic become traumatic and drive us out of mammalian attachments towards reptilian coldness and nonattachment. The mammalian brain, anti-intuitively, includes the reptilian amygdala. This link is fundamental to understanding and treating Anxiety. Anxiety is a predictable outcome of having a human brain which includes reptilian aspects.

**The Right Brain and Regulation of Affect**

The right cerebral hemisphere of the brain has functions which include affect or emotional regulation functions. Dominance for emotional and corporeal sense of self is in the right brain. That it is not true of the verbal rational left brain. The right hemisphere connects with limbic systems, motivation, emotions, and brainstem functions of the pain systems. Right brain concepts include affect, communication, and self regulation (Allan N. Schore, 2005) and (A.N. Schore, 2018). In transitioning away from an emphasis on the verbal cognitive left brain processes (as in CBT), Schore has expressed the idea that today, psychotherapy is best described not as the talking cure but the communicating cure (Schore 2005).
Psycho Education in Canadian Schools

This paper offers an exploratory and educational experience in relaxation therapy which stands in contrast to a more orthodox cognitive educational approach to teaching students about Anxiety. The Ontario mental health literacy Guide is aimed at Ontario Grade 9 and 10 students. It is concept, construct, and content rich; it deals with far more cognitive information and much more than just Anxiety and Depression (S. Kutcher, Wei, McLuckie, & Bullock, 2013). The Guide is the equivalent of a college level minicourse in content relating to wider mental health issues and not well suited to young students. But early student years are critical to learning affect regulation. By fourteen years of age, Anxiety can be well established in many children.

The relaxation Suite proposed here is more suited to younger children than the Guide in the view of this author. The Suite can also be used with teens and adults. The approach in this thesis is to use the somatic experience and related effects of six relaxation techniques to influence the body state of the clients. It is narrow in the sense that it seeks to create a learning experience of allaying Anxiety or creating the felt experience of having anxiety reduced. The more complex cognitive complexities of specific subsets of Anxiety like panic attacks, PTSD and so on, are not within the purview of this paper.

The Canadian Guide to Mental Health Literacy

The Guide has been endorsed by the Canadian Association for School Health and is certified by Curriculum Services Canada. The Guide is a manualized mental health literacy resource (S. Kutcher et al., 2013), and (Mcluckie, Kutcher, Wei, & Weaver, 2014c). The Mental Health High School Curriculum guide includes six online modules. The Guide techniques are arranged to be taught in sequence so that students achieve mental health literacy through evidence based strategies to fight stigma. It includes an understanding of the basic functions of
the brain, details about different types of mental illnesses which typically onset during the adolescent years, and the best evidence based treatments. It includes a real life introduction to young people’s experiences of mental illness, building competencies on how to access mental health care, enhancing mental health self-care, and improving the quality of care received (Toronto School Board, 2015).

**Place of Depression in this Treatment Approach**

Depression is being treated in this thesis as an expected sequel to chronic Anxiety. Anxiety is viewed here as a potential gateway disorder which leads to comorbidity above fifty percent with Depression. Clumsy avoidant attempts may be made to re-regulate affect and then desperate efforts are made to avoid psychic and somatic pain. Therefore, early, effective, cheap, and easily accessible intervention for Anxiety is seen, in this thesis, as a critical piece of mental health protection and education. Depression is viewed as the dark shadow of untreated Anxiety and the sequel disorder. Hence Anxiety and Depression are rightly to be viewed as the two most significant mental health challenges. We ask the suspected depressed person, “Have you lost interest or pleasure in the things that you usually like to do? Have you felt sad, low, down or hopeless? Are you feeling that life is not worth living?” If the student or client’s answer is “yes” to either of these, further assessment by a competent professional is needed. Depression is dangerous as well as painful.

**Proposed Clientele: Single Clients, Students, Small Groups and Classes**

Engaging with a single client is a time-honored therapeutic arrangement. Logic suggests a technique which does not work with a single client has little chance of working in groups. The six relaxation techniques used here were evolved from unitary stand-alone relaxation
techniques. One real advantage of using older techniques like Progressive Muscle Relaxation (PMR), is that it avoids stigma which may be associated with “mental health” interventions. Using a small group context also seems to avoid stigma because the crazy stigma is perceived to relate to sick individuals and distinctly not to groups. The author’s experience as a school counsellor, of conducting small groups, circumvents parental unease around solo counselling. Group techniques then have advantages that can be employed consciously and deliberately. There are no values, or attitude training of ideas, or threatening cognitions in this Suite approach. It avoids or does not provoke a mental health stigma response. Anything that is done collectively seems to be viewed as having nothing to do with mental illness.

