Theoretical Framework and Variables Affecting the Efficacy of Mindfulness-Based Intervention on Rumination

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School of Psychology
Abstract

A large body over the last 20 years has demonstrated that rumination is an important determinant of depression. Research has also shown that mindfulness practice can reduce rumination and depression. However, over this period the concept of rumination has evolved. Initially rumination was understood to be a single static construct that a person would engage in when they experience depressive mood. The Differential Activation Hypothesis introduced the idea that rumination involved an interaction between depressive mood and negative cognition. Later, this model was expanded with negative cognition seen to be the product of the memories of negative events and influenced by dysfunctional attitude. Rumination started to be viewed as an interactive cycle between depressive mood, memories of negative event and dysfunctional attitude. A separate but relevant literature has demonstrated the relationship between emotion and attention. However, to date no study has investigated the role of innate attention control capacity on the ruminative process. Similarly, despite attention control being viewed as a component of mindfulness, little research has investigated the relationship between attention control capacity and mindfulness. Thus, this study investigates how attention control capacity influences rumination and mindfulness. 392 adults recruited from two public universities and the general community were given a series of online survey questionnaires involving their depression and rumination levels, dysfunctional attitude, attention control, and different facets of trait mindfulness. Results found that attention control and dysfunctional attitude sequentially mediated the relationship between depressive mood and rumination. The mindfulness facets of Nonjudging and Nonreactivity also mediated the relationship between depressive mood and attention control. These results indicate that our theoretical understanding of the rumination process should include attention control for a more holistic conception. Further the results suggest that the enhancement of a Nonjudgemental attitude and Nonreactivity through mindfulness practice has the potential to interfere with the rumination process by enhancing a person’s attention control capacity and decreasing the attention allocation effects of emotional arousal.
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No publication included
Contributions by others to the thesis

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Mindfulness, Attention Control, Dysfunctional Attitude, Rumination, Depression, Emotions

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<th>Description</th>
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<tbody>
<tr>
<td>AC</td>
<td>Attention Control</td>
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<tr>
<td>ATQ</td>
<td>Adult Temperament Questionnaire</td>
</tr>
<tr>
<td>BPD</td>
<td>Bipolar Personality Disorder</td>
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<tr>
<td>CBT</td>
<td>Cognitive Behaviour Therapy</td>
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<tr>
<td>DA</td>
<td>Dysfunctional Attitude</td>
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<tr>
<td>DAH</td>
<td>Differential Activation Hypothesis</td>
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<td>DAS</td>
<td>Dysfunctional Attitude Scale</td>
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<tr>
<td>DASS-21</td>
<td>Depression &amp; Anxiety Stress Scale</td>
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<tr>
<td>DBT</td>
<td>Dialectical Behavioural Therapy</td>
</tr>
<tr>
<td>DSM-IV</td>
<td>Diagnostic and Statistical Manual of Mental Disorders Fourth Edition</td>
</tr>
<tr>
<td>FD</td>
<td>Formerly Depressed</td>
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<td>FFMQ</td>
<td>Five Facet Mindfulness Questionnaire</td>
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<tr>
<td>GP</td>
<td>General Practitioners</td>
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<tr>
<td>ICS</td>
<td>Interacting Cognitive Subsystem</td>
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<td>MBCT</td>
<td>Mindfulness Based Cognitive Therapy</td>
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<tr>
<td>MBSR</td>
<td>Mindfulness Based Stress Reduction</td>
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<tr>
<td>mD</td>
<td>Mild Depression</td>
</tr>
<tr>
<td>NA</td>
<td>Negative Affect</td>
</tr>
<tr>
<td>ND</td>
<td>Never Depressed</td>
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<tr>
<td>PD</td>
<td>Personality Disorder</td>
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<tr>
<td>PT</td>
<td>Pharmacotherapy</td>
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<tr>
<td>PTSD</td>
<td>Post-Traumatic Stress Disorder</td>
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<td>RSS</td>
<td>Rumination on Sadness Scale</td>
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<tr>
<td>RST</td>
<td>Response Styles Theory</td>
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<tr>
<td>SSRI</td>
<td>Selective Serotonin Reuptake Inhibitors</td>
</tr>
<tr>
<td>TAU</td>
<td>Treatment as Usual</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>YLD</td>
<td>Years Lost Due to Disability</td>
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CHAPTER 1

Depression Rumination: Introduction & Theoretical Framework

1.01 Depression in Australia

Depression is one of the most prevalent of all psychiatric disorders and perhaps the most costly. According to the Australian Bureau of Statistics (ABS; 2011), around 800,000 Australian adult sufferers from a depressive illness each year. It is also the third most common illness among females and the tenth among males, with a 25% and 12.5% chance respectively of suffering from depression sometime in their lives.

In 2001-02, depression made up for 32% of all mental health issues (SANE, 2005) while in 2008-09, depression accounted for 34.2% (AIHW, 2010). Almost half of the country’s children displayed symptoms of depression, anxiety or other stress related illness (Anti-Depression Association of Australia, 2010). The World Health Organization (WHO) has predicted that by 2020, depression will be the second biggest health problem world-wide, surpassed only by heart disease (Murray & Lopez, 1996), and is a substantial economic burden on society.

1.02 Economic Cost of Depression

In 2008-09, 21.4 million mental health-related prescriptions were subsidised under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme, this costed the Australian Government over $742 million. Of that, 41% were for antidepressants (AIHW, 2011). Together with Medicare claims for psychotherapy among other services, the problem of depression will equate to a total of $1 billion in expenditure of the Australian health system annually (Hare, Driscoll & Stewart, 2009).

A study in the US found that individuals suffering from depression on average lose almost 6 hours of productive time per week in contrast to just 1.5 hour for people who do not suffer from depression (Stewart et al., 2003). In 2008, the WHO published their findings regarding the amount of productive years lost due to disabilities (YLD, productive time that are lost, measured in years) - both physical and mental. Amongst high-income countries, depression stood out as being the disability that resulted in the most years lost with a total of 10 million years. This figure is more than double that of Hearing Loss, the second most disabling affliction with just 4.2 million years. The pattern is similar for low-income countries, as the leading cause for YLD is still depression with 55.3 million years lost.
In Australia alone, depression-related productivity loss accounts for up to 6 million working days each year (Andrews et al., 1999) as well as another 12 million days of reduced performances. Untreated depression can lead to substantial decrease in job performances and on average can cost an organization almost $10,000 annually, totalling to $4.3 billion in lost productivity per year (Hilton, 2004).

1.03 Trends of Depression in the Community

The problem of this issue comes into view when we look at it in the context of a trend toward of increasingly younger onset age for major depression which has been found since the turn of the twentieth century (Burke, Burke, Rae & Regier, 1991). Studies such as those of Alpert et al., (1999) and Fava et al., (1996) indicated that the age of first onset of depression leaned towards the adolescent age-range. Their findings were also reproduced in Zisook et al. (2007), in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) trials. Zisook et al. showed that the mean age for depression onset in the population for the pre-adult age range was as high as 37% with the primary age being between the ages of 13 and 15. A more recent study by Williams et al. (2012) again supports this pattern that more youths are showing signs of depression onset compared to older people.
Early onset of depression poses additional concerns regarding the prognosis of the disorder as younger age of onset is known to be associated with a higher likelihood of suicidality (Van Noorden et al., 2011) and a greater likelihood of relapse after being treated. In a study by Thompson (2008) individuals who experienced their first diagnosis of depression in childhood were not only more likely have suicidal ideations, but was also found to have higher degrees of suicidal intent when they develop such ideation.

1.04 Depression Relapse

Depression is a highly recurrent disorder. Weissman and Kasl (1976) found that 67% of women who had experienced an episode of depression experienced a recurrence of depression. Coryell et al (1995) found that individuals who have experienced untreated major depressive disorder have on average 2.2 depressive episodes in their lifetime. This needs to be considered in context of the fact that approximately half of the people who suffer from depression do not seek treatment (Hilton, 2004). Even for those who do seek treatment, one of the primary problems with depression (as with other chronic mental issues) is that when a patient is considered successfully treated with acute treatment methods there is a significant likelihood that he/she will experience
relapse and recurrence in the future (Judd, 1997). Studies show that for 25-40% of patients, relapse occurs within can happen after just two years of being treated (Katz & Klerman, 1979) and up to 87% after fifteen years (Keller & Boland, 1998). Each episode increases the chances of another episode occurring again in the future by 16% (William, Teasdale, Segal, & Kabat-Zinn, 2007). A longitudinal study in Australia (Brodaty, Luscombe, Peisah, Anstey, & Andreas, 2001) showed that 84% of hospitalized patients who responded positively to treatment have had at least one relapse. In a meta-analysis by Vittengl, Clark, Dunn, and Jarrett (2007) found that of the 13 studies of CBT treatment targeting depression reviewed, on average 29% of individuals who were ‘successfully treated’ experience relapse within one year and 54% relapsed within two years.

Many issues are raised with regard to the continuing prevalence of depression relapse. Amongst them is the contention that the health care industry may finds itself stretched on resources which are being spent inefficiently. As the long term benefit for the patient through conventional treatment may not be long-lasting, patients are forced to continue to spend money, time and energy seeking treatment for the same condition from which they were supposed to have been ‘successfully treated’. Similarly, healthcare providers must also devote resources such as psychologists’ work hours, medication, etc, to help these patients who relapsed. Preventing relapse would be a significant saving of resources.

1.04.1 Conventional Treatment & Depression Relapse.

Current treatments for depression include cognitive behaviour therapy (CBT) and pharmacotherapy (PT). There are a number of relapse prevention methods that are employed in CBT. For example, patients are encouraged to separate their depressive thoughts into rational and irrational components and challenge the irrational parts by pitting them against objective proof and evidence (Knaus, 2006). Others include the identification of an individual’s unique vulnerability and triggers that may induce automatic depressive thoughts. Identifying these and learning specific techniques to counteract the negative automatic thoughts helps peoples cope better with depression.

Prophylactic treatments such as the use of anti-depressants are often employed to prevent relapses (American Psychiatric Association, 2008). However, research has indicated that this approach has moderate success at best. Studies such as that of Hautzinger, de Jong-Meyer, Treiber, Rudolf, and Thien (1995) show that even with continued medication, a relapse rate as high as 51% can occur within one year. Goldberg and Kocsis (1996) found that 89% of patients who had shown positive response to selective serotonin reuptake inhibitors (SSRI) displayed re-emergence of depressive symptoms despite continued treatment. In addition, up to 70% of patients do not wish to
take antidepressants after acute treatment remission (Bockting et al., 2008) significantly increasing their chances of relapse.

**1.04.2 Cause of Relapse.** Some theories have postulated that the variables involved in triggering depression onset are different to those that predispose people to experience relapse (Lewinsohn, Allen, Seeley, & Gotlib, 1999). While the onset of depression itself may have been triggered by an external life event that was stressful in nature (Kendler, Thorton, & Gardner, 2001), whether a person is likely to become depressed and relapse after they have been “successfully treated” has been found to be related to an internal variable known as ‘cognitive reactivity’ (Teasdale, 1988). William, Teasdale, Segal and Kabat-Zinn (2007) argued that the reason why relapse occur so frequently is because depression has a unique way of forging “a connection in the brain between sad mood and negative thoughts, so that even normal sadness can reawaken major negative thoughts”. This in turn triggers more sad moods and even more negative thoughts. This process is referred to as rumination.

**1.05 Rumination**

Numerous studies have found connections between rumination and various forms of depressive symptoms (Wood, Saltzberg, Neale, Stone, & Rachmier, 1990; Nolen-Hoeksema & Morrow, 1991; Roberts, Gilboa, & Gotlib, 1998; Nolan, Roberts & Gotlib, 1998; Kuehner & Weber, 1999; Nolen-Hoeksema, 2000). Many other studies also support this and indicate rumination can prolong recovery (Schmaling, Dimidjian, Katon, & Sullivan, 2002), lengthen the duration of depressive symptoms (Nolen-Hoeksem, Morrow & Fredrickson, 1993), as well as increase the chance of new episodes (Spasojevic & Alloy, 2001). In fact, Spasojevic and Alloy even go as far as making the claim that rumination is the most proximal cognitive vulnerability prior to the emergence of clinically-significant levels of depression.

Over the years, there have been many definitions and ideas as to what ‘rumination’ means. Some literature describes rumination as being a single static construct that embodies certain themes while others describe rumination as an outcome of the interaction of different cognitive variables. On the whole however, certain themes are shared among theorists. For example, according to the Response Styles Theory (RST; Nolen-Hoeksema, 1987) rumination is a process of self-reflection as well as a repetitive attending to negative emotions. A model known as the Ruminations on Sadness conceptualization, Conway, Csank, Holm, & Blake (2000) defined rumination as repetitive thinking about sadness, and circumstances related to an individual's sadness. Others such as Lyubomirsky and Nolen-Hoeksema (1993) defined rumination as a method of coping with depressive mood that
involves self-focused attention. Watkins (2004a) place a larger role of self-focus on his idea of rumination. He understood rumination as one of two forms of self-focus. Specifically, it is a maladaptive form labelled conceptual-evaluative while the other was a more adaptive form labelled experiential self-focus. The key difference between the two is the motivation that drives the styles. Although the definition of rumination does vary between researchers and their focus can be placed on different areas, three recurring themes common to all are:

- Self-focus
- Attention demanding
- Negative mood-based or focused.

Because of the static nature of early conceptualization of rumination as a single construct, these themes are understood here as facets of rumination rather than actual components within a dynamic cognitive process.

1.05.1 Response Styles Theory. It has been proposed that there are two ways people deal with depressive moods, through distraction or rumination (Nolen-Hoeksema, 1987). In situations where a person is chronically depressed, they are known to experience intrusive negative thoughts and memories. When this happens, an individual may attempt to deal with the intrusion by trying to distract themselves by engaging in nonrelated behaviours as a means to distract themselves. Morrow and Nolen-Hoeksema (1990) proposes that another group of people respond with a form of self-focused attention when they become depressed, namely rumination. By focusing on their symptoms of depression and the causes and consequences of such symptoms, ruminators are more likely to exacerbate transient depressive mood states leading to a longer duration and more severe depressive episodes. In an early review by Nolen-Hoeksema (1991) argued that engaging in rumination had a number of detrimental effects on the prognosis of the depressed individual. Just and Alloy (1997) found that people who engage in rumination experience more severe and prolonged depression while people who seek distractions have milder and shorter episodes. Nolen-Hoeksema addressed the question of how rumination leads to depression. An early theory was that rumination has an effect of interfering with a person’s ability to engage in behaviours instrumental to their recovery. Those who are busy engaging in rumination will be less likely to initiate actions that will result in positive reinforcements or an increased sense of control such as recreation. The question therefore, is how this occurs. The Response Styles Theory (RST), proposed by Morrow and Nolen-Hoeksema (1990), argued that ruminators engage in a maladaptive cognitive style of thinking, such as a higher predisposition to recalling
negative events or associating any given event to a negative outcome. People who suffer from depression have problems engaging in instrumental behaviours as a result of depressive mood may impeding their initiative to commit themselves to actions that could solve the problem that gave rise to the depressive mood in the first place. At the same time, negatively cognition makes it likely that an individual will believe that their actions will be futile. That is, rumination is a process that involves depressive mood and negative cognition. The question therefore, is how these two factors contribute to the ruminative process.

In support of her theory Nolen-Hoeksema (1991a) reported on a study investigating the response style of people shortly after the 1989 Loma Prieta earthquake. Measures of emotional health as well as the response styles to negative moods of 137 students were taken 14 days before the Loma Prieta earthquake hit. It was found that people who were normally predisposed to a ruminative style of response to depressed mood, were more likely to remain depressed 10 days and 7 weeks after the earthquake than subjects with a less ruminative response style. They also showed higher levels of trauma-related symptoms in the 10 days after the earthquake. Although the trigger and emotional component of this study is the post-traumatic grief of the aftermath of the earthquake, the detrimental effects of the individuals can be attributed to the fact that these people employed a ruminative response style. It should be noted though, that in this specific circumstance, where the earthquake was completely unpredicted, the aftermath of the disaster may have had an effect on the results, primary of which was the fact that there are much greater incentive and opportunity for people to engage in behaviours such as helping with the relief effort or offering support for other that results in positive reinforcements. Indeed, it was remarked that almost everyone was talking about the event in the days after the earthquake struck that even people who were more likely to ruminate may have talked about their feelings that could have affected the details of the results. These variables however, did not seem to have affected the overall trend of the conclusion.

The majority of studies to this point were based on laboratory-induced depressive states. In order to provide support for the effect of rumination on naturally occurring depression without additional depressive ‘events’, Nolen-Hoeksema and Morrow (1993) conducted a study in which one group of depressed subjects were asked to focus their attention on their current feeling states and personal characteristics for 8 minutes. Another group were asked to attend to descriptions of geographical location and objects. Those in the rumination condition showed an increase in their depressed mood while those who engaged in the distraction condition had a decrease in their depressed mood to a point where it was equal to that of a nondepressed person. This study shows
that even without induced sad mood, rumination had an exacerbating effect on the mood of depressed people. Nolen-Hoeksema and Morrow did however, remark that rumination itself is not dysfunctional. It is only when the act of rumination interacts with depressive mood would it produce maladaptive effects. Nolen-Hoeksema, Morrow and Fredrickson (1993) conducted a study that looked at the longevity of a person’s depression. In their study, seventy-nine participants were asked to document their moods and responses to their moods for a period of one month. They found that 83% of the participants employed a consistent form of response study (rumination or distraction) throughout the tested period, and that those who used rumination reported more prolonged depression. An interesting find of this study was that while initial mood of an individual seemed to be related to whether or not they engaged in rumination, and how much they ruminated had an independent effect on the duration of their moods.

While the detrimental effects of rumination of depression has been established in these studies, they are often built on the assumption that rumination exists as an independent construct with people varying in their predisposition to ruminate. The logical question that follows from this is, why do people ruminate? More specifically, what may be the contributing factors to their tendency to employ rumination as a coping mechanism? This question was addressed by Nolen-Hoeksema, Parker and Judith Larson (1994) in which they conducted a longitudinal study on 253 people. They found that some of the common environmental variables that are related to depression including lack of social support, concurrent stressors, and higher degree of post-loss depression were related to higher levels of rumination. They also found that those who employed a ruminative style of coping developed a greater level of pessimism one month after the death of a loved one. More importantly, this pessimism resulted in higher levels of depression six months after the event. Although rumination was correlated with all the noted variables, its effects were still felt even after controlling for initial depression levels, social support, concurrent stressors, gender, and pessimism.

One of the more interesting findings of this study was the role of social support. Nolen-Hoeksema’s line of research had, until this point, focused on cognitive responses to depressive mood. Distractive behaviour, in her view, functioned to take an individual’s mind off their depressive thoughts. Having a support network that has long been known to buffer the effects of depression (Aneshensel & Stone, 1982). In the Nolen-Hoeksema studies, social support was only related to depression through its relationship with rumination. It was theorized that people who have lower social support were more likely to remain isolated and thus had more time to ruminate on their problems. In addition, people who do not receive affirmation regarding their views and actions also have more reason to ruminate. That is, a lack of social support leads to greater rumination. This
study however, does suffer from a few methodological limitations. For example, it is possible that
the people who participated in this study were experiencing less grief than those who did not; as
such they had the capacity and mental space to participate. It is unknown therefore as how greater
level of sadness that is experienced by people who went through the loss of loved ones may affect
their tendency to ruminate. In addition, although all the variables were correlated to rumination, it is
impossible to tell whether they ‘caused’ an individual to ruminate or not. Rather the only conclusion
that can be drawn is that people with lower levels of social support, more concurrent stressors, and
higher degree of post-loss depression were more likely to ruminate. The relationship between
rumination and social support was further investigated by Nolen-Hoeksema and Davis (1999) which
yielded contradicting results. 349 people with terminally ill family members were interviewed
regarding their response style and social support network. It was found that those who employ a
ruminative coping style, were generally more focus on their own emotional reactions to a trauma
and would seek out more social support and are likely to benefit more from this support compared
to those without a ruminative coping style. It was reasoned that this was because ruminators were
more actively and persistently thinking about their loss, its meanings, and their own reactions to the
loss. More critically, compared to nonruminators, there is a desire to share these thoughts with
others. An important prerequisite of this effect is that those who are ruminators are integrated into a
social network so that they feel safe to share their feelings with people of that group. Support from
the social group allows ruminators to better cope with their grief in a more effective manner than
people employing distraction coping. This in turn decreases their distress levels in the 18 months of
losing their loved ones.

Overall, the results of Nolen-Hoeksema’s line of research are built on the foundation of
rumination as a static cognitive construct. When a person is depressed, they have a choice of three
possible methods of how to respond to their condition. They can either choose to engage in a self-
focused thought process referred to as rumination, seek distraction by engaging in other activities so
they do not have to think about the issue that made them depressed in the first place, or they can
seek out social support. Findings indicate that of the three possible responses, rumination leads to
worse outcome in terms of depression prognosis, longevity, severity, and symptomology. Because
Nolen-Hoeksema’s approach focuses on rumination as a single static construct, it does not address
the issues of why rumination is so enduring and why people are unable to stop ruminating in spite
of the fact that such thoughts rarely yield answers to their distress. In order to address this attention-
holding quality of rumination, it is necessary to analyse the construct and break it down to its
constitution parts. Through this analysis, the role of attention control can be brought to light and in
turn, the role of mindfulness can be addressed.
1.05.2 Rumination & Memory Recall. Caldwell and Nolen-Hoeksema (1999) investigated how dysphoric and nondysphoric students differ in their memory retrieval when asked to engage in rumination or distraction tasks. Students who engaged in rumination recalled more negatively biased autobiographical memories when asked for a general recollection of their past. They reported that negative events happened more frequently in their lives compared to positive events. This suggests that rumination may have an effect on how people recall. One criticism of this study is that in one of their experiments, participants engaged in a rumination process through talking out loud. It is questionable as to whether this method reflects the natural occurrences of an individual when they are actually ruminating. As most internally processed rumination are commonly less coherent, organized, or dependent on verbal expression so much.

The issue of distraction is essentially a matter of attention diverting from being self-focus analysis to something else. A question that arises from the effects of distraction as a coping mechanism therefore, is whether it is a matter of reducing in analytic thinking or reductions in self-focus. Watkins and Teasdale (2001) addressed this question in their study in which 36 people were given questions about their mood, depression levels, self-focus, analytical thinking, and autobiographical memory. Results of this study found that focus of attention significantly affected despondent mood. In addition, reduction in self-focus attention had the effect of reducing over-general memory.

