

MECHANISMS OF MINDFULNESS: EVALUATING THEORIES AND PROPOSING
A MODEL

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A thesis
submitted to the Victoria University of Wellington
in fulfilment of the requirements for the degree of
Master of Science

Victoria University of Wellington

2014

ABSTRACT

Clinical interest in mindfulness theories and interventions for the treatment of psychological problems such as anxiety and mood disorders has increased dramatically over the last decade. Alongside this interest relatively little attention has been paid to the hypothesised mechanisms of mindfulness that result in a mindfulness state; practice has outstripped the development of a coherent model of the mechanisms. The *Decontextualising Model of Mindfulness* (DMM) is proposed here to address this gap. The DMM suggests that mindfulness techniques operate to decontextualise mental events from their web of hierarchically organised levels of abstraction and associated meaning, which opens up the cognitive “space” to introduce more adaptive strategies. The DMM is evaluated in terms of its ability to explain existing theories, cognitive-behaviour therapy, and accepted mechanisms of change in psychotherapy. The DMM aims to stimulate deeper understanding of how mindfulness works so that (1) Mindfulness-Based Interventions (MBIs) are more equipped to induce mindfulness states; (2) the origins of psychopathology may be better understood and therefore more effectively treated; and (3) the causes of psychological well-being may be made more clear and therefore more readily enhanced. The research and theoretical literature as well as the current investigation indicate that in particular self-identity and self-compassion are two areas that warrant further investigation.

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ACKNOWLEDGMENTS

I acknowledge my supervisor, Professor Tony Ward, for his guidance, stimulation, input, and patience. I acknowledge my father, Chris White, for his ongoing support and encouragement. I acknowledge all of my family and friends for their outstanding support. Finally, I acknowledge the ancient origins of mindfulness and those who have contributed to the current understanding of it.

CHAPTER 1 – INTRODUCTION

The Current Paradigm

Mindfulness is a Buddhist contemplative tradition that may be older than Buddhism itself (Harvey, 2012). Mindfulness Based Interventions (MBIs) are a Western psychotherapeutic practice that began to emerge only two decades ago (Didonna, 2009). Clinical interest in mindfulness theories and interventions for the treatment of psychological problems such as anxiety and mood disorders has increased dramatically over the past two decades in what can be described as the ‘mindfulness therapy movement’ (Didonna, 2009; Thera, 2005). The emergence of mindfulness techniques as a powerful psychotherapeutic tool can be considered in terms of the paradigmatic culmination of historical development from psychoanalysis in the nineteenth century to behaviourism and cognitive therapy in the twentieth century.

In the nineteenth century Sigmund Freud pioneered psychotherapy when he developed psychoanalysis, or ‘talking therapy’, which was based on his theory that the mind is split into three parts: instinctual urges (ID), higher morals (superego) and the conscious effort to balance these competing forces (ego) (Sulloway, 1992). Freud argued that psychiatric disturbance manifests from unconscious conflict between the ID and the superego, along with material repressed in the ID. Freud postulated that effective treatment involves an open dialogue between the client and the therapist that enables the unconscious to surface into conscious awareness (Sulloway, 1992). Freud’s account for the efficacy of psychoanalysis continues to be an accepted explanation for the efficacy of psychotherapy.

Behaviourism developed as a reaction to the perception that psychoanalysis is unscientific, because unconscious processes, and indeed anything that occurs in the mind, are beyond observation and objective measurement (S. Hayes, Follette, & Linehan, 2004). Major contributors to the development of behaviourism recognised that in order to have empirical grounding, and therefore credibility, psychology needed to be concerned with observable events, in particular, behaviour (O’Donohue & Kitchener, 1999). Two of the major contributors, Pavlov and Skinner, found that behaviour is under contingency control, meaning that an action is contingent upon its consequences (Pavlov, 1927; Skinner, 1938). If behaviour does not have any meaningful consequence, or the previous consequence that it had ceases, the

behaviour itself eventually desists. The contingency control of behaviour provides a framework for clinical psychology to investigate behaviour, including abnormal or problematic behaviour, and find methods to change behaviour (O'Donohue & Kitchener, 1999). Change at the level of behaviour constitutes 'first-order' change, meaning that when problems arise in behaviour the focus of treatment is to change the problematic behaviour (S. Hayes, V. Follette, et al., 2004).

Behaviourism, while therapeutically useful, did not offer insight into the influence of human cognitive functioning on behaviour. Cognitive psychology, on the other hand, arose directly from the recognition of the significance of human cognition on behaviour, and is concerned with mental processes, such as attention, memory, perception, language, and thinking (S. Hayes, V. Follette, et al., 2004). Aaron Beck, who developed cognitive therapy, argued that psychological distress is caused by certain unhelpful thinking patterns, which are alleviated by altering associated thinking patterns and implementing particular cognitive coping strategies to replace those patterns (Beck, 1967). Alleviating psychological distress by changing thinking patterns and styles is known as 'second order' change (S. Hayes, V. Follette, et al., 2004).

While cognitive psychology acknowledges thoughts as being pivotal in mental health and empirical evidence demonstrates that changing thoughts can improve psychological well-being, theorists began to note that it is the function of thoughts, rather than the content of thoughts, that is problematic (S. Hayes, V. Follette, et al., 2004). For example, depression arises from the way an individual deals with a negative thought rather than from the mere presence of the negative thought.

Thoughts can become problematic for people in the psychological context of elaborate information processing. It is not the mere presence of the thought itself but the reactions to that thought that a person has that creates suffering. As S. Hayes, V. Follette, et al. (2004) observed, "a difficult emotion accepted as an emotion will not necessarily have a negative function, even though it might in other contexts, such as one of resistance, suppression, or behavioural compliance" (p.9). For example, three people may have the same negative thought. The first person accepts the thought as merely a passing event in his or her mental arena. The second person changes the thought using cognitive techniques with no negative repercussions. The third person, however, ruminates on the negative thought and as a result develops depression (this

is an overly simplified example of the development of depression and is used for illustrative purposes only).