**Tracking Client Learning: Somatic Experience Data Sheet**

This relaxation Suite is aimed at the individual psyche and soma. The experience of parasympathetic calming should be faithfully recorded and discussed by the therapist/counsellor who teaches the techniques and the clients or students. Answering a pre and post session questionnaire is one technique. An additional technique for older students is to journalize about the experience. A solo or group discussion is designed to follow the relaxation training suite to enhance somatic learning and the client’s sense of internalizing new somatic learning.

**Client Data Sheets**

(See Appendix M)

**Participants: Profile**

Students or clients age eight to eighteen years. Adults (solo or groups) eighteen to eighty five years. Note that these techniques are presumed to be effective with all clients.
Order of presentation of Suite

Explanation of process: Body Mind Feelings and Relaxation/

Rules of engagement: Confidentiality.

What happens here should stay here. Code name for paperwork i.e. Alpha 123

Completion of the Pre-Relaxation Survey

The Suite of techniques outlined.

Suite Presentation (12 minutes)

Completion of the Post survey.

Discussion of the personal experience of somatic learning.

Training Rules for Students

Keep what happens in the training sessions confidential. What goes on for others is to be kept private. Experiences are shared in the session but not outside the treatment time. Pay attention to your body and your feelings. Note how your feelings change if they do. Use of an anonymous diary is encouraged.

Order of Interventions

Attention to Breathing, Progressive Muscle Relaxation (PMR), Autogenic Training (AGT)/ Warm and Heavy, Eye Movement, Focussed Auditory Attention or Listening to Silence, Sati or Attention and Mindful Meditation
Chapter Four

Protocol

The physical setting for instruction and training sessions is expected to be a reasonably large office which might accommodate three or more clients and an instructor. A classroom for twenty plus students is also an appropriate size when working with a full class. The clients are expected to be either single clients or a student or students from ages eight to eighteen years. Adults may range upwards to eighty-five years. The materials needed are suitably sized chairs. A door to keep out noise and distractions is helpful. The instructor or therapist should read the introduction aloud after the pretest. For the pretest questionnaire (see Appendix M), students are asked to create a code name for themselves like e.g. James Bond or Wonder Woman to protect their confidentiality on the forms they will write on in these training sessions. In keeping with the protection of privacy we ask all participants not to reveal comments made by others in these sessions.

Instructions to Clients

“Fill in the pretest section. The post test will be done after the training session. Older students may write a journal entry later in the process” if that is the protocol of the instructor

Script

“When we do a physical workout we contract our muscles, a lot. Then we relax our muscles and rest them. When we do an emotional workout we relax our feelings, a lot. Calming down needs to involve both relaxing our muscles and our feelings. The following six techniques for relaxing our body is to learn how to get some control over our feelings, especially the negative ones. We can learn to use our body to influence our feeling state and then help
control our mind. With improved skill in relaxation and destressing our body we will acquire confidence that we do have some direct influence and even control over our strong emotions”.

“The expression fight or flight is used many times in this presentation. We cannot effectively run away from our own body. And we can get in a fight with it. But it is better to learn to coexist happily with body, mind, feelings, and spirit than to war with ourselves. A physical workout takes effort and time and skill; learning how to de-stress our body and release our feelings by relaxing, requires some skill and practice time. One way to make this Suite of skills work is to be curious about how it will influence our body. So, when you do the pre-assessment questions think of it as information for you written by you. You came into the world without an operator’s manual attached to your body. In effect you must learn about your body and explore how you and your body works. We are not all the same. Pay some attention to who you are and how you function, and the effort will pay off many times over in better functioning and better feelings. Good luck with learning these important body mind skills.”

**Protocol for Practising Six Relaxation Techniques**

**Treatment One: A Breath Control.**

Sit upright in chair

Relax

Breathe IN through Nose for count of One and Two

Blow gently OUT through mouth for count of Three and Four and Five

Repeat for Ten full breaths

Pay attentions to sensation of slowly breathing in and blowing out
Alternative Treatment One: B Belly Breathing.