The findings of these studies indicate that rumination, especially when accompanied by depression, has a significant effect on memory recollection. Depression-driven self-focused attention somehow affects the cognitive processes that make negative information more accessible. Given that these memories are made accessible by negative mood, it goes to an understanding with regards to where the negative content of rumination comes from. The question is, how does this happen. In order to address this issue, it is necessary to look into the process of rumination itself.

1.05.3 Rumination as a Process - Differential Activation Hypothesis. One of the landmark models in the research of rumination and its mechanism is the Differential Activation Hypothesis (DAH) proposed by Teasdale (1983). Unlike Nolen-Hoeksema’s approach that treats rumination as a static construct that operates when an individual engages in self-focused thoughts during episodes of depressive moods, Teasdale’s position treats rumination as an outcome rather than a cognitive strategy.
Teasdale’s theory is concerned with understanding the onset and persistence of depression. Teasdale first looked into the context-specific encoding and retrieval of state-dependent learning. Information that was learnt was more likely to be retrieved when the context in which the information was learnt was replicated. What was extrapolated from this was that the memory, seen as a network of associations, was linked to the emotions or mood that such memory represented. The strength of this linkage affects how likely the presence of one activates the other. The presence of a particular mood elicits specific memories. The implication of this finding was that learned concepts created during a person’s depressed state (such as ‘worthless’, ‘failure’, etc) are activated whenever the depressed mood is again present. Indeed, Teasdale (1988) later postulated that when these negative thoughts are activated by depressed mood, they are often associated with previous depressing experiences. Furthermore, he listed four characteristics of such negative thoughts:

1. Negatively biased thinking is characteristic of most depressions, even those with a strong presumed biological component to their aetiology.

2. The content of negative thinking in depressed subjects can be quite widespread, rather than localised on the focus of specific idiosyncratic schemas.

3. Negative thinking reduces as depression remits, even if the treatment for depression, such as tricyclic antidepressant medication, does not specifically target the thinking.

4. However, most importantly, negative interpretations of experience may still play an important role in maintaining depression, so that treatments that target these, such as cognitive therapy (Beck et al., 1979), are potentially valuable in treating patients in whom the vicious cycle that has been outlined plays an important part in the maintenance of their depression.

Although the thoughts of vulnerable individuals may be within parameters of normality when not experiencing depressive mood, the differences in dysfunctional rumination level between recovered depressed subjects and controls will likely emerge when such people are subjected to some form of stimulation that triggers a mild depressive mood state (Lau, Segal, & Williams, 2004). This ‘cognitive reactivity’ as termed by Teasdale, (1988) gave rise to the idea that negative cognition can, to a certain degree, be both cause and effect of depression.

There is much evidence supporting the cognitive reactivity of DAH. Early studies such as Teasdale and Dent (1987) looked at the two parts of the rumination cycle. The results showed that when comparing never depressed (ND) people with formerly depressed (FD) ones, those within the
FD group had higher levels of depression as an enduring characteristic; a higher level of neuroticism; perceived their personality with greater levels of negativity; and lower levels of activation when it comes to positive aspects of the self-schema. In addition, when a depressed mood was induced, FD patients had better recall of self-referred, generalized negative words, indicating that there was a greater tendency for FD people to activate negative self-schema. People who have this profile are more vulnerable to becoming seriously depressed when the depressive mood is triggered. Teasdale and Dent provided evidence that negative feelings are able to trigger negative cognition processes that kick starts the rumination cycle.

Teasdale (1988) investigated whether the effect of depressive rumination on an individual’s depression remains mild and temporary, or whether it develops into severe and persistent depressive disorder. He found that the prognosis of depression can be predicted by whether a mutually supporting cycle of rumination involving depressed mood and negative cognition can become established during the onset. The likelihood of this happening is in turn dependent by a complex interaction between environmental stressors, availability of social support, biological state, as well as the type of cognitive processes and constructs that are elicited when the depressed state is active. The form of cognitive processes that are employed during an individual’s depressed times are found to function as the pattern of thought for the person in their baseline state as well as the processes most likely to be triggered by depressive mood. So people who are high in neuroticism and have generalized, global negative views of themselves are more likely to experience severe and prolonged depression should acute depression be triggered by depressive feelings. This constituted a “vulnerability to severe and persistent depression that is powerfully related to differences in patterns of thinking that are activated in the depressed state” (Teasdale, 1988). Teasdale reasoned that interpreting experience through a lens of negativity can contribute and enhance depressive symptoms. In addition, the interpretation themselves are dependent on the way in which memory of experiences are represented when they are elicited by depressed mood. Therefore rather than having a set of depressive symptoms dictating the quality of experiences for individuals, the interpretation of the experiences themselves as well as the way in which those experiences are remembered change the depressive symptoms. The quality of a person’s experiences, be it directed externally through sensory input or internally in the form of recollection and thought, can both influence the course of the development of depression in a person. The consequences of this are that depressive thoughts trigger more sad mood and in turn more negative thoughts. This association is the bond that holds the depressed mood and negative thoughts together creating a mutually supportive cycle that Teasdale referred to as rumination. Papageorgiou and Wells (2003) also described rumination
as “cyclic negative thinking” in which depressed mood gives rise to negative thoughts that in turn deepen the negative emotions experienced (see Figure 4).

![Diagram of Depressive Mood and Negative Cognition](image)

Figure 4. Process of Rumination according to the DAH

### 1.05.4 Refinement of Negative Cognition

Nolen-Hoeksema (1991) defined rumination as “behaviour and thoughts that focuses an individual’s attention on their depressive symptoms and on the implication of these symptoms”. While rumination has been described as a negative process. Rather than an objective analysis of a situation and the symptoms the individual is experiencing, their reasoning, conclusions as well as the implications of these conclusions are predisposed to a negative outcome. However, theoretically, even if rumination is elicited by depressive mood, there is no reason why the outcome on simple reflection of the matter cannot be positive (or at least objective). If the rumination process was more positive it could potentially alleviate the depressive mood. It is theoretically possible to engage in a positive form of rumination in which positive ideas and prospects regarding their situations are considered. This leads to the question whether it is inevitable that depressive mood must lead to negative cognition?

There are some indications that an additional variable within this process separates reflective pondering that has an adaptive recovery effect, and depressive rumination that can be detrimental to mental health. This variable (that is also present among all depressed patients) is a dysfunctional attitude (DA) that is in operation during rumination. A more comprehensive explanation of DA will be discussed in the next section, however the general principle behind DA is the ‘tendency’ of making negative interpretations of events that leads to specific negative thoughts. Fresco, Alloy and Reilly-Harrington (2006) found that negative thought content was intricately connected with DAs in depressed adults. A correlation between all three variables of rumination, DA and depression was
found by Ciesla and Roberts (2007). Due to the fact that DA seems to be such an important part of rumination, it will be discussed in detail below.

The Interacting Cognitive Subsystem

In a further development of the DAH Teasdale and Barnard (1993) proposed the Interacting Cognitive Subsystem (ICS). The ICS is a unique approach to the issue regarding the relationship between depressive mood and DA. Rather than being a simple process of depressive moods activating negative constructs or making them more accessible, the ICS postulates that “negative depressive thinking reflects a change, with depression, in more generic representations that encode the interrelationships between constructs, or patterns of constructs” (Teasdale, 1995). Essentially, the ICS model suggests that the mind operates with a schematic model of the relationship between constructs that makes up our world. Every experience we have has its own generic features that in turn can be related to patterns of activation across a number of individual constructs. When a person becomes depressed, changes occur in the schematic mental models used to interpret experience, most significant are those that are concerned with their relationship with the world. In addition, the mental models that become salient when one is depressed are those that are more dependent of social worth, approval and personal success (Teasdale, 1996). This theory is supported by research projects including a study that compared depressed and nondepressed people in their sentence completion ability using functional or dysfunctional words. It was found that depressed people employ a model in which achievement is closely related to worth and approval. Therefore, criticisms or failures are seen as 'catastrophic' in terms of general personal inadequacy. This was in stark contrast to those who were not depressed for whom approval and achievement were less strongly related to self-worth. In theory, depression can be addressed by engaging in acts that can either garner approval from others or increase the chance of their success. However some have argued that the thoughts that are directed towards the achievement of success may reinforce rumination (Teasdale & Barnard, 1993). This is due to the fact that the efforts that are put in to the analysis of the situation as well as formulation of plans to achieve success often involve extended thoughts regarding irremediable personal inadequacies and deficiencies. Therefore, not only are these thoughts unable to achieve the goal of finding ways to gain approval or achieve success, but also it reinforces the discrepancies between current situations and the desired self-states. This discrepancy in turn brings about greater need to think of ways to overcome their shortcomings which regards more rumination. Hence, the process ultimately supports rather than reduces depression.
Miranda and Persons’ position (1988) suggested that negative thought content may lie dormant or inactive unless activated by another process such as a general life stressor that triggers a depressive mood. In support, Miranda and Person conducted a study that provided evidence that the level of DA is actually mood-state dependent. According to Gemar, Segal, Sagrati, and Kennedy (2001), compared to those who have never been depressed, those who have experienced depression would experience a greater level of DA after a depressive mood has been induced. Studies have supported this and demonstrated that there is a correlation between DA and induced sad mood among FD patients but not for ND people. After inducing negative moods, various studies (Miranda, & Persons, 1988; Miranda, Gross, Persons & Hahn, 1998) discovered that FD people reported significantly higher level of DAs and depressive mood than ND individuals. As they induced increasingly higher levels of depressive mood DA showed a corresponding increase. However, similarly to previous concerns regarding general negative cognition, it could be argued that even if there was a link between depressive mood and DA, the fact that the depressive moods in these studies were artificially induced might have affected the results. To address this, Lewinsohn et al. (1999) looked into the connection between naturally occurring depressed mood and DA levels among either FD adolescent and an ND group. It was found that there was a significantly higher correlation between depressive mood and DA level for those who had a history of depression than those who did not. These results support the theoretical model behind DAH in which negative constructs and processes are associated with increased risk for depression. However, they are only activated and detectable when depressed mood are introduced into the cognitive system of the individual.

![Figure 5. Process of Rumination according to the ICS](image)

It should be noted however, that evidence to the contrary has also been found by other researchers. For example, a similar study by Dykman (1997) did not demonstrate any correlation
between depressive mood and DA. However, this lack of result may be due to methodological issues.

While the DAH considers negative cognition and depressed mood as a mutually reinforcing cycle of rumination, the ICS further introduces the idea concept of DA in the process. This variable of rumination holds significant importance to the overall function of rumination, but also answers the question previously posed regarding how self-focused attention somehow affects the cognitive processes that make negative information more accessible. In order to understand this relationship, it is be necessary to explore the concept of DA in detail.

1.05.5 Dysfunctional Attitude. High levels of negative thoughts and DAs are associated with the severity of depression (Dent & Teasdale, 1988) and the likelihood of onset of depression. Alloy et al. (2006) found that individuals who had never suffered from depression yet still possess high levels of DA were more likely to experience the onset of depression than a control group. Elevated DA has been found to predict poorer response to treatment (Peselow, Robin, Block, Barouche, & Fieve, 1990) as well as higher relapse rate (Thase et al., 1992).

Early cognitive models of depression emphasized cognitive vulnerability as a predisposition of individuals to depression. DA is seen to play both a causal and maintenance role in depression (Beck, 1967). According to Beck’s theory of depression, negative self-schemata revolving around themes of inadequacy, failure, loss and worthlessness provide cognitive vulnerability to depressive symptoms. These schemata manifest as self-worth contingencies such as “if I fail partly, it is as bad as being a complete failure.” It is believed that when individuals experience negative life events, they display these DAs via inference and developing a negatively biased analysis of the self, world and future. In addition, self-schemas normally lie dormant within the mind of the individual until activated by life events. Another theory of depression, the Hopelessness Theory (Abramson, Metalsky, & Alloy, 1989), postulates that depressed people attribute negative life events to stable and global causes. They infer negative consequences will result from negative events and that the happening of such negative events implies that they are fundamentally flawed or worthless. In this theory, those that suffers from depression are likely to make negative inferences regarding the causes, consequences and self-implications of any stressful event, thereby increasing their chances of developing a sense of hopelessness and in turn, depression.

Although the two theories have their differences, both overlap in that they understand depression to be a result of cognitive vulnerability of processing or appraisal of life events. It is theorized that the presence of characteristic DA increases vulnerability to the onset and
maintenance of depression. For example, Beck (1967) believes that individuals that hold an attitude related to the need to be perfect and gain other’s approval increases the risk of depression. Theorists such as Teasdale (1988) claims that depressed individuals have a common characteristic that of inherent bias in virtually all aspects of information processing including perception, attention and memory. Williams, Mathews and McLeod (1996) showed that compared to non-depressed people, depressed individuals attend to and recall more negative stimuli than positive ones. As noted previously, it can be understood therefore that DA is an individual’s tendency to make negative, self-related associations that leads to a depressive mood.

However, there has been a long-standing debate as to whether DA is a symptom of depression or whether it is just a mental vulnerability that predisposes people to having the disorder. This debate is fuelled by the fact that findings regarding the relationship between negative cognition and depression have yielded mixed results (Lara, Klein & Kash, 2000). While previous findings show that a DA certainly makes one more vulnerable to the onset of depression, it has also been shown that a diagnosis of depression is characterized as having a naturally higher level of DA (Zimmerman, Coryell, Corethal, & Wilson, 1986), so it is uncertain as whether DA is the cause or merely the symptom of depression. In order to address this theoretical issue, studies using remission designs have been conducted. The argument has been that if a DA is not a symptom of depression, meaning its presence is not dependent on episodes of depression, then it should be stable beyond the episodes. A review of these studies found only limited evidence that negative cognition remains stable (Just, Abramson & Alloy, 2001). For example, early studies such as those of Silverman, Silverman and Eardley (1984) as well as Simons, Garfield and Murphy (1984) failed to show clear differences in DA score between recovered depressed subjects (who are assumed to have increased risk of depression) and controlled.

The inconsistencies in the research are explained by the DAH. According to the DAH DA varies as a function of depressed mood. When a person is not depressed DA is not triggered by negative mood, however increased DA predisposes an individual to depressive disorders. In analysing each component of rumination, the question of how DAH accounts for the attention holding property of rumination as well as the method in which mindfulness plays within this process is brought to the forefront. In order to understand the way in which mindfulness could operate in rumination, the significance of DAH in terms of its therapeutic application should be outlined.
1.05.6 Implications of DAH on Conventional Treatment

Outcomes. The DAH can help explain why treating depression using anti-depressants is often unsuccessful in preventing relapse. Anti-depressants leads to biochemical changes that affect the mood of the individual by influencing neurotransmitters that bridges communication between brain cells. This merely has the effect of removing the negative affect component of the ruminative process. While this treats the ‘trigger’ of depression rumination, DA remains unchanged. That is, while anti-depressant removes the trigger of rumination, the other components of the rumination process, including DA and its themes such as inadequacy, failure, loss and worthlessness are all still intact. The negative thought contents that are generated through the DA are, as Miranda and Persons (1988) remarked, lying dormant within the mind of the individual. Should the trigger of sad mood and emotions be reintroduced into the cognitive system, the DA-influenced thought content that is associated to the sad mood will be once again be prompted to surface to the conscious mind of the individual and thus the process of rumination restarts.

CBT aims to decrease the level of DA, teaching a specific skill set to depressed patients that allow them to notice, identify and more importantly, respond to emotional triggers (Linehan, 1993). In addition, strong emphasis is placed within CBT on cognitive restructuring. This is the process in which the therapist work together with the patient in order to change certain thinking patterns, themes as well as and behavioural activations. It is perhaps this additional effort of changing the ways in which one thinks that, at least within these studies, CBT has a relatively higher success in alleviating the DA of depressed patients.

Theoretically DA is not completely separated from depression nor is it a subcomponent of depression. Rather, the presence of depression leads to DA while being supported by it in turn. Hence rather than a simple either-or question in regard to the nature of the relationship between depressive mood and DA, the question is how the two influence each other. The clinical implication of the relationship as outlined by the DAH and ICS is that the disruption of rumination is the key to recovery, taking the fuel away from the cause of depression. Indeed, the process of cognitive therapy aims to modify negative cognition with more adaptive ones. Teaching distraction techniques to patients also help to interfere with the rumination process. Both cases allow for the breaking of the cycle and taking the patient down the path of recovery.

1.05.7 Unifying the Differential Activation Hypothesis and Response Style Theory. In 2007 Ciesla and Roberts combined the DAH and the RST into a single model. Reiterating the position of Nolen-Hoeksema, Ciesla and Roberts (2007) stated
that rumination was not the content of cognition but a process - it was about ‘how’ one thinks. Perhaps more importantly, although studies to this point were based in the DAH and the theory of rumination operating as a cycle with depressive mood and negative cognition being mutually supporting, no study thus far had found direct evidence to support this. Evidence has, at best, found that they are correlated with each other, but it is only theorized that they support each other in this fashion. Although the theories developed is sound, the mutual-causation relationship is still not empirically established. In a series of three studies, Ciesla and Roberts found that within a sample of people displaying high levels of negative cognition, rumination was more likely to be the preferred response style. The study also found that following a sad mood induction, the interaction between rumination (as a response style) and negative cognition predicted change in depressed mood. While each variable has its own maladaptive effect on depressed mood this study showed that there was a significant interactive effect between the two which results in their amplification. It is noted here that if one has high self-esteem, ruminative tendency not affect their functional capacity. It is the position of Ciesla and Roberts (2007) that DA and rumination must operate together in order for depressive disorders to take place. The lack of one element may still lead to a relatively adaptive lifestyle. They explain this dual process in the following:

“...the presence of either one of these vulnerabilities on its own is a risk factor for dysphoric affect, although this risk may be amplified under circumstances in which the other vulnerability is elicited. For example, a highly ruminative person who has high self-esteem may function well in general. However, the moderation model suggests that this individual may become depressed in the face of personally invalidating experiences such as a job loss, academic failure, or romantic rejection that threatens self-esteem. Similarly, a relatively nonreflective individual who rarely engages in rumination but who has high levels of DAs may function well in general. However, this individual may be at risk for depression under circumstances in which active or distractive coping is less effective, such as following the death of a loved one or the diagnosis of a serious disease.”

(Ciesla & Roberts, 2007)

This study gives support to the additional vulnerability one faces when rumination and negative cognition interact with each other and in turn amplifies their effects. This position is reflected in Robinson and Alloy (1998) in which they showed that DA provides negative thoughts and inferences but these will be more likely to be depressogenic if the person engages in rumination. Rumination itself is therefore a nonspecific vulnerability that can fuel various types of
negative mental content. As such, if a person is shy and ruminates on it, it can lead to anxiety, ruminating on their thrill in gambling can lead to gambling addiction, etc.

Although the interaction between depressive mood, DA and rumination may lead to depression, some have suggested that in order for our understanding of rumination to be more holistic, the content of rumination, or the negative life events that one experiences, needs to be included. The inclusion of this variable was the foundation for the formulation of the Cognitive Catalysts Model. In a recent study, Ciesla, Felton and Roberts (2012) built on their previous work by expanding on the interactive effect of rumination with and negative affectivity by adding negative events to the model. In their study, they looked at different forms of rumination including reflective pondering and the negative mood-driven brooding and how they interacted with life events. Their study yielded a number of important findings. Firstly, the effect of negative life events had most effect in individuals who were either low in self-esteem and high in brooding tendency, or displayed greater levels of negative attribution style while being high in reflective pondering. This finding was significant as it implies that dysphoric people, who normally have both low self-esteem and DA, are more vulnerable to the effects of rumination as it increases their sensitivity to actual life events. The results supported previous findings that the interaction between negative feelings, rumination and actual negative life events is a robust effect, and could be replicated in laboratory environment (Ciesla & Roberts, 2007), has long term detrimental effects (Robinson & Alloy, 2003) and has a significant effect on the prognosis of an individual’s depression treatment (Ciesla & Roberts, 2002). Secondly both reflective pondering and brooding were found to have an interactive effect with stress and negative contents. However unexpectedly, reflective pondering was not correlated with the level of depression, although it did result in higher levels of depression over time due to its interaction with stress and negative contents. A second interesting finding of this study was that both reflective pondering and brooding were found to have significant interactive effects with life stress and negative contents. What was unexpected however, was that reflective pondering and not just brooding, was predictive of increase level of depression over a six week period. Although reflective pondering did not correlation with depression, it did show an interaction with stress and DA. One possible reason as to why reflective pondering did not have an effect on depression, is because those who practice reflective pondering lacked negative life events to dwell on, meaning that their thoughts will not have anything to feed into rumination. This study resulted in the development of what the authors call, the cognitive catalyst model of depression. This model looked not only at the fact that depression mood, rumination and DA interacted to predict depression prognosis, but also that there needs to be some kind of content (negative life event) for one to ruminate on in order for such effect to take place.
1.06 The role of Attention Control Capacity and Emotions in the rumination process

The present research extends the research summarised above by suggesting that a person’s capacity for attentional control is an important component of the rumination process. As will be discussed further in later sections, emotions and an individual’s capacity to control their attention are intricately linked and therefore the role of attention control on rumination is a logical next step to the current research.

Negative emotions are one of the most basic symptoms of depression. As outlined previously, sadness and depressive moods have been intricately linked to rumination, either as the cause or the outcome of the process. It is therefore important to briefly discuss some of the basic symptoms negative emotions have on an individual before elaborating on its connection with their attention control capacity.

1.06.1 Depression & Emotions. Perhaps the most important aspect of emotions within a depressed individual is the fact that they have a symptomatic higher level of emotion reactivity when exposed to emotionally charged stimuli. Since the presence of emotions may affect an individual’s attention control ability (as discussed below), it is therefore logical to believe that higher levels of emotions can lead to a lowered level of attention control.

One of the key features of depression is the day-to-day experience of sad mood. Certain moods predispose the rise of related forms of emotion (Rosenberg, 1998), that investigates the how depression influences emotional functioning. Early studies have produced evidence indicating that depression of various forms may have predisposed people to have depressive emotional reactions when stimuli that are negatively emotionally charged are presented (Golin, Hartman, Klatt, Munz, & Wolfgang, 1977). The very fact that one is depressed means that their ability to regulate their own emotional reaction to incoming stimuli has been mildly compromised. In other words, a minor, negativity-oriented form of emotional dysregulation may be happening within the inner workings of a depressed patient’s mind.