The key concept arising from empirical and theoretical cognitive psychology is that cognitive context and the way thoughts and experiences are managed provides a key avenue for therapeutic change (S. Hayes, V. Follette, et al., 2004). Mindfulness is a practice that directly addresses cognitive context, in particular the way that the mind processes thoughts and events. Mindfulness techniques seek to change the psychological context of cognition by directing the awareness from an engagement with concepts to observation of the presence of concepts.

Buddhist Origin of Mindfulness

The historical Buddhist origin of mindfulness provides a foundation for understanding the efficacy and theoretical assumptions of MBIs. In particular, mindfulness is a contemplative practice that rests on the theoretical foundation of the Buddhist ‘three marks of existence’: *suffering*, which is caused by clinging to the illusion of a permanent self; *impermanence*, meaning that all things are temporary; and *egolessness*, meaning that there is no enduring ‘self’ (Bodhi, 2003).

Rosch (2007) describes three main assumptions underpinning MBIs that are markedly different from usual Western psychological assumptions, namely: [1] changing people’s *state* of consciousness, rather than the *contents* of that consciousness, reduces suffering; [2] interpreting experience in relation to the self-concept is detrimental; and [3] the present moment is the only point in time that exists and therefore attempting to orient oneself outside of the present is problematic and can produce distress.

In terms of the historical context of mindfulness, the interrelationship of key concepts that accounts for the efficacy of MBIs is the relief of suffering through non-association of a sense of self with transitory mental events. These key concepts provide the basis for a coherent theoretical account for the efficacy of mindfulness techniques, which aim to bring about the realisation that events in the mind are transitory and do not constitute the self.

The Gap

Mindfulness techniques are efficacious and increasingly used in clinical settings. The efficacy of mindfulness techniques has been demonstrated frequently with diverse lines of investigation, from neuroscience to metacognition and concepts

of the self (Bränström, Kvillemo, & Åkerstedt, 2013; Didonna, 2009; S. Hayes, V. Follette, et al., 2004; S. Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Kerr, Sacchet, Lazar, Moore, & Jones, 2013; Luberto, Cotton, McLeish, Mingione, & O'Bryan, 2013; Piet & Hougaard, 2011; S. L. Shapiro & Carlson, 2009; Teasdale et al., 2002) and the clinical uses of mindfulness techniques “encompass a broad range of ideas and practices” (Didonna, 2009, p. 18).

The incorporation of mindfulness techniques into psychotherapy is a positive step but is one that has been taken without comprehensive understanding of the psychological mechanisms underpinning its efficacy. The theoretical literature and the theoretical framework for MBIs that are at the forefront of the mindfulness therapy movement provide incomplete accounts of the mechanisms of action in mindfulness techniques. In particular, there is no overall coherent account of the processes that underpin the mechanisms of mindfulness. The absence of this understanding is problematic in that it creates a number of clinical risks, including the following:

1. Inability to tailor and systematically implement treatment due to the lack of a necessary framework for investigating why a client may be resistant to change when using mindfulness techniques.
2. Using a technique that may not fundamentally serve treatment goals, which arguably weakens the scientist-practitioner model of clinical psychology.
3. Partial use of a technique with attendant loss of fundamental components pivotal in treatment efficacy.
4. Use of mindfulness techniques with incongruent techniques such as cognitive therapies.
5. Distorted use of mindfulness techniques.

The current paper examines the major accounts of how mindfulness interventions are thought to work and proposes a unifying model, the *Decontextualising Model of Mindfulness* (DMM), in an attempt to provide a coherent overall theoretical framework for the psychological processes that underpin the mechanisms of mindfulness. The DMM considers self-concept, self-compassion, and the psychological underpinnings of the state of mindfulness itself.

At this point it is important to define and clarify precisely what ‘mindfulness’ means in the context of this paper. Although this has been done extensively elsewhere, prior definitions of mindfulness vary to a certain degree.

Meaning of Mindfulness

Mindfulness as a Technique

In the psychological literature mindfulness techniques are typically described as “paying attention, on purpose, in the present moment, and nonjudgmentally, to things as they are” (Williams, Teasdale, Segal, & Kabat-Zinn, 2007, p. 47).

Mindfulness techniques involve becoming aware of sensations, thoughts, and feelings (that is, events in the mind) without interpreting them or endowing them with meaning or significance. Mindfulness techniques require observation of events in the mind without engaging in elaborate, evaluative cognitive processing that judges things as ‘good’ or ‘bad’ (Brown & Ryan, 2003).

The Buddhist concept of mindfulness identifies two distinct yet related constituent components of mindfulness, namely, concentration (*samatha* in Pāli) and insight (*vipassana* in Pāli). The *samatha* concentration technique is the focus of “attention on the object of meditation to the exclusion of everything else” (Grabovac, Lau, & Willett, 2011, p. 158), whereas the *vipassana* insight technique involves the “moment-by-moment observing of the three characteristics (impermanence, suffering, and not-self) of the meditation object” (Grabovac et al., 2011, p. 157). These two concepts are often conflated in the psychological discourse on mindfulness, which overlooks the important distinction between two different processes that may have different implications for the outcomes of mindfulness practice (Grabovac et al., 2011). Grabovac et al. (2011) used the *vipassana* insight description to define mindfulness and, while admitting that mindfulness involves *samatha* concentration, posited that the main point of difference between *vipassana* and *samatha* is the focus of the two techniques, with the efficacy of mindfulness techniques being due to a focus on *vipassana* insight. Grabovac et al. (2011) defined the three characteristics of the focus of *vipassana* insight as follows:

1. Sense impressions and mental events are transient (they arise and pass away)
2. Habitual reactions (i.e., attachment and aversion) to the feelings of a sense impression or mental event, and a lack of awareness of this process, lead to suffering
3. Sense impressions and mental events do not contain or constitute any lasting, separate entity that could be called a self. (p. 156).

Empirical evidence and theory support these observations by Grabovac et al. (Baer, 2003; 2011; Kabat-Zinn, 1982; Kerr, Josyula, & Littenberg, 2011)

The “permanent, radical change in perspective” (p. 159) resulting from the practice of mindfulness techniques noted by Grabovac et al. (2011) accords with the ‘state of being’ ensuing from the repeated formal practice or deliberate employment of the technique of mindfulness reported by Kabat-Zinn (1982).