Same as Breath Control 1A but with hands over stomach

Hold right hand over belly button.

Left hand on top of stomach or diaphragm

Sit up and slightly forward

Breathe in through nose; Blow out thru mouth gently 10 times and slowly (inhaling is energizing, exhalation is calming).

Treatment Two: Progressive Muscle Relaxation (PMR).

PMR involves tensing a muscle group (like the fists) for a count of 7

RELAX the hands, closing the eyes and breathing out. Attend to relaxation.

Squeeze fists moderately tight for the count of seven. Relax fists.

Attend to the relaxation feeling. Repeat for count of seven. Squeeze feet.

Relax. Note the relaxing sensation. Try other muscle groups: calves, thighs, jaw

The lower abdomen, the stomach muscles, the pectoral muscles, and/or the back muscles can be used. Closing the eyes and breathing out when relaxing is important. Feeling the relaxation effect in the body is critical to the technique.

Treatment Three: Autogenic Training (AGT) “Warm and Heavy”.

Lean elbows on your knees or mid thighs

Let hands dangle loosely below level of elbows

Say aloud, MY HANDS ARE WARM AND HEAVY

Repeat slowly, MY HANDS ARE WARM AND HEAVY.
Repeat silently for a minute while concentrating on
Making your hands warm and heavy. Note the sensations
In your hands. You may also try this with you lips as in
MY LIPS ARE WARM AND HEAVY.

Treatment Four: EM Eye Movement / Vertical.

Sit Upright in a Chair and Relax
Move Eyes Up and Down vertically
Follow the Instructors finger
Look all the way up
Look all the way down
Look all the way up and breathe in
Look all the way down, close eyes and breathe out.
Relax.
Repeat as Instructor directs.

Treatment Four: B Eye Movement Lateral.

(Side to side or Lateral Movements, Move your eyes not your head)
Follow the instructor’s fingers with your eyes. Twelve each way
Look all the way left, then all the way right, then left and right until the
instructor indicates stop. On twelfth pass…
Breathe in…. follow the finger ….
Look up to the left, breathe out, close eyes and relax.
(Repeat three times).
Treatment Four: Eye Movement with Trauma Memory. (Optional for children)

Think of a past bad experience such as an accident, a frightening event, or a painful memory. Think about this incident for a bit so that your body may feel a negative reaction to the memory or the imagining of the old event. With your eyes, but not your head, follow the fingers of the instructor as he/she goes through the vertical or horizontal movements of EMDR. Do twelve saccades (back and forth) sweeps of the hand is a normal number for one trial. Repeat the trial two or three times. Check in with the memory and see if the remembered event is losing vividness or power. Try the horizontal movements up and down three times. Close your eyes and breathe out and relax after the third sweep. Check the memory. It might weaken in power.

Treatment Five: Focussed Auditory Attention.

Begin as with eye movement in a vertical plane. Look all the way up and down. Close eyes breathe out and relax. With eyes closed, the client is asked by the instructor to listen to the room and report on what he or she hears and identify it. Instructors asks, “Do you hear anything else?” The usual answer is No. The instructor can ask, “Do you find this threatening?” (The answer is almost invariably, “no”). The instructor can then ask, “Where do most threats come from, outside or …?” The answer is almost invariably, “inside”. The instructor can ask the client to repeat the sequence and listen to” the silence in the room” and focus on what is “outside” the client.
The instructor says. “Listen to the outer silence in the room. In your mind, form no words, have no reactions, name no feelings, listen to the silence in the room”. “Your hearing attention is focussed to outside of you”. “Listen to what is outside” “Keep your eyes closed”.

After thirty seconds or so the instructor continues. “I would like you to switch your attention to what is inside you. Attend to what is inside you. Listen to what is inside. Form no words. Name no thing. Feel no feelings. React to no thing. Just listen to the inner you, in silence”. After a minute ask, “Please return your attention to the room.” These exercises are intended to be relaxing and calming. In treatment six we will start hearing and listening to inner silence and transition to mindful meditation.