1.06.2 Emotion and Attention. A person’s emotional reactions are of importance to understanding the rumination process. An issue arises is why rumination persists and
continues in spite of the sadness it brings? Although we can understand that a negative thought can lead to a negative feeling and in turn lead to another negative thought, why is it that depressed people often find themselves unable to disengage from process? Given the heightened emotional reactivity of an individual when they are depressed, the relationship between emotions and attention is the critical contribution of this study. One possibility of why ruminator are unable to disengage their thinking process is because this connection between mood and attention has caused the individual’s capacity to control their attention to be impeded.

Emotional reactions are believed to be the key signal determining whether a piece of information is important and deserving priority for attention allocation (Compton, 2003). Moray (1959) observed that the mentioning of a person’s name will often command more attention even in the midst of multiple background distractions and this was understood as the early evidence of emotion’s effect on attention. The name-stimulus is a self-relevant construct that demands a significant level of emotional arousal (Compton, 2003).

There are two primary lines of research that have produced evidence for the connection between emotion and attention, one using neuroimaging while the other employs behavioural science. Neuroimaging technology has given us some of the most convincing evidence of the connection between emotions and attention. It has been found that the two prefrontal regions, the orbitofrontal cortex and the anterior cingulated cortex are activated when performing tasks that demand our attention or emotional evaluation. Other structures such as the lateral prefrontal cortex amygdale, thalamus, etc. are intricately and reciprocally linked to both these regions, and each also perform attention and emotionally-related functions (Vuilleumier, Armony & Dolan, 2003). Other studies show that the visual association cortex (VAC) show a greater level of activation when presented with images of emotionally positive or negative nature compared to emotionally neutral images (Lane, Chua & Dolan 1999). These findings indicate that the regions of the brain that operate with emotion and attention have a reciprocal relationship with each other and are often activated together. In light of this we can understand how the cognitive functioning of mind often points towards the phenomena of attention being drawn towards that is emotionally simulating.

In terms of behavioural sciences, modern-day research has established two related findings that support this connection of emotion and attention. Firstly, emotionally salient stimuli can affect the allocation of attentions. There have been a number of studies, including that of Fenske and Eastwood (2003), that show emotional stimuli such as angry faces attract and retain attention to a greater degree than neutral ones. Secondly, selective attention can be altered by affective states. This means that depending on the emotional state that one is in, the kind of information that is
deemed to be important can be different. For example, Mathews and Macleod (1994) found evidence to support the idea that anxious and depressed individuals selectively attend to negative information while Bradley (1998) found evidence to show that people with anxiety showed selective attention towards threatening faces.

Most studies employ a form of emotionally arousing visual stimuli and various forms of cognitive tasks, including image selection, complex information processing, amongst others. Most popular among these is the probe dot task (MacLeod, Mathews & Tata, 1986) and the Stroop task (Stroop, 1935). In the probe dot task, two word stimuli are presented in different location on a screen. After the display is terminated, a neutral probe appears in the former location of one of the words. Participant’s responses to the probe are timed and used to infer the allocation of attention, and it is believed that faster responses will indicate a greater level of attention paid to it as opposed to slower ones. Early studies show that a person’s ability to shift attention towards the neutral probe is indeed slower if one of the word-stimuli is emotionally charged (Psoner, Snyder & Davidson, 1980). This indicates that attention stays with the emotion longer when compared to neutral stimuli. The Stroop task, on the other hand, presents a single stimulus with two dimensions (word meaning and ink colour); attention allocation bias is deduced through the lower speed of deciphering the colour of depressive modal words rather than neutral words. While it is natural for one to have a generally lowered speed in colour identification compared to the identifying of the word, when controlled for this difference, emotionally charged words have been shown to be related to a slower identification time of the colour compared to emotionally neutral words. This indicates that the emotions aroused from the word holds attention for a split second longer than words that have little emotional response.

1.07 Attention Control

Attention control (AC), the ability to direct an individual’s attention, comes in two forms that are considered related but still distinguishable processes (Posner, Walker, Friedrich & Rafal, 1984). Attention focusing is the process of holding attention to a particular content and attention shifting is the ability to shift attention towards another object, idea or sensory stimuli. In both focusing and shifting of attention, there can also be two forms in which they are executed, external controlled attention and internal controlled attention (Gross & Thompson, 2007). External controlled attention can be understood as the directing of attention to various sensory inputs, such as visual or auditory stimuli. Internal controlled attention, on the other hand, is the directing of attention towards thought content, memories or imagination. High levels of internal controlled attention seem to be related to the ability to inhibit worrisome thoughts and preventing high anxiety.
(Johnson, 2009). Studies support this and have found that certain groups of people exhibit a
deficient ability to direct attention away from emotional thought content and imagery, including
those who have elevated trait anxiety, neuroticism, depressive rumination, and patients of clinical
anxiety (Davis & Nolen-Hoeksema, 2000; Robinson, Wilkowski, Kirkeby & Meier, 2006; Sarason,
1986; Sibrava & Borkovec, 2006; Watkins & Mason, 2002).

Internal controlled attention, measured by an individual’s attention switching or attention
inhibiting ability, may be linked to emotion regulation ability. The relationship between rumination,
emotionally stimulating situations and AC is an interesting one. According to a finding from
Wilkinson and Goodyer (2006), there was no difference in attention switching between the
depressed and the controlled groups. However, in this particular experiment, the Test for Every day
Attention for Children (TEA-CH) the task was performed by the participants was emotionally
neutral. As such, it is understandable that this may not have triggered the ruminative cycle, which is
often triggered by depressive mood. Indeed, it was speculated by Wilkinson and Goodyer (2006)
that the outcome may have been different if ruminators were assigned an emotionally arousing task.

Perhaps unsurprisingly, attentional biases are strongest when the stimuli have personal
importance (Mathews & Klug, 1993). An example of this would be Dalgleish (1995) where expert
bird watchers displayed selective attention towards bird-related words. It is understandable how the
closer to personal experience and importance stimuli has, the more attention it is given. While bird-
related information may be related as a topic of intellectual interest to a group, we can expect the
same phenomena if the stimuli has an emotional content. This relationship is demonstrated by
Schoth and Liossi (2010) where stimuli related to pain was given more attention than neutral stimuli
in a subject group that is suffering from to chronic headache. Thus, the phenomena can be
understood as preoccupation in certain forms of concerns, such as bird watchers with bird-related
information or self-value with those suffering from depression. Such predisposes one to certain
forms of attentional biases. In terms of rumination-related studies, using the Implicit Associate Test
(IAT; Greenwald, McGhee, & Schwartz, 1998), a study by Gemar, Segal, Sagrati, & Kennedy
(2001) demonstrated that after a depressive mood induction, FD people exhibit greater level of
negative evaluative bias regarding self-referencing information compared to ND. Perhaps more
importantly was that the degree of this attention bias is similar to those who are currently depressed.
This implies that the level of DA that is lying dormant just underneath conscious level of a person
who was previously depression may be just as potent as of one who is experiencing depression and
that it only requires a small amount of sadness for it to be brought to the surface.
1.07.1 Attention Control & Rumination. There has been a history of research into the relationship AC with rumination. For example, McFarland and Buehler (1998) conducted a series of five studies that looked at the effects of mood induction on memory retrieval. The study started out with the assumption that those who engage in self-focused attention to their emotional state are more likely to have both mood-congruent recall and mood-incongruent recall. Specifically, which type of recall would be employ was dependent on the manner in which people focus on their moods. Their study found that when asked to focus on their depressive moods, dysphoric participants were less likely to use positive memories to overcome their negative moods compared to those who distracted from self-focus. This study gives grounds to the idea that the mood in which one focuses on directly affect the level of attention given to the type of memories that they have access to. Others such as Joormann and Seimer (2004) found that there was a measurable time difference between dysphoric and nondysphoric people in terms of their recall time for positive autobiographical memories during rumination as a means to cope with their depressive mood state. This study implies that there was some kind of attention inhibition in terms of positive memories retrieval. As noted previously, a study by Lyubomirsky, Caldwell and Nolen-Hoeksema (1999) found that ruminator has both a recall bias to their negative memories as well as a perception bias to the frequency of negative events in their lives.

Given the relationship between emotions and attention, this connection between attention control and memory retrieval, is also supported by years of research regarding the association between mood and memory. Whether it is explicit memory recall (Derry & Kuiper, 1981), memory load (Barge & Tota, 1988) and semantic priming (Segal, Gemar, Truchonm Guirguis, & Horowitz, 1995), evidence indicate emotions exert a significant influence on the operation of different memory-related cognitive processing. This phenomenon can either be mood-congruent (Teasdale, 1983) or mood-dependent (Eich, 1995). Mood-congruent memory is the biased encoding or retrieval of negative information. People encode or retrieve information based on an emotional state that matches the tone of the information itself. This concept is not unlike certain aspects of DA as the things that are recalled are biased towards negative contents. Mood-dependency on the other hand implies an enhanced likelihood of retrieving information that is encoded in similar mood-states. A person’s current emotional state increases the likelihood they will retrieve memories that were learnt during the previous occasion when one was in a similar mood state. The two forms of memory retrieval are important to cognitive processing, especially with regard to rumination as it influences ‘when’ something is recalled as well as ‘what’ is being recalled.
This is consistent with Teasdale’s argument that memories recalled are generally associated with the mood present at the time they were formed. The influence of depressed mood on the selective processing of negative information is believed to further the negative interpretations of external events by influencing the information that one is focusing on, as well as how such information is being categorized (Gotlib & MacLeod, 1997). These in turn further increase negative moods and thus accelerate the cognitive cycle. Depressive mood are known to have the effect of increasing the likelihood of one recalling selectively the sad memories from their lives (Bower, 1981; Clark & Teasdale, 1982; Teasdale & Fogarty, 1979); recall misconceived negative evaluations of otherwise neutral events (Natale & Hantas, 1982); beliefs that their actions within a social environment to be more negative than it is (Forgas, Bower, & Krantz, 1984); experiencing a generally lower level of life satisfaction (Schwarz & Clore, 1988); develop a more negative perception of other people (Forgas & Bower, 1987); as well as less likely to hold optimistic illusion of control (Alloy, Abramson, & Viscusi, 1981).

In 2000, Davis and Nolen-Hoeksema, addressed the question of the commonly observed cognitive inflexibility of ruminators. In this study rumination levels of 62 participants were measured as well as various cognitive performance tests such as the Wisconsin Card Sorting Test (WCST) that measures cognitive flexibility. It was found that those who employ rumination coping mechanisms committed significantly more perseverative errors as well as maintained sets significantly less often than nonruminators. In addition, ruminators were found to be significantly more inflexibilities than nonruminators even when controlling for general intelligence or depressed mood. This study postulated two possible explanations for this relationship. First, the tendency to ruminate during times of sadness may be due to an individual’s cognitive inflexibility and perseveration. Essentially, people who are unable to inhibit their perseverative tendencies while at the same time failing to maintain productive lines of reasoning may become trapped in dysfunctional perseveration on the sadness and events that occupy them. Another possible interpretation is that preoccupation with an individual’s sadness and conditions in their lives may sap their confidence in their judgments. This may result in continuing to ruminate and losing the ability to think flexibly. Whatever the connection is, the cognitive inflexibility as being an integral part of rumination is of special interest to this study and its importance will be discussed further in a later section.

Another issue that is of interest regarding rumination is how the self-directness of a person’s thought can affect the detrimental outcomes of rumination. As noted previously, rumination includes three key components and one of them is self-focused. The relationship between self-
directed attention and negative cognition was investigated by Ciesla and Roberts (2001). In their study, 32 patients who were receiving group psychoeducational treatment for depression were given a series of pre-treatment measure of depression levels, response style, DA, self-consciousness, self-esteem, etc. It was found that self-directed attention was not significantly correlated with a person’s negative cognition. However, there was an interaction effect between self-directed thought (rumination) and DA predicted change of severity regarding the depressive symptoms during the course of the treatment. Indeed, in spite of the fact that self-consciousness and rumination are both potentially destructive processes, the effects that they have on treatment outcome are moderated by the individual’s cognitive style. This confirms previous findings that only through the combination of DA and rumination that allows these attitudes have effect do the maladaptive effects of rumination come about. There were also a few interesting finds in this study. Firstly, low self-directed thought and low DAs was found to be related to lower levels of treatment responses. It is believed that due to the fact that the particular treatment employed in this study was CBT in nature and was focuses on changing these variables, it was targeting key features of these individuals’ depressive disorders. In addition those with high levels of self-directed attention combined with a positive cognitive style showed better treatment responses. This again points to the notion that self-directed attention is in itself not something that is detrimental to an individual’s depression prognosis. If one thinks of himself often but has a positive outlook in life, this ruminative process is actually beneficial to the transitory depressive feeling the one may be experiencing. Indeed, the capacity to monitor their own thoughts and feelings is an important skill set in CBT.

1.07 Conclusion

Depression is sustained and worsen due to the fact that some people ruminate when they experience an episode of depressive mood. This response style also predispose one to relapse even if they have been successfully treated by conventional treatment practices. Rumination is known to be composed of at least three different components, depressive mood, dysfunctional attitude, and negative life events. Through cognitive reactivity, these three components are held together in a mental cycle in which each reinforces each other and locks the individual inside a process known as rumination. It is also known that a person’s emotional state has an intricate effect on their AC capacity. It is therefore logical to believe that in some way, an individual’s AC capacity is somehow intimately linked to the rumination cycle.
CHAPTER 2

Mindfulness and Mindfulness-Based Interventions

2.0 Introduction

Mindfulness is a form of meditative technique that originated in Indian spiritual practices and has a history for thousands of years. In the past thirty years, there has been a surge of interest within western psychology and health science in adopting this new method into our modern secular intervention. Attention Control is one of the core aspects of mindfulness, both as a focus of practice, and as a part of this phenomenon. Its function within its native philosophical model; transition from eastern spiritual practice to western intervention technique; clinical results and benefits it has brought as well as the future of this field shall be explored in this chapter. Special focus would be looking at how it is related to emotional regulation and attention control.

2.01 Mindfulness and the Buddha’s Diagnosis of the Human Condition

Before looking into mindfulness within the modern, psychological paradigm, it is important to understand the context from which it was developed. Although there have been mindfulness practices throughout most of Asia before the rise of Buddhism (Sujato, 2006), it is how it functioned within Buddhism that is relevant to this study. To understand this issue, the specific model of the mind that is employed by early Buddhists, as well as the role in which mindfulness plays within this model needs to be explored.

Over two and a half thousand years ago, a man named Siddhattha Gotama from India sat under a bodhi tree and began a session of deep meditation. Through this meditation on reality and the nature of all living things, he found the final answer to the ultimate question of life itself. When he came out of his meditative state, he was no longer the Siddhattha who went in, for this new man has overcame his greed, aversion, and delusions of all things, found liberation and enlightenment, he emerged as the Buddha, the Awakened One.

For the next half a century, he preached and spread his teaching of his discovery to all who was willing listen. His message was a simple one, yet its meaning was, and still is vastly complex. His taught the simple lesson of Suffering and Impermanence. Elaborating on this discourse is the fundamental ‘structured’ lesson, the Four Noble Truths. Found in the very first sermon of the Buddha after his enlightenment, the Four Noble Truths consists of the following:
1. All existence (including all sentient life) is constituted by composite entities that are impermanent and subject to dissolution. Further, this impermanence and dissolution is part and parcel of a virtually endless process of birth, death, and rebirth. This process is called samsara, and dissatisfaction and suffering are intrinsic to it.

2. Desire is the primary driving force of samsara and the dissatisfying experiences that are embedded in it. Desire—above all the desire for self-preservation and self-existence—engenders mental and physical activities that lead to karmic retribution. The law of karma ensures that all deeds produce appropriate fruits that condition one’s present life, one’s future lives, and/or both.

3. Release from samsara and the desire that fuels it can be achieved. Buddhists have come to designate this state of release as nirvana.

4. The method for achieving nirvana is practicing the noble eightfold path.

(Reynolds & Carbine, 2000)

2.01.2 Five Aggregates (Skandhas). As Dukkha is explained as the core of Buddhist’s teaching, the following section shall explain this concept with regard to one of the oldest theory of the mind - the Five Skandhas. Also known as the Five Aggregates of Grasping, the Five Skandhas is a model in which explains the overall mental activity in its entirety and is also considered as the mental dynamics in which allows Dukkha to be persist in the world. The problem with the grasping of the five aggregates is that according to the Doctrine of Dependent Origination, these are all subjected to constant change. None of these are permanent or certain. As such, the ‘self’ notion from which the grasping of the five aggregates produced itself is impermanent. Any attempts to gain happiness by satisfying this self is in itself a doomed effort from the beginning. It is through this understanding that the Buddha realized the primary mechanism from which suffering arise is the illusion of the self-centered desire (Smith, 1991).

The Five Aggregates model is a more detailed account of Dukkha based on the excessive investment in sensory perception, the experience of aversive or addictive reactions to these perceptions, and the resultant cognitive and behavioural patterns that shape our interactions with the world (Kelly, 2008). The five Skandhas includes Rupa (Form), Vedanna (Sensation), Samjna (Perception), Samskara (Mental Formation) and Vijnana (Consciousness).

2.01.3 Mindfulness of the Eightfold Path. The Noble Eightfold Path was the Buddha’s answer to the condition of human suffering. It is a way of life on both a mental
and behavioural level in which one can be alleviated from suffering, so as to live a life free from miseries and calamities. This way of life is designed to be practiced simultaneously and not separated as this is a single path with eight aspects and not eight individual paths. Effectively, it is a guideline in which guides one towards Nirvana. The eight aspect of this path includes:

1. Right view
2. Right intention
3. Right speech
4. Right action
5. Right livelihood
6. Right effort
7. Right mindfulness
8. Right concentration

These eight can be categorized under three primary groups including Panna/Wisdom (1-2), Sila/Morality (3-5) and Samadhi/Mental Culture (6-8) (Dhammananda, 1993). Within Samadhi, the element of right mindfulness takes a fundamental role. According to Thanissaro (1996), the Buddha remarked that mindfulness practices can allow an individual’s training to go through three stages. These include the focusing in the present moment, noticing how the object changes and the factors related to the change, as well as having bare attention to the object, without clinging or grasping and with equanimity. It is therefore the final goal of mindfulness practice, from a Buddhist perspective, to achieve the relinquishment of a person’s grasping.

2.01.4 Satipatthana Sutta – Guide to Right Mindfulness.

The term ‘Mindfulness’ comes from the Pali word ‘Sati.’ There is no direction translation of this word in English as it is a form of active mental awareness. It involves connotations such as awareness, attention, as well as remembering. It is defined by Nyanaponika (1973) as being a mode of consciousness that emphasizes the presence of the mind. There are many aspects of mindfulness as well as many different levels one can attain. What is important to the present research is that it all revolves around the issue of mental concentration and how one can bring the mind to a single point of awareness (attentional control).

Teachings of mindfulness are based primarily on the Satipatthana Sutta of the Majjhima Nikaya (MN 10). This text documents the four foundations from which mindfulness practice can be built on. Not coincidently, these ‘pillars’ of mindfulness, including the body, feeling, consciousness and mental object, correspond to the aggregates of clinging. Meditation of these four aspects of
experience increases capacity to let go of an individual’s attachment and clinging. With regard to the five aggregates, mindfulness is, from the Buddhists’ perspective, a way to create a space between the aggregates themselves and the clinging to them. It allows one to see an "aggregate as an aggregate." The aggregate is not seen to have an independent existence, or a part of their own identity, but rather is something that is temporary subjected to rising and dissipating. In the process of one slowly become non-attached to the five aggregates, the concept of a ‘self’ begins to fade.

**Mindfulness of the Body.** The first foundation for which mindfulness is guided to be based on, in accordance to the Satipatthana Sutta, is the body. The first level talks about the material world. This corresponds to the aggregate of matter and has multiple meanings and application in accordance to the abhidharma tradition. Among these includes the first four of the sixteen stages of mindfulness of breathing, mindfulness and clear comprehension in the four postures, all physical activities, the thirty-one parts of the individual’s physical form, the four elements of fire, water, earth and wind, and lastly, the reflections on repulsiveness (Shaw, 2006). While a complete explanation of the depth of this level here is beyond the scope of this study, special attention for mindfulness of breathing as well as physical activity and form may be warranted. Mindfulness of breathing takes a central role in mindfulness meditation. As remarked by Nyanapoika, (1962),

“Mindfulness of breathing takes first place among the various subjects of meditation. To all Buddhas, Pacceka-Buddhas, and holy disciples it has been the basis of the attainment of the Goal, and of their well-being here and now.”

This approach is one of the primary methods in which one achieves tranquillity of the mind. This is because the breath is considered to stand on the threshold between voluntary and involuntary bodily function. By bringing the mind to the breath, be it just the sensation of air moving in and out of the nose, the expanding and contracting of the lungs, or even the movement of the entire body on each breath, it allows a person to distance themselves from disturbing impressions, mental torrents and other day-to-day hassles. This process allows the mind to be brought to peace with the breath. Mindfulness of the body comes in several levels. The first of which is the practitioner’s general postures. It is an awareness of exactly what the body is doing, be it standing, sitting, walking, etc. Meditation on this level provides an initial awareness of the impersonal nature of the body (Nyanapoika, 1962) which aids the letting go of the attachment to it.

**Mindfulness of Feeling.** The second foundation of mindfulness is that of the Vedenna – sensation/feeling. This aggregate comes in three primary forms, that of pleasant, unpleasant, or neutral. In addition, this aggregate is the precondition from which craving and attachment arises.
The importance of being mindful of one’s sensation is that by bringing it to the forefront of attention, one will become aware of the conditioned and temporary nature of the arising and fading of this feeling. It is here that through practice, one separates the feeling itself from their self-centred reference point and the feeling will be seen as just another feeling rather than ‘my feeling’. Hence, no engagement will be needed (Nyanapoika, 1962).

*Mindfulness of Consciousness.* Consciousness here refers to the state of mind that one is in rather than the content, or thought, that is being processed. The aggregate that correspond to this is both the third (perception) and the fourth (mental formation). Meditative training allows for a greater level of self-understanding as it is here where the ‘construction’ of our mental objects are taking place. The primary focus of awareness is the meditator’s continuous mood state and how it influences the thought pattern one develops (Shaw, 2006). It gives insight as to why one is thinking what they are thinking. It also an awareness of how past experience can be drawn into the present, making conditioned association and generating certain through directions (Nyanasamvara, 2004). In doing so, one slowly decenters themselves from the impact of the thought that demands immediate reaction. Through practice, it develops not just self-awareness, but also a form of self-honesty and sincerity which is important to future mental development. Perhaps the most important aspect of the mindfulness of consciousness is that which concerns with volition (Flickstein, 2007). The generator of karma, an individual’s volitional responses has a direct impact to their future experiences. Although it is impossible to avoid the generation of karma completely until one reaches enlightenment, the degree of karma as well as specifically what ‘type’ of karma being generated can indeed be influenced. Through mindfulness practice, one slowly distance themselves from the habitual engagement and slowly be able to see more possibilities of the kinds of responses available. In choosing what are considered to be wholesome responses, one generates wholesome karma from which could benefit their future.