Mindfulness as a State

Several authors concur that a mindfulness state is characterised by a particular state of consciousness (Brown & Ryan, 2003; Brown, Ryan, & Creswell, 2007a, 2007b; Carmody, Baer, Lykins, & Olendzki, 2009; Gunaratana, 2011; Hollis-Walker & Colosimo, 2011; Kabat-Zinn, 1982; Leary, Adams, & Tate, 2006). There is a vast literature on the topic of consciousness, however in this paper the typical Western psychological meaning is intended, as the usual waking state of a person (Walsh & Vaughan, 1993).

Researchers and mindfulness practitioners alike claim that in a mindfulness state the self is identified as the observer of experience rather than as the experience itself (Hölzel et al., 2011; Kerr et al., 2011). Goleman (1971) proposes that when awareness is brought to the presence of the contents of consciousness, they are considered as insubstantial events that given their transitory nature do not provide an enduring self-concept with which to identify. They are known to be simply impulses of perception occurring within awareness that arise in response to external and internal stimuli. Hölzel et al. (2011) explain that in a mindfulness state of consciousness, individuals recognise that the contents of their consciousness, that is, what they are aware of, are distinct from themselves as the observer of those contents. ‘Awareness of awareness’ is known as meta-awareness (Wells & Matthews, 1994) and provides a perspective with which to identify and from which to operate. The observer becomes a person’s self-identity. Kerr et al. (2011) found that in their diary study of participants in an MBSR program all of the participants reported “the emergence of an observing self” (p. 80).

The process of acknowledging events in the mind as not necessarily true or accurate representations of reality, and as ‘merely thoughts’, is known as ‘decentering’. Although decentering already exists in the psychological discourse on cognitive therapy, unlike in mindfulness, it has been used therein “as a means to

changing thought content, rather than as an end in itself” (Segal et al., 2013, p.36). Additionally, it has not been used as a platform to develop a new self-identity from.

Hölzel et al. (2011) propose that through acknowledgment of events in the mind as separate to the self, “self-referential processing (i.e. the narrative of the relevance of the stimulus for oneself) becomes diminished, while first-person experiencing becomes enhanced” (p. 549). In a mindfulness state, rather than thinking-about experience as it pertains to the self-concept, sensations of experience are attended to as they arise and are not interpreted as the self.

Olendzki (2013) explains that continuously responding to conditioned and habitual reaction patterns in the search of pleasure and avoidance of pain removes the choice to act otherwise. He states that conversely, a mindfulness state is characterised by *equanimity*, which involves a lack of attraction or aversion to stimuli, since it is no longer relevant to the self-concept. Grabovac et al. (2011) argue that an additional “consequent decrease in mental proliferation” (p. 159) follows equanimity and the cessation of relating stimuli to the self-concept. The decrease in elaborate cognitive processing can be likened to a cognitive ‘space’ that Neff (2003b) suggests is necessary to introduce self-compassion, which is also characteristic of a mindfulness state. Self-compassion involves a kind, understanding attitude towards oneself and is highly implicated in mindfulness (Neff, 2003b). As such, it is further explored and addressed in the following chapters.

Thesis Overview

This paper evaluates current theories of the mechanisms of mindfulness and proposes the *Decontextualising Model of Mindfulness* (DMM) as an explanation for the efficacy of Mindfulness-Based Interventions (MBIs)

Chapter one outlined the historical context of psychotherapy in terms that identify the groundwork for the introduction of mindfulness. The chapter also considered mindfulness both as a state and a technique, the distinction between which has different theoretical and practical implications for the proposed DMM.

Chapter two presents and evaluates the main MBIs and theories of how they work along with purely theoretical accounts of the mechanisms of mindfulness, from which five core mechanisms are identified and discussed, namely, *attention*, *intention*, *attitude*, *awareness/meta-awareness*, and *self-compassion*.

Chapter three introduces and explains the DMM, examines how the DMM relates to mindfulness, and uses depression as an example of how mindfulness operates in treatment.

Chapter four evaluates the DMM for its ability to explain existing theories, cognitive-behaviour therapy, and key mechanisms of change in psychotherapy. The chapter also evaluates the DMM for its adequacy as a theory using epistemic values.

The paper concludes with a summary of key points and an overview of the clinical utility and limitations of the DMM, and suggestions for future research.

Chapter Conclusion

Mindfulness is both a technique and a state induced through the use of that technique. This chapter has outlined operational definitions of mindfulness, with a distinction between mindfulness techniques and a mindfulness state. It has also provided a summary of the psychotherapeutic history that created the climate within which mindfulness was introduced, and suggested that the mindfulness literature has developed in the absence of sound theory of the mechanisms of change. The next chapter outlines and evaluates the theoretical developments that have been made by researchers in the field. It explains and examines the respective authors' theoretical accounts of how Mindfulness Based Stress Reduction (Kabat-Zinn, 1982), Mindfulness Based Cognitive Therapy (Segal, Williams, & Teasdale, 2013) and Acceptance and Commitment Therapy (S. Hayes, Strosahl, & Wilson, 1999) are intended to alleviate the symptoms of psychopathology, along with theories of the mechanisms of mindfulness proposed by S. L. Shapiro, Carlson, Astin, and Freedman (2006) and Hölzel et al. (2011), and the relevant theoretical adjuncts offered by Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) and Brown et al. (2007b).¹ The following chapter also extracts, identifies and describes the core mechanisms of mindfulness as postulated by the above theorists.

¹ Dialectical Behaviour Therapy (Linehan, 1993a, 1993b) incorporates mindfulness techniques but does not add anything of theoretical relevance for present purposes and so is excluded from this review.

CHAPTER 2 – REVIEW OF THE THEORETICAL ACCOUNTS OF THE MECHANISMS INVOLVED IN MINDFULNESS INTERVENTIONS

Intervention developers and theorists provide accounts of how the mechanisms of action in mindfulness operate to produce beneficial effects and alleviate psychological distress, and contribute to the theoretical understanding of the essential components of mindfulness practice, which are outlined below. The following section describes and evaluates the existing accounts of the mechanisms of mindfulness.