**Treatment 6: Mindful Meditation.**

“Return to listening to silence and a quiet mind. Form no words. Feel no feelings, let sensations pass. Be neutral and attend to silence” Mindfulness is a state in which the mind pays attention to awareness and does nothing with the awareness except to notice it. The awareness can be like a pool in a darkened cave with a surface that is calm and flat concealing the mystery in the water. Simply be aware of the quiet water.” Sati (or attention) is a powerful ancient calming and health-giving practice with roots in yoga. After three minutes of sati, return to Breathing Treatment 1 A. Sit up. Close eyes. Breathe in through the nose for a count of one and two. Blow out gently through the mouth for a count or three
four and five. Repeat for 9 cycles. Stop. Open your eyes and ask yourself, “Do I
feel more relaxed?”

**Test for Relaxation State.**

Try to salivate. If you can salivate easily you are in a “rest and digest” or a calm
relaxed state. Relaxation is the goal of the Suite of six treatments for Anxiety.

**Power Point Presentation of The Short Suite**

(See Appendix N)
Chapter Five

Purpose of this Study and Potential Utility

The core interventions in this paper are physical actions and behaviours that produce somatic or body experiences. These actions influence affect. This thesis is presented in the form of an experimental design. The design lends itself to client’s exploration of body and physical feelings. Somatic experiencing techniques help regulate emotions or affect for many individuals. This thesis intends to persuade clients in the belief that affect regulation provides considerable protection from Anxiety. The expected sequel to reduced Anxiety is reduced Depression. The negative gateway effect will be muted and subsequently a host of negative events causing Depression will wane. This Suite is structured to be part of a wide social initiative in the defense of our emotional and mental health.

Sentient Ergo Virus; I Feel Therefore I am Alive

“Cogito ergo sum” contrasts with “Sentient ergo virus”. I think therefore I am, is not the same as, I feel therefore I live. In the first case we entertain the supremacy of mind and thought. In the second case, we entertain the supremacy of feeling. It is instructive to entertain the idea that humans are sentient beings before they are cognitive ones. Attention to feeling states is particularly important in psychotherapy. Expressions of feeling states are accorded a validity by others that are rarely challenged. The approach in this thesis is the regulation of affect. The emotional changes may involve somatic experiences.

Experiments tend to produce variations in outcomes. Clients need to keep records and diarize about their experiences of calming to optimize it. Reflection is essential to an effective somatic experience. Post treatment conversations with clients need to include
individual attention to the relaxation experience. Attention to the somatic experience needs mindful consideration. To enhance the effect of relaxation and to punctuate that the intended goal of the Suite is affect regulation. The successful experience of the Suite should create a relaxed, calm state. Keeping individual records of the relaxation experiences is a key piece of long term learning.

“How did it feel?” is a critical question in somatic learning. The question is not conceived to be “What are your emotions doing?” It is, “How and what is your body feeling?” Learning from the somatic experience needs to be guided by the instructor or therapist after a treatment session. It is predicted in the academic literature on these six techniques that relaxation will be enhanced plus parasympathetic skill and efficiency will improve over time. Enhanced ability to relax is an immediate goal of the Suite. Although the experiences are somatic ones, eventually the client is expected to become cognitively aware that the relaxation process leads to emotional control and affect regulation. This author predicts that the clients will become psychologically and behaviorally attached to relaxing and controlling his or her emotional state.

The wider success of the Suite of relaxation techniques remains to be experimentally proven by a large well designed experiment. The absence of experimental validation is not a current impediment to effectively using these techniques. The psychological goal of the treatment Suite is growing awareness that emotional or affect states can be partly controlled, muted and or altered positively. Grecucci writes that “emotional dysregulation lies at the core of many psychopathologies. Thus, anxiety regulation is central to all effective psychological treatment” (Grecucci & Chiffi, 2016). Anxiety regulation by means of employing the Suite is a worthy goal for all mental health workers or any therapist.
A social and educational goal of engaging in the Suite with students in a school setting is to destigmatize mental health interventions and support the eventual wide use of psychotherapy. Suffering does not seem to be enough to lead people to being proactive in learning how to manage their mood and learn affect regulation. This paper supports the use of psychotherapists and destigmatizing mental and emotional health as both effective and wise. Simply reacting to or avoiding, uncontrolled affect states, puts people at the mercy of unrestrained impulses and passions. Mindful control and effective engagement with our strong emotions can be mastered with disciplined use of techniques like the Suite.