*Mindfulness of Mental Objects.* The focus of the last meditative exercise is on mental objects. It is anything that the mind encounters in its barest component form. Although it should be noted here that the Buddhist-specific teachings take a more predominant role. This is because it is not any mental object that is supposed to be the focus of the practitioner’s mindfulness but rather specific ones that through practice, should completely replace the contents of the mind (Nyanapoika, 1962). The Buddha generated a list of such objects which one to meditate upon including the five hindrances, five aggregates, six sense-bases, seven factors of enlightenment, and the Four Noble Truths (Trungpa, 2001). Their details will not be elaborated here, but the importance of their role is that through holding these mental objects in meditation, they give the mind a wholesome direction
of development that will benefit the alleviation of suffering. It is here that mindfulness will be brought into connection with other teachings of the Buddha’s dharma.

2.01.5 Goal of Mindfulness Meditation. The ultimate goal of mindfulness meditation is the attainment of Samatha (also known as jhana). Samatha is a spiritual attainment resulting from prolonged mindfulness practice. It is characterized by complete concentration and silencing of the mind. In the words of Gunaratana (1980):

“The jhanas themselves are states of deep mental unification characterized by a total immersion of the mind in its object. They result from the centering of the mind upon a single object with such degree of attention that inner verbalization, the discursive function of the thought, is arrested and eventually silenced, brought to a stop.”

Within the Pali canon, there lists nine levels of this mental concentration that can be achieved. The first four are the results of meditation of form while the other five are through meditation of the formless. The Anguttara Nikaya (AN 9.36) lists the nine states being:

1. Delightful Sensations
2. Joy
3. Contentment
4. Utter peacefulness
5. Infinity of space
6. Infinity of consciousness
7. No-thingness
8. Neither perception nor non-perception
9. Cessation

It is through the attainment of Samatha that one is able to achieve the concentration necessary to develop other forms of spiritual attainments via other methods of meditation. It is important to know that the jhanas, while a remarkable achievement in themselves, are is not considered to be sufficient for true emancipation (Sarbacker, 2005). The path of a buddhist is slightly more complex and has other forms of meditative practice that is required to reach the ultimate goal. However, Samatha is an important prerequisite and a landmark step towards this goal.

2.01.6 Conclusion. Although mindfulness alone is not sufficient to achieve enlightenment, it is none the less a substantial portion of the path to Buddhahood. The practice of
meditation is intricately linked to the Buddha’s diagnosis of humanity’s suffering as well as the Buddhist’s model of the human mind. It is through mindfulness that a person’s attachments to the five aggregates are slowly released, bringing the possibility of liberation from suffering within the practitioner’s reach. Although these practices have been wide spread throughout Asia for over two millennia, it has only been introduced to the western world recently.

2.02 Mindfulness in Modern Psychology

After the turn of the century, there has been something of a decline in interest in traditional therapeutic methods such as cognitive behavioural therapy. As noted in previous chapters, CBT’s shortcoming in preventing depression relapses has prompted clinicians and researchers to search for innovative new approaches. It is in the climate of this search that mindfulness practices found its way into the spotlight of modern day psychology. One of the possible reasons regarding the timing, proposed by Siegal, Germer and Olendzki (2009), is that young people who were drawn to eastern spiritualism during the 60s and 70s are now senior clinical researchers and practitioners within the field of mental health. As beneficiaries of mindfulness practice, it is now that they have the courage to share their experiences with their clients.

Meditation in its various forms has had a long history in western psychology. The emergence of eastern meditation in the scene of western psychology studies going back at least back half a century such as those of Kretschmer (1953). Questions of its suitability as a therapeutic techniques has also been raised (Trungpa, 2004) but for quite some time, meditation has never entered mainstream psychology but remained as an alternative, almost fringe form of treatment. It wasn’t until Jon Kabat-Zinn’s development of the Mindfulness Based Stress Reduction (MBSR) in 1982, a manualized treatment program for managing of chronic pain, that mainstream attention was drawn to this particular form of treatment. Since then, research on the topic of Mindfulness has increased exponentially over the past three decades. Mindfulness as a treatment for psychological disorders have found substantial support and has steadily gathered momentum within the circles of researchers and practitioners of psychotherapy alike.

2.02.1 What is Mindfulness in the West? The understanding of mindfulness that is employed in the west bares close resemblance to its Buddhist roots. However as noted previously, there is no truly satisfactory translation for the word “Sati” in English. Partly because of translation issues, as well as how it is adapted to the use of the modern world, various researchers have defined mindfulness in a number of similar, yet slightly different ways. Different
understanding of mindfulness provides pieces of the puzzle of understanding this definition. Some definitions are shown as follow:

“In mindfulness, the meditator methodically faces the bare facts of his experience, seeing each event as thought occurring for the first time” (Goleman, 1988)

“Mindfulness in its totality has to do with the quality of awareness that a person brings to activities.” (Linehan, 1993)

“Mindfulness means paying attention in a particular way; On purpose, in the present moment, and nonjudgmentally to things as they are.” (Kabat-Zinn, 1994)

Mindfulness has to do with the quality of both awareness and participation that a person brings to everyday living. It is a way of living awake, with one’s eyes wide open. (Hayes, 2004)

“(Mindfulness is) awareness of present experience with acceptance” (Germer, 2005)

“Mindfulness means paying attention to things as they actually are in any given moment, however they are, rather than as we want them to be.” (William, Teasdale, Segal, Kabat-Zinn, 2007).

Through these various understanding of Sati, it is impossible to have a single translation that can accommodate all its qualities. However, certain aspects of mindfulness can be extrapolated from them and efforts have been made to find an operational definition of this idea (Bishop et al, 2006). From their perspective, mindfulness encompasses at least two components including the self-regulation of attention in a certain way and the second as having adapting a particular object of focus. Both of these components also include a number of aspects of qualities that are accepted as being part of what mindfulness means. The following is a list of qualities of mindfulness that are common to most of the known conceptualization.

**Intentional Attention.** One of the aspects of mindfulness that is almost universally accepted as its composition is that it has both awareness and attention as its core components. It is Brown and Ryan’s position (2003) that the two are subsumed under consciousness of which they define as follow:

Consciousness encompasses both awareness and attention. Awareness is the background “radar” of consciousness, continually monitoring the inner and outer environment. One may be aware of stimuli without them being at the center of attention. Attention is a process of focusing conscious awareness, providing heightened sensitivity to a limited range of experience (Westen,
In actuality, awareness and attention are intertwined, such that attention continually pulls “figures” out of the “ground” of awareness, holding them focally for varying lengths of time.

A key quality in this is that attention for mindfulness needs to be intentional. This intentional direction of attention is often contrasted with a state of being often described as mindlessness, unawareness, or automatic pilot. Kabat-Zinn (2002) described this automatic pilot state as “…functioning mechanically, without being fully aware of what we are doing or experiencing…put another way, only half awake.” It is the operation of a person’s routines without truly actually being aware of what is being done. The attention aspect of mindfulness permits one to becoming aware of what is happening both internally and externally. Be it the subtle emotional and thought processes of the inner world as well as the various sensory stimuli of environment. Perhaps most importantly, mindfulness affects not just our awareness, but it also provides a basis from which actions and choices are made. In this, intentional awareness allows us to becoming aware of the emotions that we are experiencing and aware of the choices we make (William, Teasdale, Segal, Kabat-Zinn, 2007).

Present-Centeredness. Another aspect of mindfulness is that the attention that is being directed needs to be held in the present moment. It is about what an individual’s sensory input is receiving right now, which are the particular input that is being attended to, how one is reacting to them (be it positive, negative or neutral), etc. It allows the mind to remain in the present moment for a prolonged period of time. In contrast, a person often finds themselves thinking about the past, predicting the future, fantasizing about other possibilities. This often leads to the process of elaboration and dramatization of the current situation and allowing an individual’s own emotional reaction to distort the their views of the state of affairs. However, rather than getting lost in the dramatization, elaboration and rumination process about what one is experiencing, the possible consequences and associations, etc. mindfulness allows the directing of the practitioner’s attention back to the phenomena that are being experienced in the here-and-now of the mind and body (Teasdale et al., 1994). An important part of the present-centeredness of mindfulness is it emphasizes on the ability to become aware of one’s own mind wondering away from the present moment. This awareness of their own mental content is one of the key components of mindfulness practice which allows the mind to decentre from torrents of the meditator’s internal mental reactivity. It is important to note here that thoughts and feelings are not suppressed in order to accomplish this, but rather they are seen as a distraction and attention gently invited back to the present (Teasdale et al, 2000).
Nonjudgmental & Acceptance. Being Nonjudgemental is a quality of mindfulness and is related to the idea of acceptance as well as ‘seeing things as they are’. It is effectively the willingness to see things as they are at this present moment while simply allowing them to be (William, Teasdale, Segal, Kabat-Zinn, 2007). It is impossible for one to observe something, external or internal to the mind, without also being fully accepting of that which is happening within the various states of mind. If one is to be mindful of their anger, then it is important that one is first able accept that one is indeed angry. This goes the same for all different states of the mind be it emotional or otherwise. It is impossible for one to be mindful and observe something objectively while at the same time rejecting its existence (Gunaratana, 2002). This state of mind is often in compared to a judgmental attitude of which the mind constantly evaluates the states of affairs and comparing them to some kind of standards, be it internally or externally generated. It should be noted that this process of judgment is often rationalized as being a way to better ourselves or the situation. However, the reality is that it generates feelings of inadequacies and craving that can never be satisfied. Having a Nonjudgment attitude is not simply accepting things in spite of their imperfection, but rather it is not having the standards of ‘good’ or ‘bad’ in the first place so that the objects of experience can be accepted as they are.

These three components; intentional attention, present-centeredness, and the Nonjudgment, are considered as being the three core components of the early definition of mindfulness in the modern world and are often reinforced and practiced in mindfulness-based treatments such as the MBSR (McCown, Reibel, & Micozzi, 2010). These three components are labelled here as being the first generation definition of mindfulness.

In spite of the simple and well-accepted status of the first generation definition of mindfulness, it is considered insufficient as an operational definition that can be employed for the psychological investigation of the mediating role and mechanisms of mindfulness. Neither is this definition adequate for the development of measuring instruments of such phenomenon (Bishop et al, 2006). It is due to these shortcomings that a second generation definition was developed. It is an attempt at standardizing a definition of mindfulness for modern-day operationalization on a more scientific and scholarly level. This definition conceptualizes mindfulness as a two-component construct including Self-Regulating Attention and Orientation to Experience which effectively separates the ‘act’ of mindfulness with the co-committing ‘attitude’ necessary for mindfulness to take place. Self-Regulating Attention consists of the intentional direction of experience as well as the present-centeredness found in the first two components of the first generation definition. The second, Orientation to Experience involve the attitudes that one needs to have when practicing
mindfulness in order for the directed attention to be defined as ‘mindful’. Kabat-Zinn (1990) listed seven attitudinal foundations for mindfulness practice, which are directly related to this second component listed as follow:

**Nonjudging.** Identical to the third component of the early definition.

**Acceptance.** Similar to the third component to the first generation definition, acceptance implies accepting things as they are without the desire for change. Kabat-Zinn’s rationale for this is that it protects one from becoming attached to various emotions known to the Buddhists as ‘hindrances’ including greed, lust, aversion, hatred and jealousy Kabat-Zinn (1990).

**Non-striving.** Mindfulness should not be performed in order to accomplish something. The very desire for that accomplishment conflicts with the attitude of Nonjudgment as it is only due to a judgment of imperfection of the present situation from which the desire for change arises. In addition, the desire for achieving something during practice mean that there is an internal torrent of desire that is exerting an influence on the mind that runs contrary to the state of being mindful Kabat-Zinn (1990). While it may seem paradoxical regarding to ‘why’ mindfulness is practiced in the first place, it is better to see change as a pleasant side effect of being mindful rather than the reason to do so. It is on this point that mindfulness differs from traditional metacognition. While metacognition if defined as process of monitor and control (Nelson, Stuart, Howard, & Crowley, 1999; Schraw & Moshman, 1995), these concepts imply a need for control and more importantly, a purpose for which this control is aimed to achieve. The non-striving aspect of mindfulness does not share these implications. The purpose of mindfulness is to simply be mindful and not to accomplish anything more. As such, the process of mindfulness is fundamentally different to that of metacognition and may probably be better compared to a process of observation and guidance.

**Beginner’s mind.** Beginner’s mind is an attitude of seeing everything as novel and new. Rather the having any presumptions and expectations of people, places, and things, having a beginner’s mind is considered to be important in having an openness to the experience necessary for mindfulness practices and it is this openness that changes the quality of each experience Kabat-Zinn (1990).

**Letting go.** Letting go is Kabat-Zinn’s way of expressing being mindfully non-attached to an individual’s experiences. Observation, rather than engagement, is the operative nature of this concept. Letting go allows an individual to be open and accepting to the changes of their mood and situation without a need to judge or react to such changes. The analogy that is used to illustrate this
is of one watching a movie. No matter what happens in the movie, one does not attempt to interact with the events within.

The other two attitudinal foundations listed by Kabat-Zinn (1990), trust and patience, are not directed related to the second generation operational definition of mindfulness, but rather more directed to a practitioner’s attitude towards the idea of mindfulness and the practice of mindfulness. In a way, these are the attitudes one needs in order be persistence in their practice. Trust is considered necessary for beginners to maintain diligence in practice. As mindfulness is unlike modern medicine that has fast effect, it can take some time before the benefits of mindfulness practice manifest themselves. As such, practitioners are advised to trust the evidence and science behind the practice, even if the lack of noticeable effect leaves them doubting the process. Similar to trust, patience is something that students should employ when facing the frustration due to the lack of progress that they are making in their practice. Although less irrelevant to the issue of mindfulness definition, it is none the less an important attitudes that students are advised to adopt in their early practices.

Some scholars in this field would consider that there are additional qualities in mindfulness that are just as important. Crane (2009) believes that the practice of mindfulness encompasses qualities such as of kindness and curiosity. Although one can make the argument that by having an accepting and Nonjudgmental attitude, the qualities of kindness and compassion will emerge automatically, it is Crane’s position that such attitude needs to be intentionally practiced. Curiosity could again be a product of being accepting and Nonjudgmental but it has none the less often appeared separately within the list of qualities that one should have when practicing mindfulness. Oddly however, this is also one of the qualities that has rarely been elaborated on, nor justified. Bishop et al (2006), when developing their operational definition of mindfulness, almost consistently put ‘curiously’ and ‘accepting’ side by side. From their perspective, and curious and accepting gives room so that all thoughts, feelings and sensations that arise during mindfulness practice are perceived as relevant, and therefore, subject to observation. It can be said therefore, that it is a form of motivated acceptance. There has been other concepts that have been introduced into what mindfulness imply such as Nonreactivity, self-awareness, among others (Shapiro & Swartz, 2000; Reibel et al., 2001) however, close examinations can be found that similar to kindness and curiosity, they can all be derived from, or a consequences of practicing the original three.

Mindfulness is a practice that has been inherited from the Buddhist tradition into modern day psychology. While there are still minor variation as to the conceptualization of what mindfulness is, some building blocks have been established and accepted. Specifically, three core
components including intentional attention, present-centeredness, and the Nonjudgment set the foundation from the variations of modern day approaches are built on. Although there are other qualities that other researchers advocate, these three are still universally accepted as being the most essential.

2.02.2 Trait and State Mindfulness. Although our understanding of mindfulness in the modern psychological context can have many levels, what may be of significant importance is that the modern approach often interprets the phenomena of mindfulness as a cognitive style in that there is a partial trait and state element to it (Sternberg, 2000). It is through this separation that much of the research in this area has treated the two separately while at the same time finding connections between the two. This division effectively separates the dispositional baseline level of mindfulness one experiences on a day to day basis with the level of mindfulness that one achieves through intentional practices such as meditation. The reason for the importance of this is that it is through the connection between the two, and the long-term benefits that arises from intentional practice that a research application of mindfulness becomes meaningful.

In theory, mindfulness practices such as meditation are intended to foster trait mindfulness - the day-to-day baseline level of being open, accepting, attentiveness and awareness of one’s experiences. As a trait, there are assumptions that mindfulness possesses certain qualities such as consistencies that spans across different situations. Over the years, a number of instruments have been developed to measure trait mindfulness including the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Cognitive and Affective Mindfulness Scale (CAMS; Feldman et al, 2007), Freiburg Mindfulness Inventory (FM; Buchheld, Grossman, & Walach, 2001), Five Facet Mindfulness Questionnaire (FFMQ; Baer et al, 2006) among others. State mindfulness on the other hand implies the intentional practicing of mindfulness at that moment. In this state, attention to present-moment experience is intentionally cultivated with an open, nonjudgmental orientation to experience (Bishop et al., 2004). An individual’s current experience is simply allowed current thoughts, feelings, and sensations to happen regarding current experience (Hayes et al., 1999). This often results in states of experiences similar to those found during meditation. The only instrument that has been developed in order to measure state mindfulness (specifically from sitting meditation) is the Toronto Mindfulness Scale (TMS; Bishop et al, 2004)

Segal et al. (2002) proposed that mindfulness is indicative of a certain level of psychological adjustment should manifest as an inverse relationship with the neuroticism. It is not difficult to see the reasoning behind such a view. People who first the profile of being neurotic often show higher
susceptibility to distress and less pruned to psychological well-being (Watson & Clark, 1984) that are known in mindful individuals (Brown et al., 2007). Such views were later validated with studies such as those of Baer et al (2006) and Brown and Ryan (2003) which yielded significant negative relationship between trait mindfulness and neuroticism. It was noted by Thompson and Waltz (2007) however, that it is uncertain how the nature of the relationship between the two. Specifically, while it is possible that mindfulness lowers neurotic tendency, it is similar likely that neuroticism interferes with mindfulness levels. Extraversion however, although often associated with positive affect, were found to have no relationship with trait mindfulness (Baer et al., 2006). Of interest is that the other of the five domains, conscientiousness and agreeableness, have yet to received attention in research projects regarding their relationship with mindfulness. Conscientiousness demonstrates a strong positive relationship with trait mindfulness (Giluk, 2009). However, it is uncertain as to the specific reason for this. Although both mindfulness and conscientiousness have elements of attention control and emotional management involved, those very qualities can also be in contrary with the nonjudgmental attitude necessary for mindfulness. The exact reason for this relationship therefore, has not yet been established empirically or theoretically. Agreeableness has been found to have a moderately positive correlation with mindfulness traits (Giluk, 2009). This was not surprising as qualities of agreeableness such as the capacity to empathize and show compassion for others are consistent with much of the characteristics of mindfulness practices. Lastly, openness to experiences shows a small but positive correlation to mindfulness (Giluk, 2009). Theoretically, this can be explained as both traits share qualities such as receptiveness, Nonjudgment and acceptance. Of interest to this project, is that there are so far no studies that have looked into the relationship between a person’s inborn or adult temperament with trait mindfulness. As such, no findings in this area has been reported.

Relationship between trait and state mindfulness has been the focus of researchers for some time. The development of one have been known to be related to the development of the other. As attention control is an intricate part of mindfulness, an individual’s cultivation of mindfulness may translate into a better baseline AC capacity on a day-to-day basis. One of the landmark studies in this area was by Brown and Ryan (2003) in which demonstrated that the practice of mindfulness meditation as a positive effect on the level of long term trait mindfulness one experiences. Measured by the Mindful Attention Awareness Scale (MAAS), participants who took part in mindfulness meditation practices were asked to report their current state of mindfulness at a quasi-random point during their day. The results indicated that that momentary-state mindfulness was significantly correlated with baseline levels of trait mindfulness. There are disagreements however, as to whether trait mindfulness actually has a positive effect on the practice of mindfulness. It has
been argued that those who have a low level of trait mindfulness are likely to benefit more from mindfulness intervention and in turn benefit more from such intervention. On the other hand, those who already have a high level of trait mindfulness may show a ceiling effect in that there isn’t any room for their mindfulness level of progress (Shapiro, Brown, Thoresen, Plante, 2011). This view is not unsupported as research such as those of Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) have demonstrated that those with higher levels of trait mindfulness already show greater level psychological well-being without additional training. In addition, Thompson and Waltz (2007) found that there are no correlations between trait mindfulness and mindfulness level during meditation, with Pearson product-moment correlation coefficients reaching only .14. It is important however, that these data are seen in context. Although general relationship was not found between the two, it did yield partial support for the presence of a connection. In their study, although relationship between the two was not found in general, when separating the samples between experienced and non-experienced meditator, it was found that those who were experienced meditators yielded a significant relationship between their trait mindfulness and state mindfulness. Such relationship was not found among non-experienced meditators.

Most studies regarding the role of trait mindfulness often comes in the form of its relationship with the effects of mindfulness practices rather than the state mindfulness during practice. For example, the same study by Brown and Ryan (2003) showed that increases in trait mindfulness have been found to be related various psychological benefits such as the decrease in anxiety, depressive symptoms, as well as other forms of mood disturbance. Others such as Shapiro, Brown, Thoresen, and Plante (2011) found that baseline trait mindfulness have significant moderating effect for MBSR intervention. Those who had higher levels of trait mindfulness before intervention was found to have better increase in mindfulness, subjective well-being, empathy as well as greater reduction in stress levels one year after treatment compared to control groups. Such findings supported the study of Kraemer et al (2006) which too, found trait mindfulness have predictive power regarding the effects of mindfulness intervention treatments.

Such research finding gives rise to a number of possible relationships between trait mindfulness, state mindfulness and the benefits that are gained from mindfulness intervention. It is possible that a high level natural trait mindfulness that comes from an individual’s own personality does not contribute to their ability to attain a high level of mindfulness during meditative practice. However meditative practices, none the less, do increase a person’s trait mindfulness. In addition, this cultivate trait mindfulness is indeed related to an increase of state mindfulness during further
practice. In both cases, high levels of trait mindfulness increase the benefit one gains from mindfulness-based interventions.