Mechanisms of Mindfulness

Mindfulness Based Interventions

A number of different MBIs have been developed over the past 23 years, and mindfulness intervention techniques from these programs are often selected by clinicians and widely incorporated into treatment plans tailored to individuals (Didonna, 2009). Given the widespread use of mindfulness techniques, it is important to conceptualise the possible mechanisms by which they may be efficacious.

Mindfulness-based stress reduction.

Kabat-Zinn (1982, 1990) developed the first mindfulness-based program, Mindfulness-Based Stress Reduction (MBSR), which was originally used in a pain clinic “to train chronic patients in self-regulation” (Kabat-Zinn, 1982, p. 33). Mindfulness meditation is taught with instructions to observe sensations and note their transitory nature. Kabat-Zinn (1982) postulates that mindfulness meditation involves an attentional shift towards observation and away from reactivity, which he argues leads to an ‘uncoupling’ of the link between the experience of the pain sensation and the subsequent “affective evaluative alarm reaction” (p. 33).

Kabat-Zinn (1982) suggests that suspension of the normal reactions to internal events is an example of therapeutic exposure. Attention is paid to internal sensations while judgment is withheld and doing so leads to the realisation that there are no catastrophic consequences from sensations themselves. Sensations are different from reactions to sensations, and are therefore more easily tolerated.

Kabat-Zinn (1982) claims that practicing mindfulness involves relating to experience with openness and acceptance, which fosters the development of an

awareness of internal reactivity. He argues that this awareness leads to ‘cognitive reappraisal’, or a change in the relationship to experience, in that “no mental event is accorded any content value” (p. 35) and subsequently reactions to internal events “lose considerable power and urgency *simply by being observed*” (p. 35). Thoughts are neither regarded as highly important and meaningful in the ways that they used to be, nor do they cause the same distress. Thus, openness and acceptance promote more effective coping.

Kabat-Zinn (1982) has provided a succinct explanation for how MBSR works. However, it is not clear how the ‘uncoupling’ of experience and reactivity actually happens psychologically as a consequence of the techniques involved. Furthermore, how exactly this leads to the creation of the state of mindfulness is not made explicit. Overall, Kabat-Zinn’s account makes intuitive sense, but lacks an explanation of the core underlying psychological processes.

Grossman, Niemann, Schmidt, and Walach (2004) conducted a meta-analysis including 20 empirical studies which demonstrate that MBSR significantly improves mental and physical health, as measured by standardised self-report questionnaires and clinical observation. For example, following completion of an MBSR program, participants experienced a reduction in mental and physical difficulties associated with pain, cancer, heart disease, depression and anxiety.

While this meta-analysis provides support for the efficacy of MBSR in both everyday life and extreme cases of difficulty and disturbance, there were no measures of participants’ changes in mindfulness, and it is therefore not clear that mindfulness is the aspect of MBSR that is efficacious, or how it may be efficacious. Moreover, the authors themselves point out the need to investigate the underlying mechanisms of the efficacy of mindfulness techniques.

Mindfulness-based cognitive therapy for depression.

Segal et al. (2013) developed Mindfulness-Based Cognitive Therapy for depression (MBCT). MBCT targets relapse in people who have been depressed, and the authors claim that it does so by training attention regulation.

Segal et al. (2013) base their rationale for the efficacy of MBCT on their model of depression relapse. According to this model, depression involves a pattern of thinking known as ‘rumination’ that is characterised by repetitive and often negatively valenced thoughts about the causes and consequences of one’s distress that does not result in problem solving but instead repeats itself (Nolen-Hoeksema, 1991).

Rumination is established and strengthened during the first depressive episode, and relapse results when a trigger reactivates rumination (such as low mood). The authors claim that rumination creates mental pathways, or ‘loops’, that are strengthened each time they are mentally rehearsed, and so with each subsequent relapse, the loop is strengthened, and relapse likelihood increases (for a review of the relevant literature, see Segal et al., 2013). Rumination pathways are likened to loops because once entered, rather than solving the ‘problem’ of low mood, they have the paradoxical effect of increasing feelings of low mood and distress. An increase in low mood increases the desire to resolve it. A belief that the problem will be resolved by thinking about it creates a self-perpetuating ‘loop’ maintaining the use of ruminative thinking patterns.

Segal et al. (2013) account for the problematic nature of rumination with what they refer to as “modes of mind” (p. 67). The authors argue that modes of mind underpin the way that people think and behave. There are two main modes, ‘doing’ and ‘being’. As the name suggests, the function of the *doing mode* is to get things done. To do so, the way that things are is compared to the way that one wants them to be. If one detects a discrepancy, one completes an action to reduce that discrepancy. For example, a person may decide to tidy a room. An unmade bed and clothes on the floor indicates a discrepancy between the way things are, and the way the person wishes them to be. To reduce the discrepancy, the person puts the clothes away and makes the bed.

According to Segal et al. (2013) ‘doing’ mode is adaptive when that which is being evaluated for discrepancy reduction is impersonal and external, but that its use can become highly maladaptive when applied to personal and internal worlds. The authors dubbed the latter ‘driven-doing’ and reason that it can become maladaptive because thinking about a discrepancy within oneself does not necessarily resolve the discrepancy. That is, the mind “dwell[s] on the discrepancy and rehearse[s] possible ways to reduce it” (p.69), without reaching any resolution when the person is unable to change the internal world from the way it is to the way they wish it to be. The discrepancy remains unresolved, and due to this, the mind remains in the driven-doing mode, with the focus on failing to be the person one wishes to be, which subsequently generates negative feelings. Additionally, the authors argue that it is very difficult to let go of discrepancies in the internal arena as they have such high

implications for self-identity. This is another mechanism that maintains the use of ‘driven-doing’, or rumination.

For example, a man in ‘driven-doing’ mode has recently ended a relationship. He wishes that he felt happy but instead he feels low mood. There is a discrepancy between the way that he feels and the way that he wants to feel, and he believes that the only way to feel happy and reduce the discrepancy is to think about his low mood and how he might resolve it. Thinking about it highlights the discrepancy that exists, which generates lower mood because it is clear that he is failing to be who he wishes to be, and that reduction in mood in turn exacerbates the discrepancy. This creates a cycle, or a ‘loop’ that he becomes mentally trapped in.