Current investigation of trauma improves our awareness how challenging regulation of emotions can be. Exploring control of acute dysregulation points the way toward more mundane affect regulation.

“Long after a traumatic experience is over, it may be reactivated at the slightest hint of danger and mobilize disturbed brain circuits and secrete massive amounts of stress hormones. This precipitates unpleasant emotions, intense physical sensations and impulsive and aggressive actions. Feeling out of control … survivors of trauma begin to fear that they are damaged to the core and beyond redemption” (Van der Kolk, 2015 p.2).

**Contemporary Mental Health Challenge**

This paper accords Anxiety and Depression the greatest urgency rating in contemporary mental health issues. Because Anxiety and Depression are so widespread, as separate entities and as common collateral damage in many disorders of mind and emotions, interventions which target Anxiety and Depression should be at the core of a national mental health strategy. The guided somatic training experience of the Suite is designed as a set of
experiences to benefit the client or student immediately and as proof of concept that individual people can experience and learn affect regulation techniques. They also can mute their negative emotions, calm their body state, and have positive mental health experiences and improve mental health literacy. Simply engaging in this somatic treatment helps to destigmatize mental health education and enhance cost effective simple interventions. This approach conveys the message that mental health interventions can be efficiently learned, are benign, are health affirming and that psycho education and training can have positive influences on psychological and emotional health of citizens.

The Canadian Mental Health Association calls for new legislation because fifty-three percent of Canadians consider Anxiety and Depression to be “epidemic” (CMHA 2018). A recent poll of 1,500 Canadians found forty-one percent of those surveyed identified themselves as “someone who struggles with anxiety” (Kirksey, 2018). Seventy percent of Mental Health costs are related to the comorbid disorders of Anxiety and Depression.

One implication of using somatic training techniques to mute or regulate Anxiety is that it is a viable alternative to relying on the use of pharmaceuticals. The effect of the pharmaceutical ends when the drug is stopped. Drugs manage symptoms; they do not cure Anxiety. Drugs are expensive and have unwanted side effects. Creating a population willing to engage in psychotherapy is a distant goal of this thesis. This paper takes the position that clients should learn to trust psychotherapeutic techniques, like this Suite which permits successful acquisition of some self regulation. This treatment modality has a high chance of success based on many measures of efficacy.

Somatic training in the Suite model uses proven effective relaxation techniques. The long term intended effect is to build trust and experience with treating mind, body, and
emotions. Those modalities which are verbal and “construct heavy”, may be more appropriate to adult clients. The paper proposes that trusting the effects of somatic treatment will encourage people, especially youth, to use somatic interventions. Mass psychotherapy is almost a contradiction in terms. The population of trained psychotherapists is too small to make this approach viable. The use of interventions like the Suite on a mass scale is viable. The Suite lends itself to large scale interventions in Anxiety and Depression.

Limitations of the Study

Chapter one references the fact that this paper does not address the efficacy of treatments for Anxiety and Depression by using pharmaceuticals. Drug based treatment for Anxiety and Depression are in common use, but they do not fit in the scope of inquiry of this paper. The reasons for exclusion in this paper are in Chapter One. Psychotherapeutic modalities like Cognitive Behaviour Therapy (CBT), Narrative Therapy (NT), Emotionally Focused Therapy (EFT) and a host of similar treatment modalities were excluded from consideration in the somatic approach. The reason for excluding the main van of treatment modalities is that these modalities take too long to teach to students. Many are protected by no trespassing protocols inherent in branding an approach that must be done a specific patented way. The brief approach of the Suite precluded many treatment modalities that might be used for somatic affect regulation.

Recommendations for Further Research

The assumptions made about beneficial effects of relaxation techniques on Anxiety described in this paper, could be experimentally tested by conducting a randomized controlled clinical trial (RCT). Such an experiment or trial would likely compare the short and cumulative long-term effects on Anxiety and Depression of practicing the Suite or somatic
training, say once a week for eight weeks. Then the statistical efficacy of somatic training on mood would be established with some confidence. The control group would not be exposed to the six interventions. They would instead be required be active in some way, for example, to read sections of prose taken from *The Guide*, a Canadian psycho educational curriculum used in Toronto secondary schools at the Grade 9 level (Toronto District SB, 2013).