In the end, one of the critical issues regarding mindfulness research is whether the practice of mindfulness increases a practitioner’s baseline trait mindfulness. In addition, whether the psychological benefits observed by practice of mindfulness mediate the change in trait mindfulness. This question is essential to mindfulness research as it addresses the fundamental mechanism of how the benefits of mindfulness come about by becoming more mindful over time. Carmody and Baer (2008) looked into this question in their study of 174 individuals in nine MBSR groups. In their report, they administered survey questionnaires regarding their psychological wellbeing, trait mindfulness levels before and after an 8-week MBSR program. These surveys include Brief Symptom Inventory (BSI) (Derogatis 1992), Medical Symptom Checklist (MSCL) (Kabat-Zinn 1982), Perceived Stress Scale (PSS) (Cohen et al. 1983; Cohen and Williamson 1988), the Scales of Psychological Well-Being (Ryff and Keyes 1995) and the Five Facet Mindfulness Questionnaire (FFMQ) (Baer et al. 2006). It should be noted that the FFMQ contains a dimension of Nonreactivity which is approximate to the capacity of an individual’s attention control levels. Indeed, the Nonreactivity is essentially the ability to not allow arousing stimuli to draw a person’s attention to it so that one is unable to disengage with reacting to the stimuli. The results of these studies confirmed several important relations regarding mindfulness practices. Firstly, all five facets of trait mindfulness were significantly increased as a result of the MBSR program. Effect sizes were large for Observing and Nonreactivity to inner experience and moderate for Describing, Acting with Awareness, and Nonjudging. This shows that engaging in formal meditative practices has long term effects on the practitioner’s baseline mindfulness levels. Of interest to this study is that the large effect size for Nonreactivity indicates that the baseline level of an individual’s AC capacity was increased because of the MBSR program, Given the emphasis of AC training of MBSR, it is logical to assume that the practice of mindfulness had a direct effect on increasing the meditator’s AC. The follow up question therefore, is whether this effect is the reason why psychological and physiological improvement is achieved. In terms of psychology, time of meditation practices was significantly correlated to the level of decrease in psychological symptoms, as well as the increase in trait mindfulness. Similarly, the increase in trait mindfulness was a significant predictor of decrease in psychological symptoms. Most importantly, the studies show that the relationship between the time committed to meditative practice and the decrease of an individual’s psychological symptoms is mediated by the change in trait mindfulness. There are similar results with regard to lowering perceived stress with the relationship between time of meditation and the difference in stress level before and after the MBSR program was completely mediated by the
difference in trait mindfulness. It should be noted however, for psychological wellbeing, there was only partial mediation. This implies that already the change in trait mindfulness may be an important contributing factor of the change in a person’s psychological wellbeing, there may also be other variables that mindfulness practiced has cultivated accounting for its’ increase. This study shows that the benefits of mindfulness intervention and practice can largely be understood as results from the increase of baseline mindfulness that was developed from the practice. In light of this, the question becomes, based on the various mindfulness programs that are available, what benefits from these programs can be gained?

2.03 Mindfulness Based Interventions

In order to exploit the benefits for mindfulness practices for the benefit of the general public, a number of therapeutic programs that has already been developed that employs mindfulness as components of their therapy including Mindfulness Based Cognitive Therapy (MBCT, Teasdale, Segal, & Williams, 1995), a program designed for depression; Acceptance and Commitment Therapy (ACT, Hayes, Strosahl, & Wilson, 1999) a program most employed for addiction treatment; Dialectical Behavioural Therapy (DBT, Linehan's 1993) developed for borderline personality disorders; Spiritual Self Schema Development Program (3S) a program designed for addiction and HIV risk behaviours (Avants, & Margolin, 2004); Hakomi Therapy (Kurtz, 1990), among others. Each of them employs mindfulness within their intervention that together they are all recognized as a part of what is known as the ‘third wave’ psychotherapy. Among the similarities between them, all mindfulness intervention programs employ the three pillars listed previously. Among them, the most significant to this study is that they all emphasize the cultivation of an individual’s attention control ability. Specifically how this is adapted depends on the individual programs as well as the targeted disorder.

2.03.1 Mindfulness Based Cognitive Therapy – Mindfulness on Depression. In the recent decades, there have been many studies that show mindfulness practice and intervention in various forms have beneficial effects across a vast number of different issues, including that of the psychological such as depression (Kenny & William, 2007), generalized anxiety disorder (Evans et al, 2008), binge eating (Kristeller & Hallett, 1999), post-traumatic stress disorder (Wolfsdorf & Zlotnick, 2001), substance abuse (Breslin, Zack, & McMain, 2002), as well as physiological problems such as lowering blood pressure (Barnes et al, 2004), pain management (Morone et al, 2008), chronic fatigue syndrome (Surawy et al, 2005), heart disease (Tacon et al., 2003), among others. What is of interest to this study is how it is applied to, as well as known results of treatment of depression.
Mindfulness Based Cognitive Therapy is a third-wave psychotherapy program that was built by adapting Kabat-Zinn’s MBSR program and is currently the most commonly employed mindfulness-based program for the treatment of depression. Fundamentally, MBCT trains an individual to have the ability to “to recognize and to disengage from mind states characterized by self-perpetuating patterns of ruminative, negative thought” (Segal et al., 2002, p. 75). In addition, practitioners are taught to hold a perspective that embodies the core qualities of mindfulness including openness, curiosity and acceptance. MBCT has demonstrated to receive remarkable success in its ability to lower relapse rate (Teasdale et al, 2000), with its ability to address both the negative affect and attention processes of depressed people. Before detailing the rationale and research findings of this form of treatment, it is important to understand what practices and skills are taught within the program.

2.03.2 Content and Mindfulness Based Cognitive Therapy.

Conventionally, MBCT is an eight week program compromising of weekly sessions between 2 to 2.5 hours long. Each session will comprise of in-session exercises, mindfulness practices and home exercises that participants are advised to do each day between sessions. Home practices include daily formal mindfulness practices lasting a minimum of 45 minutes as well as informal practices involving an individual’s daily routines. It may include recording of certain experiences one observed, learn to approach stressful situation differently, or simply giving oneself to mental space to decentre themselves from the emotions of the situation (Crane, 2009). The first half of the program often emphasizes on guiding the practitioner’s attention to their internal experiences and becoming aware of the internal dynamics of the person’s mind. This process is of importance as it is cultivating the practitioner’s AC capacity. It is through the development of an individual’s ability to direct attention towards or away from the targeted, grounding objects, be it physical or mental, that the benefits of the MBCT program can be found. The latter half of the program places emphasis on external application of such understanding and transformation into everyday issues and daily challenges.

Within the sessions, formal practices are performed, allowing the various mindfulness skills and awareness are introduced, developed and refined with each session. Among these are techniques that teach one to focus their attention onto certain parts of their physical or mental being. Each of the meditative practices helps to cultivate certain aspect of mindfulness and develops various benefits that assist in an individual’s therapy. The development of their attention controlling capacity is an inseparable part of this process.
**Body Scan.** The body scan is the primary practice employed in MBCT. It is an introduction from which allows for an individual to first develop the capacity to guide their mind in a manner that entails the various quality of mindfulness as listed in chapter 3.02.1, onto a more tangible base – physical sensations. This allows an access to the immediate, non-conceptual based sensations and intuitive ways of knowing. Commonly lasting up to around 45 minutes, it is often performed while in a supine position or sitting (Crane, 2009). Operationally, the body scan often begins with a short session of bringing the mind to an individual’s breath and allowing the mind to clear of other thoughts. Awareness is then intentionally guided to various regions throughout the body starting from the toe and moving up towards the head. Attention is paid to specifically where and how the practitioner’s mind is and it is often here that students are first introduced to issues regarding how the mind wanders and are repeatedly encouraged to guide to back to the area of the body that the session has proceed to. Another area of training is for the student’s attitude to allow things as they are. Due to the various different sensations of the body that might arise, students may have various judgments and/or desire to affect certain changes. Reminding students to allow things as they are fosters acceptance and decentring. By practicing the body scan, students learn to ‘be with’ their bodies in the present-moment, cultivate attentional control of the mind and more importantly, develop an awareness of when the mind wander and one is switching back into automatic piloting mode.

**Mindful Movement.** Mindful movements of various forms are another form of mindfulness practices geared towards physical sensation. However, rather than a motionless posture, mindful movement allows for student to experience their body as it moves. A number of techniques are often introduced but the specific types of movements are often dependent on the teacher’s own background and experience (McCown, Reibel & Micozzi, 2010). Common mindful movements that are incorporated into the session include mindfully breathing and walking. Methods that are at the discretion of the teacher include techniques such as Yoga and Taiji. Mindful movement serves a number of important functions and cultivates several physical awareness that are not available to the body scan. For example, it fosters an individual’s awareness to the body in motion, allows one to become aware of the experiences of their life through sensation through the process of movement, awareness of their habitual tendencies, discover new possible ways of movement, among others. Participants are guided to having a sense of their balance that is commonly habitualized in their daily lives. This process of ‘achieving’ balance rather than simply brings the participant to becoming aware of their bodily position. More importantly, by experiencing the transitional process in which one shifts their bodyweight, one becomes aware of the mind’s habit of being focused on the future and goal of their action rather than the process. Mindful movement in regards to an
individual’s balance brings the mind to the present moment in a way that is more grounded.

Employment of mindful movement allows for one to experience their life in a process rather than a state that body scan develops. It allows for the practitioner to be grounded in the sensory experience and are known to give rise to moments of feeling of the body being reconnected to the mind. This provides a sense of wholeness as well as new possibilities in life. The practice of mindful movement also permits the possibility of basic application of mindfulness in the practitioner’s daily life.

_Sitting Meditation._ Sitting meditation is another mainstay of mindfulness based cognitive therapy. Often taught two weeks after the body scan has been introduced, sitting meditation entails the practitioner to position themselves in a sitting position either on the floor (with a cushion or mat) or on a chair, and intentionally being the body into an upright and relaxed state. Sitting meditation offers the largest range of different forms of meditation as well as different anchors for the mind - breathing, physical sensations, emotions and ideas, memories of certain stressful situations, among others (Crane, 2009). Along with enhancing and cultivating the various skills that are developed in the previous meditations, sitting meditation allows for the developed of new forms of awareness. It is also in sitting meditation in which practitioners practice opening the mind to all of these factors without focus on anyone. Effectively, it is a way to bring to mind to a state of ‘being’ without any anchor rather than concentration on one thing. In doing so, practitioners are able to have a new awareness of their relationship with experiences as well as coming to an understanding of how their own mind operates. Because there no anchor is set, one will be able to become more attuned to the mind’s reaction to stimuli and ideas, most importantly the affective reaction of pleasant, unpleasant and neutral to such stimuli and ideas are bring to the surface of awareness as well as how one normally react to such feelings. This process cultivates an individual’s ability to be attuned to their experience while at the same time not being lost within them, able to observe the rise and fall of at each sensation and experience without interpretation.

_Three Minute Breathing Space._ Three minute breathing space is a form of brief-period meditation in which one stops what they are doing, and spend three minutes simply breathing. Practitioners bring their minds to their breath and away from any thoughts and hassle of that moment. It is a bridge that can bring the core of mindfulness teaching into a person’s daily life. It teaches one to stop and recognize the habitual actions that he / she is taking at the moment, bring the mind to a single anchor and away from the other mental events of the time (McCown, Reibel & Micozzi, 2010). Although only for three minutes, it none the less breaks the rhythm of an individual’s habits and is able to reinforce their sense of being in the mist of the daily hassles. When
practiced in response to life stressors and emotionally charged situation, it allows for one to pause and give space so as to gather their minds in the face of these life events. It is through this break in the practitioner’s routines that bring new possibilities of how one is to respond to the current situation.

**2.03.3 Atmosphere of the Class.** In addition to the formal meditation practices, there are many aspects of a MBCT class that can be considered. For example, the importance of establishing the environment that supports mindfulness practice is of paramount. Often, therapists and teachers of mindfulness are required to be seasoned practitioners themselves before they lead a therapeutic session. This is due to the fact that the teacher of the class must too embody the qualities of mindfulness including acceptance, compassion and gentle non-striving (McCown, Reibel & Miccozzi, 2010). In addition, the teacher should bring an atmosphere of curiosity and exploration. By doing so, participants of the program will not only feel safe to open up to the class, but also follow the lead of the teacher in their exploration and transformation of their own inner mind. Small group discussions are conducted (either between students and teacher, or between students themselves) regarding the experiences one had during the week since the previous session regarding how one has applied their new-found mindfulness in their daily lives. Discussion also extends to the impact of such events had on them. This process allows students to explore their challenges and change in a safe and nonjudgmental environment. It also helps to cultivate a sense of compassion for each other which can then be redirected into oneself, fostering a self-compassion and acceptance.

**2.03.4 Elements of Cognitive-Behavioural Therapy.** Certain techniques from traditional Cognitive-Behavioural Therapy are also integrated into the MBCT program. There are a number of ways in which these are integrated. The first is the teaching of how the mind function and bring an understanding to the practitioner regarding the thought processes that they go through. In addition, CBT’s theories, as well as mindfulness-related approaches of depression are also taught to the participant so that they become aware of how their conditions are maintained as well as how mindfulness practices are able to help. Much of the information that are included in this area are covered within chapter 1, with emotions triggering rumination and automatic thought processes, leading to greater levels of depressive emotions. Focus have been be placed on the attitudes that one adopts in any given situation, but more so in stressful and upsetting circumstances.
Having an understanding of their conditions goes to aid the transformation of the individual as they are able to conceptualize, become aware of, and more importantly relate differently to their physical sensations, feelings as well as the inner dynamics of their mind. It allows for one to be attuned to mood changes that may occur in everyday life and the habitual reactions one may engage in, thus applying mindfulness to give room and decentre themselves from the mental state at the time and be able to respond in a way that will foster better mental health. This understanding also helps with the development of treatment strategies that practitioners can adopt. It is through the implementation of such CBT techniques that home-exercises and daily practices are designed. In bringing the practice home and applying them in daily lives, the benefits of the therapy can be reinforced and maintained, further cultivating the transformation of mindfulness practices.

It should be noted however, that there are considerable differences between MBCT and CBT. Primary of which is its emphasis on seeing things as they are without an intention to change them. While CBT hopes to change the actual content of thought for the individual, it has been noted (Orsillo et al, 2004) that the primary aim of mindfulness is not to change the content but merely the process in which this content is approached. CBT strives and works to change the thought processes and behavioural patterns of the individual however with the quality of ‘non-striving’ within MBCT, change that occurs on the targeted problem is considered as a secondary effect, with the primary effect being that of the transformation of the individual’s entire outlook and experience of their lives. With this, much of the techniques that are often employed in CBT such as reinforcements, targeted actions, or distractions are not commonly utilized by MBCT.

In addition, although both CBT and MBCT involves decentring as one of the critical skills that are developed through the course of treatment, their overall conceptual understanding and function are quite different. In CBT, decentring is a capacity that permits one to make changes in their deep-seated beliefs about other themselves and the world in general (Beck, 1979) while in MBCT, the skill of decentring in itself, is able to alleviate one from the symptoms of depression (Teasdale et al, 2002).

2.03.5 Evidence and Rationale of MBCT. The question of how or why MCBT works can take number of different levels. The first is establishing a working model for depression from which we can work on. The second is the identification of the various qualities of mindfulness, finally seeing how these qualities of mindfulness an moderate the variables within depression model.
In regards to mindfulness, the operational model for depression has been outlined in chapter 1, with negative emotions triggering rumination through differential activation. This ruminative process in turn generates greater levels of negative feelings and continually feeds the cycle. This process, outlined by the DAH, not only holds the individual inside a self-perpetuating cycle of emotions and negative thoughts, but also forms the foundation from which relapses occur for those who are considered as successfully treated by conventional treatment methods. It is also the belief of this study, that the lack of AC also plays a part in this process and that one of the most critical aspects of MBCT is the increase of an individual’s baseline AC capacity by developing attention focus or switching abilities during practice.

As far as the reduction of relapse rate is concerned, there has been ample evidence demonstrating the efficacy of mindfulness treatment of depression and depression relapse. Two landmark studies on this issue came just over a decade ago with studies by Teasdale et al. (2000) and Ma & Teasdale (2004). In Teasdale et al. (2000), 140 patients of depression who had at least two previous episodes of depressions and haven’t used antidepressants in the previous three months were randomly assigned to a either MBCT or TAU programme. Follow ups were conducted one year after treatment was complete. The results of this study showed that for clinical patients who had three or more depression episodes, the relapse rate was 50% lower for the MBCT group compared to the TAU group (MBCT = 37% vs. TAU = 66%). In the second study, Ma & Teasdale (2004) was an attempt to replicate the results of the previous study and explore the possible differences of MBCT effectiveness for depression relapses triggered by stressful even or the participant’s own internal processes. With regard to the first goal, the results were almost identical when compared to the previous study in which the MBCT group achieved around 50% less relapse rate compared to the TAU group (MBCT = 36% vs. TAU = 78%). Of special interest to these studies was that in both cases, people who experienced two episodes of depression responded to the MBCT program similarly to the TAU. It was discovered was that this was likely a different population group. Those who had three episodes or more were more likely to be those who had difficult childhoods and had struggled with depression from an early age. On the other hand, those who had two episodes were tended to be those who had normal early life but were struck with major life events that triggered their depression. Although this may mean the specific number of episodes may not be a variable in itself, it none the less raises questions regarding how these additional considerations may affect the efficacy of MBCT.

Looking specifically at the depression side of the issue, MBCT’s effectiveness have been shown not just in the prevention of relapses, but also in its ability to reduce depressive symptom as
measured by the Beck Depression Inventory (Barnhofer et al, 2009). The degree of symptomology reduction was proportionate to the level of depression that one was experiencing. More severe levels depression resulted in better outcome of MBCT. Later studies in this area looked further into the specific treatment-resistance groups of depression. For example, a study by Eisendrath et al. (2008) produced evidence that supported the idea mindfulness based interventions are able to help sufferers of depression even when they have proven to be resistant to antidepressant treatment. Similarly, MBCT have been shown to be effective for people who are resistant to treatment in both antidepressant on top of the more conventional cognitive treatments (Kenny & Williams, 2007). In addition to evidence showing its success in the treatment of those who are having depression, research also looked into whether MBCT benefits those who have already met the criteria for recovery but are still on medication. Kuyken et al. (2008) tackled this issue and conducted a follow up for people who went through either the MBCT program or continuation of antidepressants. The results showed that those who went through the MBCT program suffered a relapse rate of 47% while those in who continued their medication had a 66% relapse rate.

Considering the evidence supporting the benefits of mindfulness interventions for treating depression, the reasons of explaining this phenomenon rises. It is the position of those who subscribes to mindfulness as a treatment. The answer to tackling the problem of the reduction of depression relapse is to target the vulnerabilities that maintains the rumination cycle. Therefore, the reduction of rumination in itself results in the positive outcome. Early research such as those of Brown and Ryan (2003) produced evidence showing that the presence of higher levels of trait mindfulness has the effect of reducing of rumination. As previously noted in section 3.02.2, the practice of mindfulness enables one to enhance their trait mindfulness level, together with the fact that this mindfulness intervention program was design for this purpose, it supports the intention that this program serves to reduce a person’s rumination level. This relationship is supported in a number of studies such as those of Ramel, Goldin, Carmona and McQuaid (2004), Watkins (2004) and Broderick (2005) which yielded significant reduction in rumination levels for people with mood disorders such as depression after going through mindfulness intervention program. It should be noted, that the study by Ramel, Goldin, Carmona and McQuaid (2004) shows mindfulness intervention is effective with the rumination-dysfunctional attitude-emotional disturbances combination. However this particular study was not targeted at clinical samples, nor was it employing under a structured MBCT program. Rather it utilized the more generalized Mindfulness Based Stress Reduction (MBSR). Over the years, several models have been developed to explain why the enhancement of mindfulness is able to reduce rumination.
2.03.6 Interacting Cognitive Subsystem. From the perspective of the ICS, the mind processes information using three distinct modes including the Mindless Emoting, Conceptualizing/Doing and Mindful Experiencing/Being. The mindless emoting system indicates one in which one reacts to feelings without thoughts, awareness, or attention to the bigger picture. Effectively, the attention is drawn towards the aroused emotions without the capacity to switch away from it. It is through this system in which one often reacts behaviourally such as aggression because of anger, flight/fight because of fear, crying because of sadness, are all outcomes of this system. An individual’s capacity to function when they are mindlessly emoting is limited as they are unable to direct their attention away from the emotions that they are being bombarded with. The Conceptualizing/Doing system is one in which the person’s feelings are not attended to but rather focus is placed on the actual processing and analysis of conceptual contents. Within this state of mind, one operates on a highly rational, impersonal and goal-oriented mode that focuses on the cause and effect of the external world. Lastly, Mindful Experiencing/Being is a mode of mind that recognizes the thoughts and feelings of the individual and being aware of the various internal and external sensations. In this frame of mind, emotions become experienced directly by the subject rather than being a conceptualized object that is subjected to rational thought.

It is the position of the ICS that Mindless Emoting and Conceptualizing/Doing systems bring about vulnerability to depression. In Mindless Emoting, individuals have a tendency to become identified with their emotional reactions. Rather than being able to recognize that the emotional reaction as being a mental force that is generated by the situation and their own reaction to it, the person is immersed within the reaction itself and thus have little to no room for awareness or reflection. It is believed that one of the ways in which one emote is through cognitive reactivity (discussed in chapter 1.08.01). Teasdale believes that those who are exceptionally in danger of depression are those who fluctuate between the Mindless Emoting and Conceptualizing/Doing systems as this is the basis of which the rumination cycle is maintained. Mindful Experiencing/Being on the other hand is the only processing system that allows emotional processing and fostering metacognitive awareness. Metacognitive awareness is generally defined as the experience of an individual’s thoughts and feelings as mental events, rather than being synonymous with that person’s self (Teasdale & Barnard, 1993; Teasdale, Segal, & Williams, 1995).

Another aspect of Mindful Experiencing/Being is the promoting of an individual’s capacity to decentre oneself from his/her experiences. Although similar to metacognitive awareness, decentring puts emphasis on the practitioner’s awareness that the thoughts and feelings he/she is
experiencing are temporary and transitory rather than true reflections of oneself (Fresco, Flynn, Mennin & Haigh, 2011). This understanding and attitude developed towards these mental events are believed to be able to disrupt the connection between emotional reactions with the automatic, ruminative thought patterns (Teasdale et al., 1995). Through developing this system of the mind, one is able to develop awareness of the practitioner’s own thoughts and feelings while at the same time practice Nonreaction to such mental events as they are not reflective, and thus should not be identified with, oneself. This permits greater level of flexibility to their own responses to these emotions which thereby lessens the possibility of rumination being the response choice.