Segal et al. (2013) point out that in ‘doing’ mode or ‘driven-doing’ mode the present moment becomes simply a means to an end – a vehicle in which to reduce discrepancies. Thus, the only aspects of the present moment that are attended to are those that are relevant to the goal (which, when the goal is entirely internal, may be nothing external at all – and this is perhaps how ‘automatic pilot’ operates, where a person can drive home and upon arrival have no recollection of the drive).

Segal et al. (2013) present the ‘being’ mode as “‘accepting’ and ‘allowing’ what is, without any immediate pressure to change it” (p. 72). When experience is allowed, there is “no need to evaluate experience in order to reduce discrepancies between actual and desired states” (p. 72). When the present moment is not treated as a means to an end and instead as an end in itself, more aspects of the current experience are attended to, since attention is not narrowly focussed only on that which is relevant to a goal. The authors explain that the ‘being’ mode does not denote a cessation of actions, but rather that it encompasses a different way of doing things: attending to the way that things are and accepting that. For example, a woman driving home in ‘doing’ mode becomes frustrated by aspects of the environment that delay the fulfilment of the goal of getting home, such as slow traffic, red lights, and a pedestrian on the crossing. Another woman is driving home in ‘being’ mode and also comes to slow traffic, red lights, and a pedestrian. However she does not become frustrated with her experience of driving home, because she accepts it as it is, without comparing it to an internal model of how it ‘should’ be. She also notices other aspects of her environment that are not relevant to the goal of getting home.

The authors reason that both entering the ruminative loop created in the ‘driven-doing’ mode and the loop itself can be disrupted and terminated by learning

to recognise when it is activated, and relating to it with acceptance and non-reactivity, while having the choice to re-direct attention elsewhere. The authors postulate that MBCT teaches skills of exiting the ‘doing’ mode and entering the ‘being’ mode. To teach participants to do so, mindfulness meditation and psychoeducation are used. The program targets relationship to thoughts and feelings (both physical and emotional) via *decentering*– participants are taught to view thoughts as simply transitory events, and to not give them any undue importance as truth or fact. The authors argue that this is a realisation that comes about from observing thoughts and feelings non-judgmentally, and noting that they arise and pass away. In this way the program allegedly teaches people a new way to relate to their inner experience, and how to manage it by re-directing the focus of their attention.

Segal et al. (2013) sought to explain the process of change in MBCT, noting in particular Kuyken et al.’s (2010) finding that the positive outcomes of MBCT were mediated by mindfulness and self-compassion gains. Self-compassion was measured with the Self-Compassion Scale (Neff, 2003a), which includes dimensions of awareness, self-kindness, self-judgment (reverse scoring), and recognition of the commonality of the human experience. Self-compassion accounted for the cessation of the relationship between internal reactions and depressive symptoms in that internal reactivity predicted depressive symptoms, but this relationship decreased as self-compassion levels increased. Self-compassion is clearly a key component of MBCT, but the underlying mechanism by which it works is not adequately addressed.

Although Segal et al.’s (2013) account of depression is grounded in theory and research, the ‘modes of mind’ is speculative and perhaps over-complicates the process of mindfulness while adding little to a cohesive explanation for what underpins the change that takes place in mindfulness practice, or indeed how this change comes to bear. Furthermore, the authors cite an important study that demonstrates the apparent central role of self-compassion in changes following a MBCT program, yet do not attempt to integrate self-compassion into their account of how MBCT works. Also, it is not obvious how this could be done.

The National Institute of Clinical Excellence (NICE) recommends MBCT as treatment for *relapse-prevention* in depression, for use with those who are currently well but have been previously depressed 3 or more times (NICE, 2009). Teasdale et al. (2000) conducted a study on the efficacy of MBCT as a relapse prevention

program and found that it halved the relapse rate in those who had previously experienced depression 3 or more times (compared with treatment as usual; TAU). However, no effect beyond equivalence to TAU was found for those who had been previously depressed only twice.

Teasdale et al. (2003) argue that MBCT specifically targets autonomous reactivation of depressive thought patterns. These depressive thought patterns are created during the first depressive episode and then reactivated and thus strengthened in every subsequent depressive episode. This strengthening is one explanation for why the likelihood of relapse increases in relation to increases in the number of times a person has been depressed.

Additionally, the number of times a person has been depressed is inversely related to the role that external events play in triggering relapse (Ingram, Atchley, & Segal, 2011). An external event is not required to reactivate depressive thinking patterns and consequent relapse in those depressed 3 or more times. For them, the experience of dysphoric mood may be enough to trigger a relapse. When this link between internal events and depressive thought patterns is not well established both MBCT and TAU are equally efficacious. Nevertheless, when the connection is strong, MBCT perhaps addresses the problem more directly than TAU.

However, Teasdale et al. (2000) did not measure levels of mindfulness or the different traits that constitute mindfulness of the participants in their study. Thus it remains unclear as to whether mindfulness was the mechanism of change, and if it was, what aspect(s) of mindfulness were indeed driving the effects of the intervention. In this instance hypotheses regarding how mindfulness operates are purely speculative. Moreover, they do not provide an underlying explanation for the difference in the efficacy of MBCT for participants depressed twice versus three or more times.

Acceptance and commitment therapy (ACT).

Acceptance and Commitment Therapy (ACT; S. Hayes et al., 1999) does not explicitly and formally require the practice of mindfulness meditation but instead incorporates principles from mindfulness in the overall approach and is therefore theoretically relevant and thus addressed here.

ACT is a behavioural approach based on the *Relational Frame Theory* (RFT) proposed by S. Hayes, Barnes-Holmes, and Roche (2001). S. Hayes, V. Follette, et al. (2004) explain RFT:

Human beings are extraordinarily able to learn to derive and combine stimulus relationships and to bring them under arbitrary contextual control. These derived stimulus relations, in turn, alter the functions of events that participate in relational networks – a process that is also under contextual control. Together, these features are argued to form the foundation of human language and higher cognition. (p. 10).