In a large experiment, baseline testing for Anxiety and Depression might be established for both groups by using the Kutcher Adolescent Depression Scale (KADS) and the Kutcher Generalized Social Anxiety Disorder Scale (Chehil & Kutcher, 2012) and (Brooks Sarah and Kutcher Stan, 2004b). The results section of such a study would compare the somatically trained experimental group scores with those of a control group. Subjects would be randomly assigned to an experimental group or a control group after being yoked with a subject with the same gender, age and socio-economic group or status to try to isolate the single effect of somatic training with one population.

In the event a longitudinal study emerges from an initial one, it would be appropriate to start testing a cohort of eight year old student subjects in Grade three and to follow them through school to Grade twelve at age eighteen years. Tracking student experience with Anxiety and or Depression, any encounters with the mental health system, their use of pharmaceuticals, and any development of substance abuse, would all contribute to establishing a data base and evidentiary trail on intentional interventions in treating mood and regulation of affect using somatic and relaxation means.

**Conclusion and Summary**

Anxiety and Depression are major psychopathologies and these two deserve the attention and respect that major health challenges should be paid, in times when they are
considered epidemic. Because these two constitute seventy percent of the mental health burden in Canada, it would be a mistake to overlook these old adversaries in favor of mental health efforts being sidetracked by new treatment modalities. This thesis emphasizes the structure of the six intervention; in this case the structural interventions are somatic ones. The client learns something about his or her body and emotions and the regulation of emotions.

Relaxation is an effective treatment in this arousal situation. The felt experience of relaxing in the face of Anxiety is the core lesson and learning in the Suite. Somatic treatment allows the client to mute hyperarousal; the client can change how they feel when they anxious or triggered. Then the realization can come that these techniques help to control emotions.

Effective reregulation by somatic interventions must be taught and practiced. If physical exercise produces endorphins which are the body’s natural opiates perhaps somatic training can help the mind to insulate itself from psychic trauma by somatic means. Somatic training in relaxation techniques is an effective way to produce affect regulation. Emotional control is a critical factor in health. Affect regulation is the mental health equivalent of physical fitness in matters of medical health.

In 2017 the BC Ministry of Education adopted a new curriculum approach called Social and Emotional Learning. Increasing attention to the emotional and mental health of children and youth marks a shift from an emphasis on cognitive learning to more attention to emotional processes and social interactions among young people. The Ministry of Education mandated curriculum is an invitation to employ programs like this Suite to train students to learn to self-regulate. A coherent rational approach to intervening in widespread pathological processes like Anxiety and Depression are sorely needed if we are to believe what the mental health authorities and the media say about the epidemic of mood disorders that face us today.
Van der Kolk (2002) described the “central challenge of psychotherapy as the quest to help patients gain control over feelings that are usually blocked off, but that intrude in behavior and emotion in unbidden ways”. In his recent book, *The Body Keeps The Score: Mind Brain and Body in the Transformation of Trauma*, (2016) Van Der Kolk validates many of the processes advocated in this thesis. He writes about breathing for ANS regulation, befriending the body, yoga, and mindfulness. Van Der Kolk recognizes the importance of restoring the health and functioning of the body so that it can help balance a dysregulated mind. Body mind co-regulation is a core concept with Van Der Kolk and this thesis which pursues alleviation of Anxiety and reduction of suffering by somatic means.
References


depression in adolescents: A randomized controlled trial of two school-based Internet-delivered cognitive behavioural therapy programmes. *Internet Interventions, 1*(2), 90–94.