In 2002, Teasdale et al conducted a series of three studies looking at the effects of metacognitive awareness on the prevention of depression relapse. It is believed that an individual’s vulnerability to relapse is associated with a lack of accessibility of metacognitive sets in relation to negative thoughts and feelings. In the first study, 40 psychiatric outpatients who were deemed likely to experience depression relapse were compared with non-depressed controls with regard to their autobiographical memories. The results confirmed that people within the high risk group for relapse displayed significantly less evidence of a metacognitive set in relation to negative thoughts and feelings in the autobiographical memories when prompt by depressive cues. The second study looked at the extent to which baseline levels of metacognitive awareness was able to predict the likelihood of relapse in depressed patients. In this study, Teasdale took 158 patients with recent major depression who were either given antidepressants alone or in conjunction with cognitive therapy. The same measures of study 1 were taken at various points of the treatment. The results showed that the chances of relapse were negatively correlated to the chances of depression-related cues triggering metacognitive sets in a person’s memories with respect to negative thoughts and feelings. Essentially, this means that the less metacognitively aware one is, the greater the chances of relapse they will experience. Lastly, the third study confirmed that it is not merely the content of the participant’s thoughts that is operated on when going through cognitive therapy, rather, training exclusively aimed at metacognitive awareness such as MBCT, by changing their relationship to negative thoughts and feelings only, can also significantly reduce relapse or recurrence in depression. Although these series of studies did not definitively confirm it, it is possible to extrapolate from these findings that an important effect of cognitive therapy, and any therapy at all, for depression is mediated through the changes of metacognitive awareness that is enhanced through the therapy program.

2.03.7 Mode of Processing. The approach taken by Kuyken (2010) focuses on the mode of processing within the mind. For Kuyken, human behaviour and mental reactions are
based on three primary states - the current state, the goal (or desired) state, and actions in order to diminish the distances between the two. In order to navigate through these three states, what is known as the central executive system (Baddeley 1996) functions to weigh up various possible and alternative goals based on the degree of their importance to the level of to the individual. For those with mental problems, it is believed that there is a dysfunction in this system by which people are unable to achieve a particular goal and yet are unable to let it go and switch to another goal (Watkins 2008). When one is depressed, the goal is effectively to simply ‘be happy’ or to ‘not be sad.’ Yet in order for actions to be taken so as to close the gap between the current sad state and this intended state, the current state and the intended state need to be held in the working conscious mind so as to monitor the progress one makes as the gap is closed. If this was an external issue such as going to the post office, actual actions can yield objective results leading to the system acknowledging certain goals have been achieved which lead to the larger goal. This permits the overall system to be able to operate smoothly. However, because both the current state and the goal state are both abstract ideas (sad, and be happy), and that these ideas are acted upon as if they are treated as external, tangible facts, there are little one can do in order to close this gap as there is nothing one can physically do to deal with abstract ideas. The process of rumination results is thereby the result of holding these ideas in the conscious mind without shifting to other goals. The situation is worsen as the process of checking the difference between the two states can serve to increase the sadness that one is trying to avoid. Secondly, even attempts to suppress the thought and feelings can result in the content being more strongly associated to the mood (Watkins, 2008).

Within the context of this model, Kuyken listed a number of effects when practicing mindfulness. When mindfulness is practiced, the abstract ideas are no longer taken as being literal facts. This result in the processing of such ideas as facts are halted before it begins. Second, it takes away the significance of such ideas as it provides the individual with direct experience of their environment which in turn changes the way in which they relate to it. In doing so, the abstract ideas are not present to interfere with this experience. It is through this mode of the mind that one notices that the process of thought, while useful at times, can narrow ones’ perception. Thirdly, rather than the content of thought being stored in the conscious mind, the process itself is brought to focus. By engaging in meditation, the role of linguistic based content of thought are brought to the foreground in which our natural inclination to avoid certain thoughts becomes apparent. One becomes aware that this avoidance, although commonly employed to deal to external threats, are useless when dealing with internal anxieties. Lastly, by seeing the abstract ideas as being just that, it permits one to decentre from that perceptive. This permits one to come into contact with a wider range of possible events and ideas have been ignored previously to make room for the abstract ideas.
Overall, it is believed that the reason why mindfulness is able to decrease rumination level is through increasing level of the practitioner’s capacity to become aware of their ruminative tendencies and be able to switch to a Nonruminative mode of the mind. It is through adopting a mindful approach to their immediate experience and having the Nonjudgmental attitude and observing their physical sensation and mental thoughts, that one is able to decentre oneself from their emotions and focusing their attention on the present state. In doing so, MBCT practitioners are able to hold back the cycle of rumination at its commencement and stop it, from escalating to a relapse (Segal, Williams, & Teasdale, 2002).

2.03.8 Dialectical Behavioural Therapy – A Mindful Approach to Personality Disorder. Personality disorders, especially borderline personality disorder, are characterized by an innate lack of emotional regulation. This, as addressed in previous sections, could be attributed to, or at least related to, a lack of attention control ability. One of the critical goals of DBT is to increase an individual’s capacity to control their affective states through mindfulness techniques. Considering the emphasis on attention control development for mindfulness practice, and the relationship between emotions and attention, it is logical to assume that the development of AC capacity of an individual is in some way related to better emotional management.

Perhaps the earliest attempt to use mindfulness as a treatment option for PD was by (Kutz, Broysenko & Benson, 1985) in which a mindfulness training method, was designed based on Kabat-Zinn’s program. It was employed on people who were diagnosed with either narcissistic or borderline personality disorders. A total of 18 participants were being treated with ongoing psychodynamic therapy took part in this study and mindfulness training was experimented as an adjunct to conventional psychotherapy. After a ten-week training program, it was found that there were significant therapeutic benefits. Both participants and therapists reported that there was a decrease in anxiety and depression as well as an increase in overall wellbeing. In spite of these findings however, there were certain methodological flaws that had to be taken into account when interpreting the results. First of all, the lack of a control group opens the possibility that the
improvement. Might have been due to variables outside of the mindfulness treatment. In addition, there was a lack of structured interviews or questionnaires to standardize the diagnosis the individual have made as such the baseline measurement of the participants was difficult to interpret. Perhaps because of these limitations, later studies that produced dissimilar results gave the subject higher degrees of clarity as well as complexity to the subject.

Less than a decade later, Marsa Linehan and her colleagues (1991, 1993) developed a structured and skill-based form of treatment named Dialectical Behavioural Therapy being one of the most successful treatment available for BPD (Loizzo, 1999). This form of therapy deserves special attention as it is perhaps the only mindfulness based treatment that has had consistent evidence in helping treat personality disorder. One of the common symptoms of PD in general, but especially potent in BPD, is affective dysregulation. It is through emotional dysregulation that people who suffer from BPD are predisposed not only to intensive and frequent mood swings, but also impulsive behaviours that can have negative consequences. Targeting this fundamental symptom of BPD, one of the primary themes of DBT is to address this issue using mindfulness training.

2.03.9 Content and Rationale for Mindfulness in DBT. DBT is a form of CBT but with mindfulness and acceptance strategies infused within. The central concept of ‘dialectic’ is the tension that exists regarding having the individual accepting themselves for exactly who and how they are at that moment, while at the same time having to push forward to improve their condition and creating a life that is worth having. The total course of DBT requires a standard time of one year. Core skills that are trained in DBT include distress tolerance skills, interpersonal effectiveness skills, emotion regulation skills and mindfulness skills (Linehan, 1993a). As with other mindfulness-based therapies, DBT’s mindfulness skills involve learning how to observe and accept the moment-to-moment happenings without judgments or rejections. It should be noted however, there are some differences between DBT and other mindfulness treatments such as MBCT and MBSR. Chief among them is the fact that although mindfulness is one of the core skill that is taught and employed, its scope is not as dominant in DBT. As such, the mindfulness training that is required for DBT is not as intensive.

The DBT program conceptualizes the mind as always existing in one of three states, the ‘emotion mind,’ the ‘thinking mind’ and the ‘wise mind’. The ‘emotional mind’ refers to state of mind in which an individual’s thoughts and behaviours are heavily influenced by emotions. Rational thought, planning and prediction of consequences of actions are difficult. Attempts at
doing so will often find that the perception of the bare facts as distorted, commonly inflated to a
department of importance that is out of proportion to conform to the current emotional state. The
‘reasonable mind’ is viewed as a state in which one rationally and intellectually thinks their way
through a situation with little to no emotional investment. This state of mind is able to perceive facts
without bias, acknowledge empirical proof as well as focus an individual’s attention to the task at
hand. Lastly, the ‘wise mind’ integrates the ‘emotion mind’ with the ‘reasonable mind’ so that a
third element is synthesizes that is unavailable to either states individually. This new element is
intuitive thinking is able to go beyond simple emotion or logic. This intuition is able to give a sense of
knowing with regard to what is the right thing to do or how things should be etc. As it integrates
both the reasonable and emotional mind, it is able to think while at the same time taking into
account of their emotions and finding a balance between the two.

It is the DBT’s position that the lack of awareness of an individual’s own emotions is the
primary reason for the impulsive and mood dependent behaviour. Mindfulness practices are used in
order to increase the practitioner’s awareness so that such behaviours can be reduced. To
accomplish this, three ‘what’ skills are taught to the individual along with and three ‘how’ skills.
The three ‘what’ skills include observe, describe and participate while their corresponding ‘how’
skills involves Nonjudgmentally, one-mindfully and effectively. Firmly connected with the ‘how’
skill of Nonjudgmentally, observe, as a skill, is seeing things as they are without judgment or
elaboration at any given situation, even if this situation may be distressing. This ability extends
beyond the sensory input of a person’s five senses and includes any emotional, behavioural and
physiological reaction one has to the situation. There is emphasis here regarding the difference
between the observation of an event and the event itself. It trains one to open themselves to the
moment and experience the happenings internally and externally rather than stopping the emotion
by reacting to the situation or suppressing it. It is through the use of nonreinforced exposure that
automatic fears and avoidances are gradually decreased and eventually extinguished. “Describe” is
a skill that involves putting an individual’s experiences into words. It is considered important that
one is able to verbalize their experience as it is beneficial for the development of communication
skills as well as self-control capacity. The verbalization of the practitioner’s experiences as merely
experiences develops their awareness of the difference between the event and the experience of that
event. This in turn reduces the tendency of a person suffering from DBT to take their emotions and
thoughts literally and confusing their reaction with the objective event. For example, by articulating
their experience of anxiety and fear, an individual will become aware that their subjective
experience only and not that the environment is really threatening. Lastly, “participate” is the skill
in which one takes an active role in their behaviours that they conduct. It is a sense of action
without self-consciousness or self-doubt. In essence, it is action without the mind being preoccupied with things such as the future, worries or concerns. It also involves mindful action in which one focuses on the taste of food when they are eating, or the feeling of the sun on their body when they are sunbathing, etc. It creates a mental space in oneself that frees their mind from the background noises of their mind, turning away from the automatic pilot mode, and truly engage in the experiences of their lives with attentiveness (Linehan, 1993a).

2.03.10 Evidence for DBT. The effectiveness of DBT has been subjected to a number of research studies. The first to utilize a controlled randomized trial was by Linehan et al (1991). In this study, a total of 44 participants that was diagnosed with BPD using the DSM-III (as well as similar background in terms of history of suicide, depression, demographics, etc.) were randomly referred to either DBT or TAU. Over the course of their year-long treatment, they were assessed every four months. At the end of the treatment, it was found that patients who received DBT had a significantly fewer days of hospitalization, less suicidal attempts, and increased retention rate in therapy compared to TAU. However, what was perhaps of great interest in this study was there was no difference found for depression levels, hopelessness score, suicidal ideation or reasons for living. This implies that although the DBT had a positive effect on BPD on the behavioural level, it remained ineffective on the mental level.

In 1994, Linehan and colleagues (Linehan, Tutek, Heard, & Armstrong, 1994) conducted a study to see if results from DBT were able to be maintained a year after treatment had been terminated. In this study, 19 participants were given DBT while 20 patients were assigned to TAU. Assessments were taken periodically for a period of two years. The results of this study revealed that the DBT group had a higher level of global functioning, less parasuicidal behaviour and less days of hospitalization compared to the TAU group. There were also less anger, better self-reported adjustments and higher levels of retention rate were found in this group compared to the TAU (DBT = 83% vs. TAU = 42%). However, there was no difference found in the area of anxious rumination. Investigating further, Linehan replicated the study under more rigorous control conditions which found that DBT patients were less likely attempt suicide, require admission to hospital stay as a result of suicidal ideation as well as having generally lower medical risk in terms of parasuicidal behaviours (Linehan et al., 2006b)

There are other studies not led by Linehan that looked into the efficacy of DBT. For example, one study (Koons, Robins, Tweed, Lynch, et al., 2001) compared the effectiveness of DBT on women with BPD to a CBT control group. Their findings yielded results that show the
DBT treatment group had lower levels of suicidal ideation, depression levels, ideation, depression, hopelessness as well as anger expression compared to the control group. Such differences were not seen in areas such as actual suicidal attempts and behaviours, treatment retention rate as well as the experience of anger.

As noted previously in section 2.03, there is naturally a high comorbidity between BPD and substance abuse. It was in light of this that Linehan et al. (1999) extended her research in DBT by looking at how DBT performed for hospitalized PD patients who had comorbid drug dependence. This study, compared the effectiveness of a modified version of DBT (specifically targeting substance abuse) and TAU, found that there was significant between-group differences in areas of social and global adjustments. However, it should be noted that no differences were found in terms of their anger level or parasuicidal behaviour during treatment.

Perhaps the overall picture that has been painted regarding the effectiveness of DBT on PD is that it develops the individual’s tolerance of distressing emotions and gives them an increased range of response options when distressing situations are encountered. This has shown considerable success and has thus far been one of the few treatments of BPD that has demonstrated reliable success.

2.03.11 Mindfulness & Emotion Regulation. Mindfulness’s operation on BPD has provided an important insight in this question as the fundamental mechanism of DBT’s effect is based on the ability for mindfulness to aid the regulation of emotions. When faced with distressing and emotional experiences, people who are low on mindfulness levels commonly approach them in ways that are commonly either under-engaged or over-engagement (Hayes & Feldman, 2004). Under-engagement implies a sense of experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996) where one tries to change the external environment so that the negative emotions are not experienced, or it may be the suppression of thought (Wegner, 1994) where the thoughts that could trigger the emotion are deliberately averted. Over-engagement on the other hand, means that the individual are likely dramatize, elaborate, and overgeneralise leading to rumination (Nolen-Hoeksema & Morrow, 1991). In both cases, the core problem is a person’s inability regulate their emotional experiences. Effectively, issue of emotional dysregulation as discussed in previous chapters can be attributed to both circumstances.

There has been a significant body of literature regarding mindfulness’s role in improving emotional regulation. Mindfulness is believed to develop an individual’s voluntary exposure to unpleasant event and distressful experiences which are known to be beneficial in the development
of adaptive emotion regulation (Levitt, Brown, Orsillo, & Barlow, 2004; Sloan, 2004). One of the early studies that looked into the relationship between mindfulness and affective reaction to emotionally charged stimuli was that of Arch & Craske (2006). Within this study, participants were given either a 15-minute mindful breathing exercise, 15-minute unfocused attention exercise or a 15-minute instructed worry exercise, afterwards all would be exposed to various slides of either positively, negatively or neutrally charged images. Results indicate that those who were given the mindful breathing exercise reported a higher overall positive affect when exposed to positive slides. In addition, they demonstrated higher levels of willingness to be exposed to more negatively charged pictures. These results imply the process of mindful practice increased not just the meditator’s positive affect in general, but also their tolerance level of distressing stimuli and were able to regulate their emotions more effectively. Others such as Shapiro et al. (2007) found that mindfulness intervention facilitates the significant increase of not just mindfulness levels measured by the MAAS, but also the decrease in areas such as perceived stress, negative affect, state and trait anxiety. These findings were similar to a study by McKee and colleagues (2007) in which negative affectivity and anxiety sensitivity were all reduced in correlation to increased mindfulness levels. Some evidence also show the increase in mindfulness aid the reduction of reactivity to threat and subsequent distress in social exclusion Allen & Knight (2005). Lykins and Baer (2009) performed a study that compared various areas psychological well-being of seasoned meditators and non-meditators. They found that those who meditated scored significantly lower in thought suppression, fear of emotion as well as emotion regulation difficulties.

There has been a number of different rationale as to why mindfulness is able to aid the regulation of emotions. Among the earliest theories include those of Linehan (1993), Teasdale, Segal and Williams (1995) as well as Shapiro, Carlson, Astin, and Freedman (2005) in which found mindfulness helps one to recognize that distressing thoughts are simply the mental contents one has and are thereby not taken as accurate representations of reality. It is their position that the process of decentring involves the subject of perception becomes the object. There has been a long tradition in developmental psychology in which this process is one of the key mechanisms of development and growth throughout an individual’s life. (Kegan, 1982). It is through this ability to decentre oneself to see beyond the object. In this context, when one is able to see the anxiety and distress, an important perception that comes to mind is that the individual is more than just the anxiety and distress as only when one is more and such things can one see them as object. Thus, emotional reactions are therefore limited as this decentring capability is enhanced. An analogy that Shapiro, Carlson, Astin, and Freedman (2005) makes is the idea of being on the surface of an ocean. The torrent of waves makes it difficult to see clearly, only when one goes into the water, below the
waves, can one find calmer space to see things. It is through this new vantage point that one is able to see clearly which in turn fosters greater cognitive as well as behavioural flexibility, liberating ourselves from the automatic reactions.

Marlatt (1994) on the other hand, uses an opposite analogy when interpreting the phenomenon placing an emphasis on acceptance. He believes that rather than going underneath the waves, one instead learns to ‘surf’ the torrents of the mind without giving in to the urges by accepting them as normal reactions to the situation. It is through this surfing process that one realizes the temporality of the emotions. An individual’s attention is directed at the emotion directly and merely watches it as it rises and fades within oneself (Teasdale et al, 2000). As such, rather than committing oneself to action based on that emotion, mindfulness teaches the individual to hold the emotion in their attention and allowing the feeling to pass. It should be noted Marlatt’s approach to mindfulness is the position of addicts behaviours and therefore the analogy needs to be contextualized within the need of specific tangible substance.

One theory proposed by Glomb, Duffy, Bono and Yang involves the process of decoupling between the self and their emotions (2011). They believe that due to the fact that mindfulness involves the disengagement from the conceptual-based thought processes that one habitually engages in, the practice can provide a more balanced emotional profile for the individual. This approach is based on the general understanding that when the involvement of the person’s ego in a negative situation is high, people feel their self-worth is as threatened. (Kernis, Paradise, Whitaker, Wheatman, & Goldman, 2000). This “threat” generates strong levels of emotional reactions which is critical for common emotion dysregulation. However, should the person’s ego be separated from such situation, even if the individual is physically still involved, the same situation will appear much less threatening. The lack of “threat” to the ego in turn diminishes emotional reactivity. By undergoing this decoupling process, the individual enters a more impartial state of mind when facing the situation. Arguments have been made that although the impartial nature of this process can reduce both negative and positive affect, the freshness of novel experiences and its immediacy may well likely provide pleasant feelings in itself (Brown & Ryan, 2003).

2.04 Mindfulness & Attention Control

Having an understanding of the benefits of mindfulness to both depression and personality disorder, the question of the specific mechanism that permits the operation of mindfulness to work comes into focus. Mindfulness’ effects on issues such as emotion regulation and rumination are somewhat established. There are however, other effects of mindfulness that are also worth
exploring in the context of this study. For example, the role of attention control is of critical importance. As noted in previous chapters, there exists a close relationship between emotions and attention. Emotions, being preconscious reaction to sensory stimuli, allocate attentions that in turn give rise to conscious experience and thought. As such, mindfulness approach to attention is of significance to this study.

One theory of emotion regulation was proposed by Gross (2006). His model of emotion is based on the series of events, both environmental and mental, that occurs constitute to our day to day experience. In his model, the sequence of events includes situation, attention, appraisal, and finally response. Attention and appraisal were mental events in which dictates the responses that one gives to the situation. It is believed that the reason why emotional dysregulation takes place is that attention is focus on the difficult emotion or source of the emotion itself (Fredericksen, 1998). Bishop et al (2004) believed that mindfulness can be defined, in part, as the self-regulation of attention. This regulation includes the capacity of sustaining attention, attention switching, and inhibition of elaborative processing. As outlined previously in this chapter, attention plays a central role in the practice of mindfulness, as one of the core tenets of meditative practices is the capacity to maintain and sustained attention onto the chosen anchor, be it a physical stimuli or the flow of mental torrent.

There has been increasing evidence to suggest that cultivation of mindfulness has the effect of increasing an individual’s attentional control capability. Chambers, Lo and Allen (2008) found that a 10-day meditation retreat resulted in a decrease in reaction time when performing attention task that was not found in the control group. In addition, depression scores of participants decreased in proportion to the reaction time. Of interest however, was that mindfulness did not improve performance in attention-switching task. This implies that although mindfulness training can delay the engagement to sensory stimuli, its reengagement capabilities are not improved.

Specific population as well as attention skills has also been subjected to research. In 2007, Jha, Krompinger, and Baime looked into how seasoned meditators who were on a retreat and beginners who were attending an MBSR course, and a control group would differ in their ability to perform attention tasks. It was found that the MBSR program has been completed, and those attended the course increased their attention orienting capacity to a greater degree compared to the two groups, while those who were on the retreat developed their exogenous alerting capability beyond their counterparts. It is therefore suggested that different types of attentional skills may be developed differently depending on a person’s exposure to mindfulness training.
According to Wallance and Shapiro (2006), this capacity to observe the quality of an individual’s attention, such as becoming inattentive or excited, is called meta-attention. In terms of the mental mechanism of attention in this context, the self-regulation of attention constantly interacts with two other variables including the attitude of unconditioned openness of behaviour toward the tried experience, as well as continuous intention of the purpose of their action towards the task at hand. Attention control becomes important as it is able to aid one in putting into perspective the various constituent parts of the person’s mental landscape without the need to change them. As such, the decentring of oneself from ideas, thoughts and feelings become easier.