RFT describes a possible explanation for how the acquisition of language enables humans to think about their experience, including that which is not immediately in front of them; that which is hypothetical, in the past and in the future. The authors propose that the ability to use language to guide thinking beyond the present equips people with a rich verbal psychological landscape of easy-to-use tools that can expand the ways in which they interact with their environment. However, the authors also conjecture that it could limit people by creating constraints through the control that contextually bound associations have over their behaviour (S. Hayes, Masuda, et al., 2004).

S. Hayes, Follette, et al. (2004) proffer ACT as a solution to this problem, as ACT promotes psychological flexibility where the client is empowered to choose their behaviour and responses, rather than act reflexively from learned and inflexible ways of thinking and doing. Flexibility is achieved through techniques incorporating psychoeducation about thought suppression; mindfulness techniques such as observing thoughts; reframing the client's sense of self and perspective; practicing acceptance; making values explicit and thus bringing them into conscious awareness; and making specific commitments to practice alternative behaviour patterns (S. Hayes et al., 1999).

While RFT, the underlying theoretical rationale for ACT, provides an account of how the mind is structured through language and how psychological difficulties may arise because of the structure, it does not explain the functional utility of this underlying mechanism and how mindfulness works therein to produce therapeutic change. The strong evidence for RFT (reviewed in S. Hayes et al., 2001) and the efficacy of ACT (reviewed in S. Hayes, A. Masuda, et al., 2004) along with the similarities between ACT, MBSR and MBCT, indicates that there may be a common underlying mechanism that these MBIs tap into. A key theme seems to be that psychological distress is a product of *thinking* about experience rather than directly experiencing it (S. Hayes, Masuda, et al., 2004).

Summary.

The developers of the interventions outlined above have offered their own accounts of how mindfulness produces therapeutic changes, which is important in order for the technique described to be usable. Clinicians need to understand what the techniques they are using are intended to do, so that they can implement them competently with the appropriate clients and also monitor change. There are common threads woven throughout the authors' accounts of how mindfulness works, and theorists' attempts to develop explanations that unite these underlying mechanisms are addressed below.

Mindfulness Theories

The major theoretical approaches to date have tended to produce lists of primary mechanisms and their outcomes. They do so without providing a comprehensive theoretical account of how the primary mechanisms are integrated, create mindfulness mental states, or promote therapeutic change, and by implication, point to ways in which symptoms of psychopathology are generated. Only two theories proposed by S. L. Shapiro et al. (2006) and Hölzel et al. (2011) have moved beyond a list approach and provide an overarching model that suggests how the primary mechanisms could interact to produce the outcomes commonly observed following mindfulness training. Baer et al.'s (2006) and Brown et al.'s (2007b) accounts of the mechanisms of mindfulness are primarily lists but do add to the more cohesive theories and are thus also addressed below.

S. L. Shapiro, Carlson, Astin, and Freedman (2006).

S. L. Shapiro et al. (2006) propose what they call the three 'axioms' (referred to as principles henceforth) that they argue occur simultaneously to produce the process that is mindfulness. The principles are: intention, attention, and attitude. The authors derived these principles from Kabat-Zinn's (1994) definition of mindfulness: "Paying attention [attention] in a particular way [attitude]: On purpose [intention], in the present moment, and non-judgmentally" (p.4).

S. L. Shapiro et al. (2006) assert that attention involves directing the focus of awareness, which utilises the skills of sustained attention (maintaining attention for a long period of time), switching (directing attention at will), and cognitive inhibition (refraining from engaging in certain cognitions) (see S. L. Shapiro et al., 2006). According to the authors, intention is "*why* one is practicing" (p. 376). It involves a

“personal vision” of what one hopes to obtain or achieve from practicing mindfulness (p. 375). D. H. Shapiro (1992) found that meditators’ intentions for practicing meditation were directly correlated with them obtaining their intended outcome, and S. L. Shapiro et al. (2006) cite this as evidence of the pivotal role of intention. Attitude involves the qualities of attention; it is “*how* we attend” (S. L. Shapiro et al., p. 376). In other words, attitude is the affective and evaluative component directed towards a particular object or activity (Fishbein & Ajzen, 1975). S. L. Shapiro et al. (2006) claim that an attitude of “patience, compassion, and non-striving” (p. 377) is essential for effective mindfulness practice as this attitude results in cultivating the ability to not cling to pleasure or avoid and suppress pain.

S. L. Shapiro et al. (2006) hypothesise that “intentionally attending with openness and non-judgmentalness leads to a significant shift in perspective ... termed *reperceiving*” (p. 377). Reperceiving is the adoption of the observer perspective, which entails becoming aware of the contents of consciousness and its transience, with the self as the observer (i.e. meta-awareness). Reperceiving is essentially the realisation “that the phenomena contemplated are distinct from the mind contemplating them” (Goleman & Davidson, 1979, p. 134).

S. L. Shapiro et al. (2006) propose that reperceiving leads to improved self-regulation, values clarification, cognitive, emotional, and behavioural flexibility, and a situation of exposure. The authors suggest that self-regulation improves because – via reperceiving – one is able to observe the contents of his or her consciousness and in doing so become aware of internal reactions that may have previously governed behaviour. These internal reactions then become information that the person can choose how to respond to, rather than simply habitually react to. Additionally, internal states are viewed as impermanent, and it is consequently recognised that to regulate them, not action but observation and acceptance are sufficient. Indeed, Brown and Ryan (2003) found that participants who scored higher on a measure of mindfulness also reported greater self-regulation.

S. L. Shapiro et al. (2006) claim that values clarification follows reperceiving because individuals are able to be aware of the aspects of their mental arena that govern their actions, including values. Values are often conditioned, automatically reacted to, and not considered in terms of their helpfulness or usefulness in the current personal context (S. L. Shapiro et al., 2006). As Wilber (1993) so aptly put it, “the fact that one can comprehensively *look at* them [mental events] means that one

has ceased using them as something *with which to look at*, and thus distort, reality” (p. 29). According to S. L. Shapiro et al. (2006) an objective consideration of what values drive behaviour allows clarification of the values that are present, and subsequently, the freedom to choose which values to keep, which to alter in order to better serve needs and interests, and which to discard altogether.