Canadian Psychological Association.
Appendices

Appendix A Six Item Kutcher Adolescent Depression Scale: KADS

Appendix B Kutcher Generalized Social Anxiety Disorder Scale for Adolescents

Appendix C Slow Pathway

(Google Images Midbrain, 2019)

https://opentextbc.ca/introduction to psychology/wp-content/uploads/sites/9/2013/11/fc5f53b2492917332e9a146baa622d2b.jpg

Appendix D Amygdala

https://static1.squarespace.com/static/52ec8c1ae4b047ccc14d6f29/t/5c655246eb393145f2007e4b/1550144081092/amygdala.jpg?format=1500w

Appendix E Prefrontal Cortex Amygdala and Hippocampus

https://images.app.goo.gl/eawMGA82LiVky2M7

Appendix F Hijacking by the Amygdala


OgMSIgugCFQAAAAAdAAAAABAD

Appendix G Sympathetic Spike and Parasympathetic Calming of the ANS
Appendix H Evolved Brain


Appendix I Triune Brain


Appendix M Pre and Post Self Impression Sheet

Appendix N Power Point Presentation Six interventions
APPENDICES
Appendix A

6-ITEM Kutcher Adolescent Depression Scale: KADS

NAME: ____________________ DATE: ____________________

OVER THE LAST WEEK, HOW HAVE YOU BEEN "ON AVERAGE" OR "USUALLY" REGARDING THE FOLLOWING

1. Low mood, sadness, feeling blah or down, depressed, just can't be bothered.
   [ ] [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

2. Feelings of worthlessness, hopelessness, letting people down, not being a good person.
   [ ] [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

3. Feeling tired, feeling fatigued, low in energy, hard to get motivated, have to push to get things done, want to rest or lie down a lot
   [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

4. Feeling that life is not very much fun, not feeling good when usually would feel good, not getting as much pleasure from fun things as usual.
   [ ] [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

5. Feeling worried, nervous, panicky, tense, keyed up, anxious.
   [ ] [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

6. Thoughts, plans or actions about suicide or self-harm.
   [ ] [ ] [ ] [ ]
   a) Hardly Ever b) Much of the time c) Most of the time d) All of the time

TOTAL SCORE: ____________________ © 2008 Stan Kutcher
6 - item KADS scoring:

In every item, score:

a) Hardly Ever = 0  
b) Much of the time = 1  
c) Most of the time = 2  
d) All of the time = 3  
then add all 6 item scores to form a single Total Score.

Interpretation of total scores:

Total scores at or above  Suggest ‘possible depression’ (and a need for more thorough assessment).

Total scores below 6  Indicate ‘probably not depressed’.
Appendix B

Kutcher Generalized Social Anxiety Disorder Scale for Adolescents

Scoring: 0 = Never; 1 = Mild; 2 = Moderate; 3 = Severe/Total Avoidance

<table>
<thead>
<tr>
<th>Item</th>
<th>Discomfort, Anxiety, Distress (0-3)</th>
<th>Avoidance (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initiating conversation with a member of the opposite sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Attending a party or other social gathering with people you don't know very well</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Speaking up, answering questions in class/participating in class discussions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Presenting in front of a small group or in a classroom setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Attending overnight group activities such as camps, school trips, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Speaking to a store clerk, bank teller, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Asking a stranger for directions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Changing in a common locker room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Showering in a common shower room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Using a public toilet facility or urinating in public (score whatever is greater)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Telephoning to ask for information or to speak to someone you don't know very well (score whatever is greater)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Entering a classroom or social group once the class or activity is already underway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Initiating conversation with strangers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Speaking with authority figures: i.e. teachers, counselor, principal, police officers, clergy, physician, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Eating in public</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Going to a party alone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Asking someone for a date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Writing your name in public</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section B: Fear/Avoidance - Seminal Items

What are your three most feared social situations and how strong is the fear/avoidance of each? Scoring:

0 = Never; 1 = Mild; 2 = Moderate; 3 = Severe/Total Avoidance

<table>
<thead>
<tr>
<th>Fear</th>
<th>Avoidance (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Section C  Distress Quotient

In general, how strongly do these items occur to you in most social situations? Scoring: 0 = Never; 1 = Mild; 2 = Moderate; 3 = Severe/Total Avoidance

<table>
<thead>
<tr>
<th>Item</th>
<th>Score (0 - 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feeling embarrassed or humiliated</td>
</tr>
<tr>
<td>2</td>
<td>Feeling ‘centered out’, scrutinized by others</td>
</tr>
<tr>
<td>3</td>
<td>Feeling judged or critically evaluated by others</td>
</tr>
<tr>
<td>4</td>
<td>Wanting to leave the social situation</td>
</tr>
<tr>
<td>5</td>
<td>Anxious anticipation of social situation</td>
</tr>
<tr>
<td>6</td>
<td>Experiences a panic attack</td>
</tr>
<tr>
<td>7</td>
<td>Blushes</td>
</tr>
<tr>
<td>8</td>
<td>Sweats or hot/cold flashes</td>
</tr>
<tr>
<td>9</td>
<td>Urination urges</td>
</tr>
<tr>
<td>10</td>
<td>Gastrointestinal distress</td>
</tr>
<tr>
<td>11</td>
<td>Trembling or shaking</td>
</tr>
</tbody>
</table>
Subscale scores and Total Scores