It is through the practice of turning an individual’s attention inwards to the emotions as objects that beneficial outcome becomes possible. Blaser (2012) argues that it is only through this redirection of attention that it becomes possible to influence the inner world as well as to adapt this inner world to their present-moment desires. This adaptation builds and remoulds the mental landscape resulting in more adaptive mental well-being. For example, by adapting an individual’s inner world to present-moment desires, it becomes possible to see specifically ‘what’ is being desired and what merely appears to be the object of our desire. For example, desire for specific financial gains may arise from the opportunity that is presented in the environment. However, this desire may likely arise from a sense of security that material gains, that require money to acquire, provide. In turning the individual’s attention inwards and seeing the deeper level desires of their mind, it may be possible that the inner mental be changed so that the sense of security and the financial gain of that particular event.

It perhaps should be mentioned that attention control’s role in emotional regulation is not a modern theory. Within Buddhist scriptures, it has been preached that intentional attending to one’s own experience cultivates awareness and insight into your own emotional dynamics. In doing so, one is able to liberate themselves from unpleasant mental states (Ekman, Davidson, Ricard, & Wallace, 2005).

2.05 Differences between Traditional and Modern Practices

There are a number of differences between what is employed in modern psychology and that of the Buddhist tradition. Although the conceptual understanding of the practices is similar, there are differences in terms of the functional application. For example, while mindfulness in the Buddhist approach places emphasis on all four foundations as outlined by the Satipatthana Sutta, modern application of mindfulness in psychology deemphasizes the fourth foundation and focuses primarily on the first three. It is possible that this is due to the fact that the fourth foundation is
intrinsically related to the Buddha’s teaching and has a substantial Buddhist ‘flavour.’ As such, it is less accepted in the modern, secular application of mindfulness treatment. Related to this point, rather than considering mindfulness as independent practice as modern day treatment employs, Buddhist’s approach to mindfulness is that it is one part of a vast system of spiritual practices. These practices, such as maintaining precepts, and study of the doctrines of Buddhism, needs to be practiced together with mindful meditation.

Secondly, the Buddhist practice of mindfulness has a clear goal of reaching jhana with intention of progressing through the various levels of it. Targets are also set so that the concentration that is attained through jhana is used to develop into further wisdom through other meditation. Modern practice however, does not consider jhana to be a specific goal as such but rather focuses simply on the calming of the mind from the torrents of thoughts and emotions. In doing so, the separation of a person’s emotional reaction to a given situation will be decoupled from their cognitive or behavioural habits which in turn reduces the effect of the emotion on the individual.

Lastly, early Buddhist practices of mindfulness are focused on the introspective aspect of meditation that emphasizes on the mental dynamics, processing and reactions. In contrast, modern approach takes a broader view and includes physical sensory input. The difference between Buddhist and modern approach is that Buddhist focuses on how the mind reacts to such sensory input while modern practices includes focusing on features of the sensory objects themselves (Keng, Smoski & Robin, 2011). This difference is likely due to the fact that modern practices are based on more tangible problems and issues such as events that leads to emotional reactions and/or depressive relapses rather than a more abstract spiritual cultivation from which final liberation of suffering can be reached.

2.06 Future of Mindfulness Research

Although few will doubt that research in mindfulness has passed its infancy stage, it is also important to acknowledge that there is still a long way to go before our understanding of mindfulness based treatments reaches maturity. Although mindfulness based interventions have enjoyed a certain level of success and a number of different models of the phenomena of mindfulness have been developed, there are still matters of what variables can affect the models that has been laid out. By looking at the variables in which modern psychology have come to perceive as being relevant to the operation to the mind, the phenomena of mindfulness can be integration into our paradigm of knowledge of the mind in a more holistic manner. Not only will this yield greater
levels of intellectual understanding, but more importantly, we can identify specifically what can limit the efficacy of mindfulness interventions, giving rise to the possibility of further refinement and customization of this approach.

CHAPTER 3

Rationale for Present Study

3.01 Theoretical Approach

Given the theoretical account of vulnerability to depression, mindfulness interventions have been put forward as a treatment of depression. The rationale for this is that the practice of mindfulness meditation impedes the cognitive processes that maintain rumination. However, it can be speculated that mindfulness operates to reduce vulnerability to depression by redirecting attention away from negative thinking and rumination. That is, mindfulness increases an individual’s control over what they attend. No study thus far has looked into how mindfulness, as a trait, affects their likelihood to ruminate through their AC capacity.
Having an understanding of the connection between emotions and attention allows for the introduction of an additional variable in the rumination cycle – attention allocation and control. The original DAH model included depressive mood and dysfunctional attitude. Evidence has shown that an individual’s emotions are intricately linked with AC capacity, with emotions being regarded as one of the prominent factors in the prioritization of attention allocation (Compton, 2003). What this means is that when a person’s emotion is aroused, the individual’s attention will be focused onto the event that triggered the arousal. It has been found that people who suffer depression have difficulty with AC. Indeed as noted previously, one of the diagnostic items of depressive disorder is the impaired ability to concentrate or indecisiveness. Among adolescents, as much as 70% of those with major depression experienced impaired concentration and/or attention (Goodyer & Cooper, 1993). Rumination occurs when an individual focuses attention on a particular subject in their inner world and can’t shift attention. This is most likely when depressive mood is high. Studies have supported the theory that ruminators exhibit attentional inflexibility (Davies & Nolen-Hoeksema, 2000) and have trouble with switching attention away from one way of thinking to another (Grant, Thase & Sweeney, 2001) as they are shown to perseverate in the Wisconsin Card Sorting Task. Indeed, Watkins and Brown (2002) have demonstrated that rumination may worsen general executive performance while other studies have shown ruminators to have an inability to consciously inhibit their ongoing tasks (Whitmer & Banichm 2007). In addition, evidence points to depressed or FD people having a preference to negative information and stimuli. For example, Ingram and Ritter (2000) employed audio tasks in which participants were exposed to a story in one ear while an emotionally charged distracter in the other. While ND people did not show any biases towards any of the distracters, FD participants displayed a clear bias towards the negative adjectives after negative moods were induced. Rinck and Becker (2005) also demonstrated attentional biases to negative stimuli. Such findings suggest that people suffering from depression have trouble controlling their thoughts as well as redirecting their attention elsewhere. In fact, one theory regarding why ruminative thinking styles can contribute to the maintenance of clinical depression is because the patient is unable to switch attention to a less dysfunctional thinking pattern (Wilkinson & Goodyer, 2006).

While research to date has been implied that attention and (more specifically) AC is critical to the rumination process, no empirical evidence has thus far surfaced that links an individual’s AC capacity to both these variables as well as their rumination levels. It is possible that the ability to control attention is critical for moving attention away from negative thought contents, impeding the activation of DA, and thus lowering the tendency to ruminate.
How mindfulness influences this process is unknown. Although it has been proposed that the efficacy of mindfulness lies in its ability to decouple the link between depressive mood and DA, the relationship between mindfulness and AC capacity and how this relationship affects the overall rumination process, has not been explored. Mindfulness includes the capacity to disengage attention from the ongoing stream of consciousness and redirect attention as well as the capacity to be aware of the person’s own thoughts. Thus it seems likely that people high in trait mindfulness would be better at noticing that their attention is being directed towards negative thinking and better able to redirect their attention towards more positive thinking.

This study is based on the theoretical development of the DAH but contributing to it by including the variable of AC capacity. However, although theoretically the model is cyclic, the DAH was originally conceived with the premise of negative thoughts leading to negative emotions being an empirically established relationship rather than a theoretical one. As such, the cyclic nature of that approach will not be examined but rather only the relationships between depressive mood, AC, DA and mindfulness will be investigated. The model that is being tested here will shed light to a more detailed understanding of how and why people are vulnerable to depression on a conceptual level as well as what role mindfulness may play in the overall picture.

3.02 Hypothesis

Hypothesis 1: Depression and rumination levels will be positively correlated with DA and NA, while negatively correlated with AC levels.

Hypothesis 2: Trait mindfulness scores will be negatively correlated with depression, Rumination, DA, and Sadness while positively correlated with AC.

Hypothesis 3: The relationship between Rumination and Sadness will be sequentially mediated by AC and DA.

Hypothesis 4: The relationship between Sadness and AC will be mediated by one or all facets of mindfulness.

Figure 6. Sequential Meditation of Negative Affect and Rumination
CHAPTER 4

Methodology

4.01 Participants

A sample of 392 adults were recruited for the study. The majority (75%) were female and ranged in age from 16 to 48 (n = 19.95, S.D. = 5.12). Cultural background of the participants were primarily Anglo (n = 179), Oceanic (n = 66), Confucian (n = 49), South Asian (n = 41), Eastern European (n = 18), and Germanic European (n = 11) with no other cultural group having more than 10 participants. Religious affiliation of subjects were mainly to Christianity (n = 204), Atheism (n = 114), Buddhism (n = 27) and Agnostic (14) with no other groups having more than 10 participants.

4.02 Procedure

Participants for this study were recruited from three sources.
Undergraduate students from the Schools of Psychology at the University of Adelaide and Queensland were recruited via the institution’s respective online research participant platform websites. After logging on to a website hosting the online survey, a link appeared that directed the participants to the start page of the online survey. Two online survey packages were used to conduct the online survey, specifically researchmonkey.net for the Adelaide participants and Qualtrics for the UQ and social media participants.

The link was spread virally through social networks starting from the researcher’s own personal contacts. Social network sites such as Facebook were employed to reach participants that the researcher did not personally know. Participants were encouraged to send the link to other contacts. Participants were able to log on at any time to complete the surveys. The undergraduate student participants received allotted course credits for their participation. Completion of all questionnaires in this study took approximately 1 hour.

4.03 Measures

**Depression.** The Depression & Anxiety Stress Scale (DASS-42; Lovibond & Lovibond, 1995) is a 42 item self report questionnaire consisting of three sub-scales measuring depression, anxiety and stress. Items are rated on a 4-level Likert scale. Responses to each item are scored, 0 (did not apply to me at all), 1 (applied to me to some degree, or some of the time), 2 (applied to me to a considerable degree, or a good part of time) and 3 (applied to me very much, or most of the time). It was designed for examining three subscale, The DASS-42 has been tested with a large non-clinical sample (N=2914) which found that reliability, (Cronbach’s alpha), was acceptable for all three subscale (0.91 for depression, 0.84 for anxiety and 0.90 for stress). A clinical sample yielded similar results (Antony et al, 1998). It was found that the three-factor model was the optimal fit. Interpretation of the data is based primarily on the use of cut-off, scores which range from ‘normal’ to ‘extremely severe’ on the basis of percentile scores. 0–78 is classified as ‘normal’, 78–87 as ‘mild’, 87–95 as ‘moderate’, 95–98 as ‘severe’, and 98–100 as ‘extremely severe’. The shortened DASS-21 version will be used for this study. The DASS-21 halves the number of questions of the DASS-42 but totals for each scale are doubled, so that score are comparable to those for the larger instrument. The internal reliability of the DASS-21 is good with Cronbach's alphas of 0.94 for Depression, 0.87 for Anxiety, and 0.91 for Stress (Antony et al., 1998).

**Rumination.** The Rumination on Sadness Scale (RSS; Conway et al, 2000) is a 13 item self report questionnaire that measures depressive rumination levels. Items are rated on a 5-level Likert scale, 1 (not at all), 2 (rarely), 3 (sometimes), 4 (quite a bit) and 5 (very much). Total scores on the
RSS ranged from 13 to 60. The internal reliability of the RSS has been reported to be good with a Cronbach’s alpha of 0.91 (Conway et al, 2000). Test–retest reliability over a 2-to 3-week period was 0.70. Later studies such as Roelof et al (2006) also replicated supportive results for the RSS in these areas. The convergent and discriminant validity of the scale was also supported. There has been mixed findings regarding gender differences of the RSS. While Mezulis, Abramson, & Hyde, (2002) reported that there was differences, the study conducted by Roelof et al (2006) did not.

**Dysfunctional Attitude.** Dysfunctional Attitude Scale (DAS) is a 40 item self report questionnaire that measures dysfunctional attitude levels. Items are rated on a 7-point Likert scale. It was designed to measure cognitive distortions especially those in relation to the aetiology of depression. The theoretical foundation of the DAS was Beck’s cognitive therapy model in which is based on 7 major value systems including Approval, Love, Achievement, Perfectionism, Entitlement, Omnipotence, and Autonomy. Responses to each item are given in the form of score including 1 (totally disagree) to 7 (totally agree). Total scores on the DAH ranged from 40 to 280 if no questions are omitted. If there are any items that are not answered, a score of 0 is given. Early reports on its internal consistency coefficients gave the range of 0.79 to 0.93 for a university population (Weissman & Beck, 1978; Weissman, 1980; Dobson & Breiter, 1983). Early reliability testing for its test-retest reliabilities ranged from 0.84 for a period of two month (Weissman, 1980) and 0.74 for period of three month (Kuiper, Olinger & Air 1985) among nonclinical university student population. People who are depressed individuals were found to have higher scores in the DAS compared to the non-depressed population (Gotlib, 1984). In addition, the predictive capabilities of the DAS with future depressive episode have also been with acceptable parameter (Rholes, Riskind, & Neville, 1985).

**Depressive Mood (Sadness) & Attention Control.** Adult Temperament Questionnaire (ATQ-Short form; Evans & Rothbart, 2007) that measures the temperament of adults. Items are rated on a 7-level Likert scale with an option of not applicable for each item. Responses ranges from 1 (extremely untrue of you) to 7 (extremely true for you). Discounting any ‘non-applicable’ responses, total score ranges from 77 to 539. Based on the temperament Rothbart model of 4 temperament dimensions and 13 subdimensions, it demonstrates strong reliability with all dimensions having a Cronbach’s alpha of 0.80 or higher, and only one scale was lower than 0.70 (inhibitory control at 0.66). The negative affect factor score was highly correlated with Big Five Neuroticism (rD.74), orienting sensitivity with Big Five Intellect/Openness (rD.65), temperamental Extraversion/Surgency with Big Five Extraversion (rD.67), and Affiliativeness with Big Five Agreeableness (rD.69). The Effortful Control factor score was highly correlated with Big Five
conscientiousness ($r_D.64$), while also having a substantial negative correlation ($r_D.41$) with Big Five Neuroticism. For the purposes of this study, not the entire dimension of Negative Affectivity will be employed. Only the Attention Control subscale of the Effortful Control and Sadness from the Negative Affect dimension will be included in this study. As this is a relatively new instrument in the discipline, there has yet to be independent studies looking specifically at the psychometric properties of the ATQ.

**Mindfulness.** The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al, 2006) was developed to measure five dimensions of mindfulness within an individual. Items are rated on a 39 items and employ a 5-item Likert scale measuring from 1 (Never or very rarely true) to 5 (Always true). Scores ranges from 39 to 195 with higher scores representing higher level of trait mindfulness. FFMQ can be subdivided into five different facets of mindfulness including Nonreactivity, Observing, Acting with Awareness, Describing and Nonjudging. Items can also be calculated as a whole as a Global scale score. The FFMQ has acceptable internal consistency, with Cronbach’s alphas values between 0.75 and 0.91 for the various facets with the Global scale having a Cronbach’s alphas of 0.87. Test-retest reliability is also strong as differences between tests were not significant.

**4.03 Ethical Consideration**

Participants were provided with information on the front-page of the survey before proceeding to questionnaires. Participants were informed that they were free to withdraw from the study at any point without penalty.

**4.04 Analysis & Reporting of Results**

All data analysis was performed using SPSS 17 with the add-in statistics program called Process (Hayes, 2013).

H1 was analysed using one-tail bivariate correlations including Sadness; along with Attention Control, Dysfunctional Attitude, Overall Depression and Rumination.

H2 was analysed using one-tail bivariate correlations including Sadness, Attention Control, Dysfunctional Attitude, and the subscales of FFMQ including Observing, Describing, Acting with Awareness, Nonjudging and Nonreactivity. In addition, an overall score of Trait Mindfulness was taken by averaging the other subscales together and also used for the calculations.
H3 was analysed using sequential mediation analysis. To minimize indirect effect, a bootstrap approach was employed and with the data re-sampled 5000 times. Sequential mediation (model 6) of the SPSS add-in program Process was used to perform the analysis.

Figure 7. Conceptual Diagram of Model 6

The sequential mediation analysis was conducted with Sadness as the IV and Rumination as the DV. The output of interest includes the regression of the IV and DV with and without the mediating variables, as well as the regression level between the IV and MV1, MV1 and MV2, as well as MV2 and DV. In order for the mediation effect to be considered valid, three criteria must be satisfied.

1. The regression between the IV and DV decrease in predictive power after the mediating variables has been included.
2. Each of the ‘links’ of the sequential mediation are significant.
3. The regression between the IV and DV is shown to be mediated by the both of the added variables. In order to determine this, all values between the lower and upper bound bias confidence interval must not include 0.

H4 was analysed using mediation analysis. Only IVs that satisfied all criteria were included in the analysis to test H4. Sequential mediation (model 4) of the SPSS add-in program Process (Hayes, 2013) was used to perform the analysis.
Analyses were conducted only if results from the previous analysis satisfy all three stated criteria. MV1 will be set as the four subscales of mindfulness including, Observing, Acting with Awareness, Describing and Nonjudging, Nonreactivity; as well as the Overall Trait Mindfulness variable. Attention Control will be set as the DV. In order for the mediation effect to be considered valid, the same three criteria of H3 must be satisfied.
CHAPTER 5

Results

5.01 Hypothesis 1 (H1). Depression and rumination levels will be positively correlated with DA and Sadness (negative affect), and negatively correlated with AC levels.

The descriptive statistics and correlations between the measured variables related to rumination in this study are presented in Table 1. Rumination scores were comparable to those found in undergraduate samples by Conway, Csank, Holm and Blake (2000). Sadness and Attention Control scores were similar to non-clinical samples of Evan and Rothbart (2007).

Table 1
Descriptive Statistics & Correlations of Rumination-Related Variables

<table>
<thead>
<tr>
<th>Overall Dep. (DASS-21)</th>
<th>Rumination (RSS)</th>
<th>Sadness (ATQ)</th>
<th>Attention Control (ATQ)</th>
<th>Dysfunctional Attitude (DAS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>14.51</td>
<td>34.67</td>
<td>4.33</td>
<td>3.80</td>
</tr>
<tr>
<td>S.D</td>
<td>10.14</td>
<td>11.74</td>
<td>.90</td>
<td>.93</td>
</tr>
<tr>
<td>Depression (DASS21)</td>
<td>.533**</td>
<td>.278**</td>
<td>-.169**</td>
<td>.314**</td>
</tr>
<tr>
<td>Rummation (RSS)</td>
<td>.225**</td>
<td>-.176**</td>
<td>.198**</td>
<td></td>
</tr>
<tr>
<td>Sadness (ATQ)</td>
<td>-.166**</td>
<td></td>
<td>.059</td>
<td></td>
</tr>
<tr>
<td>Attention Control (ATQ)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (1-tailed).

In support of Hypothesis 1, Depression as measured by the DASS-21 was positively correlated with Sadness (r = .28, p < .001) of the ATQ as well as Dysfunctional Attitude scores (r = .31, p < .001). In addition, the Depression score of the DASS-21 was negatively correlated with the Attention Control (r = -.17, p < .001) subscale of the Effortful Control dimension of the ATQ.
Also in support of Hypothesis 1, Rumination was positively correlated with the Sadness subscale of the ATQ ($r = .23, p < .001$) as well as the Dysfunctional Attitude score ($r = .20, p < .001$). In addition, the Rumination score was negatively correlated to the Attention Control ($r = -.18, p < .001$) subscale of the ATQ.

### 5.02 Hypothesis 2 (H2).

Trait mindfulness scores will be negatively correlated with depression, rumination, DA, and NA, and positively correlated with AC

Table 2 shows the descriptive statistics of each of the subscales of the FFMQ as well as their correlation with depression, rumination, DA, Sadness and AC. All facets of mindfulness scores were comparable to the mean scores of undergraduate samples found in the study conducted by Baer, Carmody and Hunsinger (2012).

With the exception of Observing, all subscales of FFMQ, along with Overall Trait Mindfulness, were significantly correlated with the variables. Of the significant correlations found, the strongest was between Attention Control and Acting with Awareness ($r = .52, p < .001$) and the weakest is between Overall Depression score with Nonreactivity ($r = -.10, p = .023$)

<table>
<thead>
<tr>
<th></th>
<th>Observing</th>
<th>Describing</th>
<th>Acting with Awareness</th>
<th>Nonjudging</th>
<th>Nonreactivity</th>
<th>Overall Trait Mindfulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>22.35</td>
<td>24.05</td>
<td>27.38</td>
<td>26.22</td>
<td>16.69</td>
<td>23.34</td>
</tr>
<tr>
<td>S.D</td>
<td>5.74</td>
<td>6.48</td>
<td>5.97</td>
<td>7.26</td>
<td>4.79</td>
<td>5.43</td>
</tr>
<tr>
<td>Overall Depression</td>
<td>.086</td>
<td>-.107*</td>
<td>-.317**</td>
<td>-.366**</td>
<td>-.102*</td>
<td>-.316**</td>
</tr>
<tr>
<td>Rumination</td>
<td>.117*</td>
<td>-.036</td>
<td>-.322**</td>
<td>-.409**</td>
<td>-.118*</td>
<td>-.303**</td>
</tr>
<tr>
<td>Sadness</td>
<td>.116*</td>
<td>-.085</td>
<td>-.164**</td>
<td>-.355**</td>
<td>-.234**</td>
<td>-.274**</td>
</tr>
<tr>
<td>Attention Control</td>
<td>-.077</td>
<td>.276**</td>
<td>.523**</td>
<td>.239**</td>
<td>.192**</td>
<td>.430**</td>
</tr>
<tr>
<td>Dysfunctional Attitude</td>
<td>-.012</td>
<td>-.070</td>
<td>-.237**</td>
<td>-.213**</td>
<td>.01</td>
<td>-.210**</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
5.03 Hypothesis 3 (H3). The relationship between Sadness (negative affectivity) and rumination levels is mediated by two variables of attention control capacity and dysfunctional attitude.

Hypothesis 3 was tested with a mediation model using estimates based on 5,000 bootstrap samples (Preacher & Hayes, 2008).

When Attention Control and Dysfunctional Attitude were entered as mediating variables of the relationship between Sadness (negative affectivity) and Rumination, Sadness was found to be a significant predictor of Attention Control (b = -.17, p < .001), Attention Control was found to be a significant predictor of Dysfunctional Attitude (b = -3.58, p = .043) and Dysfunctional Attitude was found to be significant predictor of Rumination (b = .07, p < .001).