S. L. Shapiro et al. (2006) explain that cognitive, emotional, and behavioural flexibility arise because “learning to see clearly...depends upon the ability to disidentify from prior patterns and beliefs” (p. 381). They suggest that disidentification with mental events occurs in re-perceiving. In other words, there is a realisation that awareness is separate from mental events. Self-identity is then derived from the observer perspective rather than from mental concepts (S. L. Shapiro et al., 2006). The authors state that identifying with meta-awareness allows for adaptive responding that is appropriate to the present situation and not based on past conditioning.

Finally, the authors propose that pairing awareness of the contents of consciousness with non-reactivity creates a situation of exposure. In this scenario, contents of consciousness that were hitherto avoided or reacted to are now able to feature in the mental arena and be observed *sans* reaction. The authors propose that exposure reduces and eliminates the ability of events in the mind to elicit a reaction, as the person realises that they are not actually threatening. In behaviourist terms, the result is extinction, which means that the stimulus (thoughts or feelings) no longer elicits a response.

S. L. Shapiro et al. (2006) fundamentally assert that intention, attention, and attitude underpin all of the subsequent effects of mindfulness. They argue that these principles create a process that produces the realisation that one’s consciousness is separate from the contents of consciousness, and that this results in improved self-regulation, values clarification, and improved cognitive, behavioural, and emotional flexibility. It also serves to successfully expose individuals to previously troubling internal states.

S. L. Shapiro et al.’s (2006) theory is elegant and accounts for a range of phenomena. It extracted three core components of the process of mindfulness. However, it does not address what underpins the process and thus how it operates psychologically to produce fundamental changes, which is problematic because the theory tells us little about psychological functioning and therefore does not provide a

framework from which to implement the process in a systematic and nuanced manner.

Hölzel et al. (2011).

Hölzel et al. (2011) provide a second comprehensive model of the processes involved in the creation of mindfulness states. They present an *enhanced self-regulation*, mutually facilitative phase model of the mechanisms of mindfulness. They postulate that mindfulness practice involves learning to *sustain attention* [1] on a chosen aspect of experience, a large component of which is attention regulation, or noticing when attention strays from the intended focus and re-directing it back. The focus of attention is usually on an aspect of internal experience, and the authors argue that by sustaining attention here, *awareness of the body* [2] increases. The authors suggest that *emotion regulation* [3] in the form of *reappraisal* [3.1] is used, in which the experience is reinterpreted as “beneficial, meaningful, or benign” (p. 544). Reappraisal is essentially a change in attitude. The authors suggest that further emotion regulation occurs via *exposure*, *extinction*, and *reconsolidation* [3.2]. That is, through becoming aware of, accepting and not judging experience, a situation of exposure occurs whereby the person allows experience to arise without engaging in the usual avoidance behaviour (e.g. attempting to suppress the thought, or through some kind of external coping strategy). Hölzel et al. (2011) argue that extinction occurs because meditation typically leads to relaxation, and pairing a relaxed state with previously feared stimuli (in this case, internal experience) puts the reactivity to that stimulus into extinction.

Hölzel et al. (2011) claim that, following the above process, “rather than being stuck in the habitual reactions to the external and internal environment, the meditator can experience the transitory nature of all related perceptions, emotions, or cognitions in each moment of experience” (p. 549), and that this “leads to a change in the perspective on the self [4]” (p. 549). That is, the process of practicing mindfulness techniques affords one the realisation that mental events are transitory and that one’s consciousness is distinct from the contents of consciousness (that is, meta-awareness). This twin realisation results in a *shift in perspective on the self* such that identification with the internal narrative diminishes, and identification with the self as the enduring observer of the narrative arises.

Hölzel et al. (2011) view self-compassion as an additional factor in creating mindfulness, and state that it may be involved in both emotion regulation and the

shift in perspective on the self. They suggest that self-compassion has its effects through the process of generating feelings of kindness towards oneself (emotion regulation) and through reappraising experience in terms of the common experience of humanity. They speculate that these processes somehow result in less identification with the self (change in perspective on the self).

Although Hölzel et al. (2011) provide an account of mindfulness that touches on many of the possible mechanisms; it is neither succinct nor easy to follow. A major flaw is that their account of extinction relies on the induction of relaxation from meditation training. However, as Baer (2003) points out, meditation does not necessarily induce relaxation, and can in fact have the opposite effect. Moreover, the proposed emotion regulation technique of reappraisal necessitates judgment, which is in direct opposition to the non-judgmental attitude that is consistently included as a key component of mindfulness techniques. Emotion regulation is also more often cited as an outcome of mindfulness practice, as opposed to a necessary component required to successfully induce a state of mindfulness, or the *shift in perspective on the self* (Baer, 2003). Additionally, self-compassion, an important aspect of mindfulness, is not easily incorporated into the theory.

Summary.

S. L. Shapiro et al. (2006) and Hölzel et al. (2011) provide comprehensive accounts of how mindfulness works. Yet two publications offer elaborations on important points that have not been adequately addressed by the theories already reviewed. Baer et al. (2006) demonstrate how self-compassion might be integral to mindfulness, and Brown et al. (2007b) discuss the importance of the change in perspective that occurs in mindfulness. These are theoretically relevant as both researchers and theorists alike have alluded to the implications of the self in the process of mindfulness and thus it may serve a crucial role in how mindfulness works.

Other theories of mindfulness.

Baer et al. (2006) constructed a five-facet model to measure mindfulness that includes non-reactivity to inner experience; observation of experience; awareness of actions; describing/labelling experience with words; and nonjudging of experience. They found a significant positive correlation between all of these facets and self-compassion (as measured by the Self-Compassion Scale; Neff, 2003a). Interestingly,

self-compassion was most strongly correlated with non-reactivity to inner experience. This finding is aligned with the results of Kuyken et al. (2010; outlined above) and provides further evidence that self-compassion is a key component of the outcomes of mindfulness in terms of individuals' reactivity to their experience. A reduction in reactivity to internal experience may be related to the change in self-identity that reportedly occurs in mindfulness, and from the above results, it appears that self-compassion may play an important role therein.