<table>
<thead>
<tr>
<th>Subscale Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS1: Fear and Anxiety Score (Items A 1-18, anxiety column)</td>
<td></td>
</tr>
<tr>
<td>SS2: Avoidance Score (Items A 1-18, avoidance column)</td>
<td></td>
</tr>
<tr>
<td>SS3: Affective Distress Score (Items C 1-5)</td>
<td></td>
</tr>
<tr>
<td>SS4: Somatic Distress Score (Items C 6-11)</td>
<td></td>
</tr>
<tr>
<td><strong>Total K-GSADS-A Score (SS1 + SS2 + SS3 + SS4)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Interpretation of Scores:

There are no validated diagnostic categories associated with ranges of scores. All scores should be assessed relative to an individual patient's baseline score (higher scores indicating worsening social phobia, lower scores suggesting possible improvement).
Appendix C

Slow Pathway
Appendix D

Amygdala
Appendix E

Prefrontal Cortex  Amygdala  and  Hippocampus
Appendix  F

Hijacking by the Amygdala

HOW AMYGDALA HIJACKING HAPPENS

- The stimuli goes directly to thalamus and it then goes right to amygdala before a signal reaches the neocortex to process.
- This survival mechanism lets us react to things before the rational brain has time to mull things over.
Appendix G

Sympathetic Spike and Parasympathetic Calming of the ANS

[Diagram of Autonomic Nervous System (Involuntary)]

PARASYMPATHETIC
- Constricts pupil
- Stimulates saliva and tear production
- Constricts bronchi
- Slows heart
- Stimulates stomach, pancreas and intestines
- Stimulates urination
- Promotes erection of genitals

SYMPATHETIC
- Dilates pupil
- Inhibits saliva production
- Dilates bronch
- Accelerates heart
- Stimulates epinephrine and norepinephrine release
- Stimulates glucose release
- Inhibits stomach, pancreas and intestines
- Inhibits urination
- Promotes ejaculation and vagina contractions

AUTONOMIC NERVOUS SYSTEM (IN Voluntary)
Appendix H

Evolved Brain

- **Neocortex:** Rational or Thinking Brain
- **Limbic Brain:** Emotional or Feeling Brain
- **Reptilian Brain:** Instinctual or Dinosaur Brain
Appendix I

Triune Brain
Appendix M

Pre and Post Self Impression Sheet

Confidential information Please, Do not share this information.

Code Name: …………………………………… Date…………………………..

Section One: Before Relaxation Training

On a scale of 1 through 10, how do you feel? (One is very good and ten is very bad) …………………

1 How does your body feel physically? …………………………………………………

2 What part (if any) of your body feels discomfort or strange now? …………………

3. Are you taking any medicines or prescription drugs?

4. Is there anything going on which makes you feel unsafe, sad or mad, worried or glad? (Write comment)

5. Has any important person or thing been lost to you or died recently?

6. Are you normally sad mad or glad? …………………………..

7. Do you normally feel OK physically?

8. Do you normally feel OK emotionally?

9. Is anything bad or difficult happening today with you or in your family? …………………

10. Does life look good or gloomy to you right now? …………………

Section Two: After Relaxation Training

1 How does your body feel physically? …………………………………………………

2. How do you feel emotionally …………………………………………………………

3. On a 1 to 10 scale with 10 being very good, what number do you feel? …………………

Which relaxation techniques seems to have the strongest effect?  Breath control, eye movement, muscle relaxation, biogenic “warm and heavy”, auditory attention to the outside world, quiet mind, Listening to silence? ……………………………………………………………………………

4. Do you feel more relaxed after practicing the six relaxation techniques? …………………
Appendix N

Power point presentation: Six Intervention For Anxiety.

(Double click on the icon below).

The Short Suite.pptx