The point estimate for the direct effect of the Sadness equated to 2.5 (SE =.63, p < .001); indicating that Sadness continues to exert a direct effect on Attention Control in spite of the mediating variables’ effect. The point estimate for the sequential indirect effect via AC and DA was .04 (SE =.03).

The 95% Bias Corrected confidence intervals for the indirect (mediated) effect of the model that included both mediating variables did not include zero [04, .14], indicating that the indirect effect was significantly different from 0 at p = .05. Thus, as predicted, the effect of Sadness on Rumination was mediated by both Attention Control and Dysfunctional Attitude.
5.04 Hypothesis 4 (H4). Trait Mindfulness will mediate the relationship between depressive mood and attention control capacity.

Hypothesis 4 was tested with a mediation model using estimates based on 5,000 bootstrap samples (Preacher & Hayes, 2008).

5.04.1 Overall Trait Mindfulness. When Overall Trait Mindfulness was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was not found to be a significant predictor of Overall Trait Mindfulness (b = -.05, p = .274). Although Overall Trait Mindfulness (b = .02, p < .001) was found to be a significant predictor of Attention Control.

The point estimate for the indirect effect of Overall Trait Mindfulness was -.12 (SE =.03). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did not include zero [-.18, -.07], indicating the indirect effect was significantly different from 0 at p = .05. As such, the effect of Sadness on Attention Control Capacity was mediated by Overall Trait Mindfulness.

5.04.2 Observing. When Observing was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was found to be significant predictor for Observing (b = .74, p = .021) but Observing was not found to be a significant predictor of Attention Control (b = -.01, p = .245).

The point estimate for the indirect effect of Observing was -.07 (SE =.01). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did include zero [-.03, .00], indicating the indirect effect was not significantly different from 0 at p = .05. As such, the effect of
Sadness on Attention Control Capacity was not mediated by Observing.

**5.04.3 Describing.** When Describing was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was not found to be a significant predictor of Describing ($b = -.29, p = .093$) but Describing was found to be a significant predictor of Attention Control ($b = -.04, p < .001$).

The point estimate for the indirect effect of Describing was -.02 ($SE = .01$). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did include zero [-.058, .002], indicating the indirect effect was significantly different from 0 at $p = .05$. As such, the effect of Sadness on Attention Control Capacity was not mediated by Describing.

**5.04.4 Acting with Awareness.** When Acting with Awareness was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was found to be a significant predictor of Acting with Awareness ($b = -1.08, p < .001$) and Acting with Awareness was found to be a significant predictor of Attention Control ($b = .08, p < .001$).

The point estimate for the direct effect of Sadness was -.08 ($SE = .04, p = .059$). This suggests Sadness continues to exert a direct effect on Attention Control in spite of the mediating variable’s effect. The point estimate for the indirect effect of Acting with Awareness equated to -.09 ($SE = .03$). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did not include zero [-.15, -.03], indicating the indirect effect was significantly different from 0 at $p = .050$. As such, the effect of Sadness on Attention Control Capacity was mediated by Acting with Awareness.

**5.04.5 Nonjudging of Inner Experiences.** When Nonjudging was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was found to be a significant predictor of Nonjudging ($b = -2.81, p < .001$) and Nonjudging was found to be a significant predictor of Attention Control ($b = .03, p < .001$).

The point estimate for the direct effect of Sadness was -.09 ($SE = .05, p = .077$). Meaning Sadness continues to exert a direct effect on Attention Control in spite of the mediating variable’s effect. The point estimate for the indirect effect of Nonjudging equated to -.07 ($SE = .02$). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did not include zero [-.13, -.04], indicating the indirect effect was significantly different from 0 at $p = .05$. As such, the effect of Sadness on Attention Control Capacity was mediated by Nonjudging.
5.04.6 Nonreacting of Inner Experiences. When Nonreacting was entered as a mediator for the relationship between Sadness and Attention Control, Sadness was found to be a significant predictor of Nonreacting ($b = -1.21, p < .001$) and Nonreacting was found to be a significant predictor of Attention Control ($b = .03, p = .001$).

The point estimate for the direct effect of Sadness was $-0.13 \ (SE = .05, p = .012)$, suggesting that Sadness no longer had a significant direct effect on Attention Control after the mediating variable was added. The point estimate for the indirect effect of Nonreacting equated to $-0.03 \ (SE = .02)$. The 95% Bias Corrected confidence intervals for the indirect (mediated) effect did not include zero [0.08, 0.01], indicating the indirect effect was significantly different from 0 at $p = .05$. As such, the effect of Sadness on Attention Control Capacity was mediated by Nonreacting.

5.05 Post-hoc Analysis. Independent mediating effect of Attention Control and Dysfunction Attitude of the relationship between Sadness (negative affect) and Rumination

Given that the sequential mediating effect of Attention Control and Dysfunction Attitude was only .04, post-hoc analyses were performed to assess the mediating effect of each variable individual to determine which had a greater effect.

5.05.01 Attention Control. When AC was entered as a mediator for the relationship between Sadness and Rumination, Sadness was found to be a significant predictor of AC ($b = 2.62, p < .001$) and AC was found to be a significant predictor of Rumination ($b = 1.80, p = .004$).

The point estimate for the direct effect of Sadness equated to $2.62 \ (SE = .65, p < .000)$. This means that Sadness continues to exert a direct effect on Rumination in spite of the mediating variable’s effect. The point estimate for the indirect effect of AC equated to $0.31 \ (SE = .16)$. The 95% Bias Corrected confidence intervals for the indirect (mediated) effect of the model that included AC as a mediating variable did not include zero [0.03, 0.84], indicating the indirect effect was significantly different from 0 at $p = .05$, indicating that the effect of Sadness on Rumination was mediated by Attention Control.

5.05.02 Dysfunctional Attitude. When DA was entered as a mediator of the relationship between Sadness and Rumination, Sadness was not found to be a significant
predictor of DA (b = 2.12, p = .243) but DA was found to be a significant predictor of Rumination (b = .07, p < .001).

The point estimate for the direct effect of Sadness equated to -.09 (SE = 2.79, p = .063), indicating Sadness does not exert a direct effect on Rumination. The point estimate for the indirect effect of DA was .14 (SE = .14). The 95% Bias Corrected confidence intervals for the indirect (mediated) effect of the model that included AC as a mediating variable did include zero [-.08, .45], indicating the indirect effect was significantly different from 0 at p = .05. As such, the effect of Sadness on Rumination was not mediated by Dysfunctional Attitude.

Overall, the pattern of results supported the hypotheses that an individual’s trait mindfulness mediated the relationship between their emotions and AC capacity. Not all facets of mindfulness however had this mediating effect. Only the facets Nonjudgment and Nonreactivity to Inner Experiences would have a significant effect.

CHAPTER 6

Discussion

6.01 Discussion

The aim of the current research was to investigate the validity of a theoretical framework for understanding the operation of mindfulness by combining several known related variables including AC and DA into a single model. Specifically, the study hoped to replicate previous findings with regards to the relationship between depression, Sadness, Rumination, DA, AC and mindfulness. In keeping with previous research, depression was found to be positively correlated with rumination, DA and Sadness; and negatively correlated with AC and overall mindfulness levels.

The second aim of this study was to investigate whether attention control capacity would mediate the relationship between negative Affect and Rumination. Some level of support was found for this as sequential mediating effect of the AC and DA were found for the relationship between Sadness and Rumination. An unexpected finding was that the strength of the effect was low. A possible reason for this is possibly the community-based population sample that participated in this study, which will be discussed further in a later section. Lastly, this study looked into how different dimensions of mindfulness mediate the relationship between Sadness and Attention Control capacity. Results show that not all traits of mindfulness mediated the relationship between an
individual’s degree of Sadness and their AC capacity. Specifically, it is adopting a Nonjudgmental attitude and the capacity of Nonreactivity to one’s own inner experience that have the effect were the only significant mediators.

The relationship between depressive mood and DA as two primary components of rumination has been firmly established in previous literature (see chapter 1). However, this study contributes to existing knowledge by looking at the possibility of a rumination system that incorporates AC capacity as a mediating variable. In support of the primary hypothesis of this study (H3), Attention Control and Dysfunctional Attitude mediated the relationship between Sadness and Rumination. This is a significant finding as it implies that unlike the rumination model established by the ICS which includes only depressive mood and DA, an individual’s innate attention control capacity is also an intricate part of the rumination process. Of interest was the degree of the correlation decrease between Sadness and Rumination after the mediating variables were included. The overall effect of the sequential mediation was surprisingly small (b = 0.04) and thus although the mediating effect was significant, the question why the effect was small needs explaining. After looking at the post-hoc analysis, DA did not mediate the relationship between Sadness and Rumination. This is inconsistent with previous studies of DA being an intrinsic part of the connection between depressive mood and Rumination. It is possible that this outcome is due to the sampling method employed, a point discussed in more detail below.

The cyclic nature of the rumination cycle implies that rather than just DA being the direct predictor of rumination, others variables are also important in predicting rumination. It is the operation of the cycle that results in what we conceptualize as being rumination. According to the DAH, rumination is a process involving the components of DA, negative thought content and depressive mood supporting each other. However, this approach fails to take into account the effect of an individual’s capacity to control how attention is directed. Although it is commonly accepted that depressive mood is related to DA, a person’s ability to control their attention would regulate how strongly DA influences the person. If a person has greater ability to direct their attention towards or away from their feelings, then they will be less likely to engage in DA. This in turn would lessen the chances of more negative feelings being generated by those thoughts. Because this process operates in a self-perpetuating cycle, affecting any part of this cycle would affect all the variables that are related to rumination.
Taking into account the role emotions play on attention allocation that is supported by previous studies both conceptually and empirically, we can infer that the rumination cycle contains at least four components. The original relationship includes DA, the negative thought content that arises from DA, as well the negative and depressive feelings that arise from these cognitions. However, the results of this study indicate than rather than the depressive mood giving rise to DA directly, this relationship is actually mediated by the individual’s AC Capacity.

Through this model, it is logical to understand why attentional inflexibility is a symptom in ruminators. As each element of the depressive rumination cycle continues to reinforce each other, attention is held by an intricate component of that cycle, namely Sadness. Therefore, the process of rumination in itself is feeding the maintenance of attention on the ruminated topic. Due to the presence of the DA, the content will always be negative, generating more depressive emotion and again feeding the attentional hold.

There are clinical implications of this study with regard to how treatment can be approached. One way of looking at the inability to draw attention away from a particular line of thinking is focusing on the AC deficits within the ruminating individual rather than the frequency and intensity of negative emotions. The clinical implication of this is that developing higher levels of AC capacity may decrease an individual’s tendency to ruminate. Traditionally CBT has been limited to teaching strategies that aim to reducing the DA and the negative thought content of people who ruminate. While decreasing the severity of the components of the cycle no doubt works during acute treatment, leaving the associative links intact means that if any one component is triggered this will set the whole cycle back into motion. Indeed, this may mean that the slowed ability to switch attention can undermine the therapeutic process of CBT during the acute
depression phase (March, et al., 2004). The key therefore, is to disrupt the cycle itself through weakening the associative links between the components, and one way to do this is through learning how to control attention in order that the person is better able to direct attention away from negative thoughts when experiencing negative affect.

Although there has been considerable theoretical development with regard to the conceptual understand of mindfulness, there are still a number of questions that have yet to be answered. One such question is with regard to the phenomenology of mindfulness. Specifically, in what way does mindfulness affect and change an individual’s disposition to ruminate. In theory, mindfulness is a practice that targets the rumination process described by the Differential Activation Hypothesis (DAH) as proposed by Teasdale (1988). On the level of the specific mental mechanisms, the theory suggests emotional arousal, or affective reactivity, triggers an individual’s mind to engage in rumination. However, the specific connection between affect and emotion, with the mind’s tendency to elaborate, dramatize and analyse a given topic has never been satisfactorily explained.

The critical connection relevant to this study is the empirically supported relationship between attention and emotion. As outlined in chapter 1, regardless of the type of emotions, any form of affective reactivity to both external and internal stimuli activates the focusing of a person’s attention to those stimuli. The more personal-stake one has to the stimuli, event or topic, the more likely that attention will be allocated to it. Therefore, rather than saying that depressive mood leads to rumination, it may be better to imply that negative emotions activate the allocation of attention to that topic, and through the process of mental contents being influenced by DA, more depressive mood are generated, leading to the attention being held in that place. The result of this process is conventionally called ‘rumination’. Once an individual is locked into the rumination cycle, it is unlikely the person can extract themselves from it unless some form of distraction occurs.

Of special interest is that the three key variables measured in this study, Sadness, DA and Rumination, were not significantly correlated to Mindful Describing. This lack of correlation may be due to their conceptual heterogeneity. Describing, the process of verbalizing experiences, is one that has little relation to these constructs. Neither Sadness (an emotional reaction one experiences as a result of environmental triggers), or Dysfunction Attitude (the cognitive process in which associates a sensory stimuli or thought to a negative possibility or outcome), overlaps conceptually with one ability to verbalize physical sensation. As noted previously in chapter 1, these two are the key components of the rumination cycle. It is therefore reasonable to deduce that the lack of correlation between them and the facet of Describing logically leads to the lack of correlation between Describing and Rumination.
Having established that the mindfulness facet of Describing is unrelated to the Sadness subscale in the results of the second hypothesis, the lack of correlation here was unsurprising. What may need addressed is the fact that neither the facet Nonjudging to Inner Experience, nor Acting with Awareness were correlated with Sadness when used to mediate its relationship to AC. Both variables being uncorrelated to Sadness as a mediating variable is unexpected. Firstly, neither one truly overlaps heavily with an individual’s emotions on a conceptual level. Acting with Awareness is a facet of mindfulness dealing with an individual’s focus when acting without being distracted. Although this is both conceptually, and shown in this study, to be statistically related to the actual attention itself, it is not in itself related to emotions that gave rise to the increase or decrease of the individual’s AC. In addition, the questions within the FFMQ were not tailored to action that are performed when one is experiencing sadness specifically, so the possible overlap with positive affect based attention may have affected the results. Nonjudgemental is a construct that deals with the self-referencing attitude of an individual. Therefore, it is likely that this particular construct is more related to the generated DA rather than experienced of emotion itself.

Nonreacting to Inner Experiences has been shown here to be a significant mediator of the Sadness and AC. This supports the hypothesis of this study while at the same time also provides important insights as to the how mindfulness operates with regards to attention. Within this model, three components are needed in order to sustain or even exacerbate rumination; depressive mood, (lack of) AC, and DA. As a psychological mechanism, depressive mood is not something that can be altered in itself. Rather, what is altered are the triggers that causes depressive mood to arise. These triggers are the negative thought content that, at least initially, are triggered by environmental cues. What this study suggests is that people who score high on Nonreactivity do not react as much to their emotional state, and thus attention (switching and focusing on the negative event) is not activated, impeding the activation of DA.

Nonjudgement to Inner Experience was also found to be a significant mediator of Sadness and AC. This is important as it implies that mindfulness’ effect on rumination is more than just a matter of attention. Nonjudgement, as one of the pillars of mindfulness, is an attitude in one holds when addressing either external environment or internal reactions. Given that emotions directly influenced the allocation of attention, it is possible that holding a nonjudgemental attitude might decrease the intensity of the experienced emotion and thus facilitate an individual’s ability to control their attention.
There are important implications about this with regards to the relationship between mindfulness and attention. The conventional conceptualization of mindfulness is that mindfulness allows the individual to shift to a different mode of the mind such as the Mindful Experiencing/Being of the Interacting Cognitive Subsystem (ICS) by Teasdale (1999) or the Wise Mind utilized by the Dialectical Behaviour Therapy. This shift often requires one to direct their attention inwards so that the Sadness becomes the object of observation bringing about greater understanding and the reprieving of a person’s own experiences. There is however, one problem within this theory. Specifically, this act of shifting attention from external environmental issues to internal mental events is effectively an attention switching task. However as mentioned in chapter 3.04.2, Chambers, Lo and Allen (2008) found evidence suggesting that as far as attention switching capabilities are concerned, mindfulness meditation did not improve performance in attention-switching tasks compared to those who did not take part in an 10-day retreat. Although the findings of the study did not refer to this form of external-internal shift, it is the assumption of this study that the two are, while may not equate to each other, is similar in nature. The present study seems to support this theory that the attention portion of mindfulness is related but not identical to an individual’s attention switching.

Attention switching is in effect an act that is composed of two parts: first the inhibition of attention from what one was originally focused on and second, the reengagement of attention on the
new object. It is the proposal of this thesis that rather than a complete switch in attention, mindfulness increases the attention inhibition/disengagement capacity of the individual when faced with emotionally arousing stimuli. It blocks the path to engaging in rumination as it does not stay on that topic long enough for DAs to arise and affect the outcome of the thought process. In addition to the evidence, the rationale behind this is that, although mindfulness practices do allocate attention on an anchor or foundation of some sort, this is fundamentally a different form of attention. Attention engagement, in this context, is seen as the type that is influenced and based on affect arousal. These affects are the fundamental, pre-conscious, and immediate affect that are normally either positive, negative, or neutral. As detailed in chapter 1.07, such feelings have self-centred goal as its foundation. In contrast, a mindful state is one that is characterized as having a perception where the ego-self are decoupled from whatever it is being perceived. As such, they are not influenced by the same mental dynamics. This fundamental difference in the nature of engaged attention and attention disengagement, is assumed here to be one of the phenomenological variables of mindfulness and in turn, a component as to why mindfulness practice has enjoyed such success.

6.02 Methodological Issues

Although this study has provided concrete results from which supports most of the original hypothesis, it nonetheless suffers from a number of mythological limitation. Primary of which is the population sample that was selected for this study. The participants of this study were primarily either first year undergraduate psychology students, or community sample that was recruited from the researcher’s own social network. In both situation, the same already predisposed certain biases to the results. For example, it is likely the majority of these participants were middle-class, well-educated people who have a certain level of emotional and attention regulation capability. As such, the data that was collected could have been skewed in this manner. The majority of the sample was taken from undergraduate students who participated as a part of their studies. Indeed, all students were given one course credit that they required in order to complete the course. The motivation for taking part in the study may also have affected the data received. Similarly, the sample is unrepresentative of both real generalized population, and has even less meaning for the clinical samples that are actually suffering from depression. Due to this, it is possible that it affected the connection between DA and Rumination in the form of lacking in significant correlation lack of mediating effect on the relationship between Sadness and Rumination.

Survey based study is also an obstacle that should be addressed. Without actual experiment-based data, the question of the validity of the results comes into question. Subjects may have,
intentionally or not, altered their answers due to self-esteem issues, social identity, among other possible reasons.

6.03 Future Research

This study has opened up many possible researches for the future. Firstly, this project has provided support for the reconceptualization of rumination. It therefore sets the foundation from which studies of the validation of this model can be conducted. Secondly, to address the mythological problem of sampling, similar study should be conducted on a wider population encompassing a greater range of demographics. Similarly, the sample can be more focused and employed to a clinical sample so that the findings, and theories developed from these findings, can be used to understand the operation of rumination of people who are dysfunctional in their daily lives due to rumination. Although the theoretical framework of depressive rumination developed in this study may be logically sound, and that the various links are supported by research findings, it nonetheless looks at depression in it isolated form. As noted previously (section 1.04.01), there is a relatively high chance that depression comes with other comorbid psychological disorders. An interesting question here is, how do additional variables that are brought into play by these comorbid disorders affect this process? Of the different disorders, personality disorders are of primary interest in this study. In doing so, validity of the theories proposed as a result of this study can have stronger empirical support.

Second, this study indicates that the role of attention disengagement during emotional arousal is the cognitive mechanism in which mindfulness practice operates. As such, pro-post mindfulness intervention time reaction experiments could be conducted as a mean to validate whether an individual’s attention disengagement indeed increased as a result of mindfulness practice. This can also involve the comparison of the data found in this study so to analyse what variable can benefit or impede the efficacy of mindfulness interventions. From this, mindfulness programs could be refined so to allow for specialization from which could achieve greater level of effectiveness based on the specific mental composition of the patient.

6.04 Summery & Conclusion

Depression is among the most serious and urgent problems faced by the modern world. Key reasons of this is both its debilitating effect on the day-to-day life of individuals leading to the immense amount of society resources lost to it, as well as its ability to relapse even after treatment has been considered successful in conventional therapy. The reason why it has this innate ability to relapse in people is because depression fundamentally involves various mental characteristics that
make the victim prune to ruminate. The key to managing, if not solving, the problem of depression is knowing how rumination can be disrupted.

Early theories of rumination saw rumination as a single concept involving various components such as maladaptive self-referencing thoughts that make a person feel worse. While the idea of having negative thoughts will increase the sadness the individual may seem to be common sense to many, the Differential Activation Hypothesis developed by Teasdale (1988) was among the first to propose that sad emotions actually triggers negative thoughts through a process of selective memory retrieval and filtered by DA, instigated by the emotion itself. Logical development of this theory regards rumination as an interactive, self-perpetuating process involving multiple cognitive mechanisms. Each component feeds each other in a cyclic loop where the victim mind is locked within. Through running through this cycle, the symptoms of depression become gradually more severe which lead to much greater difficulty in treatment and more discouraging prognosis. However, the DAH does not address the issue of attentional control deficits of people with mood disorders and how the connection between attention control and emotion is the key to holding the focus of an individual on the thought process that drives the cycle of rumination. Results of this study indicate that rumination is seen here as a cycle of Sadness, AC and dysfunctional thought processes. With depression being a disorder in which negative mood is ever-present in the mind of the individual, this study proposes that the two phenomena are linked. Further, AC deficit is an inability to direct attention away from emotionally-charged mental states and thoughts. In rumination, the subtle depressive mood generated by the thought process holds the individual’s attention as opposed to emotionally neutral stimuli which the individual may otherwise be engaging in. Therefore, even the slightest increase in stress level or experience of frustration or failure through environmental factors may propel the individual down the rumination spiral.

This study also provides support to the idea that an individual’s trait mindfulness, which could be enhanced through mindfulness practice, can mediate the effect of depressive mood on the AC of the rumination process. When one increases their trait mindfulness, the AC development comes in the form of attention disengagement that can result in the Nonreactivity to emotions.

Depression, rumination and mindfulness intervention has had a long and respected line of research and empirical support. This study has contributed to ongoing efforts through further refinement of the conceptualization of rumination and possible mechanism from which mindfulness operates. This provides grounds in which later studies can build on so as to tackle various theoretical issues that has yet been address, opening doors to possible cognitive experiments that
allow us to understand mindfulness on a deeper level, as well as possible refinement of contemporary mindfulness programs to tailor to the specific mental composition of the recipient.

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