In a recent paper that also addresses the self, Brown et al. (2007b) discuss what mindfulness is as a state and speculate how processes that mindfulness creates might lead to a series of consequent beneficial outcomes. These outcomes include clarity of awareness; nonconceptual, nondiscriminatory awareness; flexibility of awareness and attention; an empirical stance towards reality; present-oriented consciousness; and stability or continuity of attention and awareness. They argue that the above outcomes create processes of insight, exposure, non-attachment, and integrated functioning that could give rise to further beneficial effects of mindfulness practice. Recall that insight involves awareness of internal reactivity and the realisation that thoughts and other mental events are merely transitory experiences passing through the field of awareness. Exposure involves holding experience in the field of awareness while refraining from engaging in typical reactions to it. Non-attachment is essentially an attitude of equanimity. The authors suggest that non-attachment might give rise to “unconditional happiness”, that is, happiness “that is not contingent on circumstances” (p. 227), because it involves the lack of both attachment to pleasure and aversion to pain.

Brown et al. (2007b) raise the interesting proposition that improved integrated functioning is the net result of the processes involved in mindfulness and the outcomes it produces. They suggest that improved integrated functioning may emerge from “a disengagement from self-concern” (p. 227), where self-concern is defined as “the perceptions, thoughts, beliefs, evaluations, and related feelings people have about themselves that tend to channel and filter contact with reality in self-serving ways” (p. 227). That is, through mindfulness, events in the mind lose their personal relevance in terms of what constitutes the self, since the person instead identifies with the more enduring observer perspective.

Summary.

Both Baer et al. (2006) and Brown et al. (2007b) raise important points with

regards to the self-concept, in terms of self-identity and attitude towards the self. Other theorists (e.g. Hölzel et al., 2011; Segal et al., 2013; S. L. Shapiro et al., 2006) have also identified the change in perspective and experience of the ‘self’ as transitional in mindfulness practice. It is important to account for the effect mindfulness techniques have on the self-concept, and this is addressed below.

Core Overarching Mechanisms of Mindfulness

Looking across the different MBIs and the descriptions of the mechanisms by which they work, there appear to be four common core mechanisms operating, and a fifth that is implicit in many theorists’ accounts but remains to be incorporated to the extent that the research would suggest it should be. The four common elements are *attention* (Baer, 2003; Brown et al., 2007b; Hölzel et al., 2011; Kabat-Zinn, 1990; Segal et al., 2013; S. L. Shapiro et al., 2006), *attitude* (Baer et al., 2006; Brown et al., 2007b; Hölzel et al., 2011; Kabat-Zinn, 1990; Segal et al., 2013; S. L. Shapiro et al., 2006), *intention* (Kabat-Zinn, 1990; D. H. Shapiro, 1992; S. L. Shapiro et al., 2006), and *awareness/meta-awareness* (Baer, 2003; Baer et al., 2006; Brown et al., 2007b; S. Hayes, V. Follette, et al., 2004; Hölzel et al., 2011; Linehan, 1993a, 1993b; Neff, 2003b; Segal et al., 2013; S. L. Shapiro et al., 2006).

The fifth element is *self-compassion*, which is implicated in many accounts of how mindfulness works (e.g., Hölzel et al., 2011). However, self-compassion is yet to be included as an integral aspect of accounts of the mechanisms of mindfulness. It has been mostly included as a type of attitude, and is acknowledged as essential, but theorists have been unable to pinpoint exactly why and how. Perhaps there is something significant about the fact that it is an attitude *towards the self*. This possibility is explored below, with insights offered from Neff (2003a), Neff (2003b) and Gilbert (2009). The first four common elements are addressed first.

Attention

Wells and Matthews (1994) define attention as “the selection or prioritisation for processing of certain categories of information” (p.10), which is essentially focussed awareness, or selecting an element from the field of awareness and directing cognitive focus towards it. Attention can either be directed consciously or unconsciously, that is, via one’s volition, or otherwise (e.g., through underlying processes that are below the level of conscious awareness). In mindfulness practice, individuals manage their attentional resources and consciously direct attention to

observe any aspect of their experience within their awareness; be it the breath, sounds, thoughts or emotions. Each time it is noticed that attention has strayed from the intended subject of focus, it (attention) is re-directed back to the subject. Repeated practice develops this skill of attention regulation, involving purposeful attention-direction and re-direction.

Research on attention illustrates the key role that directing attention plays in *shaping* our experience, that is, experience is created from what is attended to. For example, Watkins, Baeyens, and Read (2009) found that training participants to focus their attention on concrete, specific aspects of experience reduced dysphoria (a symptom of depression) compared to controls. Indeed, they comment that “cognitive models of psychopathology propose that biases in cognitive processing, such as in attention, memory, and interpretations, may underpin the onset and maintenance of emotional disorders” (Watkins et al., 2009, p. 55). In accepting this view, it makes sense that re-directing attention would have a significant impact on psychological functioning. Grabovac et al. (2011) claim that the qualities of attention-redirection are what makes mindfulness different from a simple attention-regulation exercise.

Attitude

The second mechanism is attitude. In brief, attitudes are evaluative tendencies, which are usually attached to an entity of some type, for example, actions, characteristics, state of affairs, or institutions (Albarracín, Johnson, & Zanna, 2005; Forgas, Cooper, & Crano, 2010). Adopting an accepting, non-judgmental attitude towards experience is conducive to the mindfulness practice of observing that experience, instead of becoming consumed by the elaborative processing that ensues when experience is judged. For example, if a person experiencing low mood does not judge it, and instead accepts it as part of their experience, the individual is then able to directly observe what the sensation of low mood feels like, rather than mentally elaborating on it with judgment and imbuing it with meaning.

To judge something is to create value-laden meanings associated with it. Thought suppression activates the very thing that the individual seeks to avoid. Thus judgment, suppression and avoidance are not conducive to maintaining attention directly on experience as it is. The remedy is an attitude of acceptance and non-judgment.

Intention

Intention involves a plan to complete a certain action, and has been likened to a type of belief about the behaviour that one intends to perform (Fishbein & Ajzen, 1975). Intentions are important because they motivate and influence behaviour, over and above the attitude of the individual towards the objective of the behaviour (Fishbein & Ajzen, 1975). Moreover, mindfulness practice is not something that typically spontaneously arises without the purposeful action of meaning to employ mindfulness techniques in one's life (Kabat-Zinn, 1990). Thus, to practice mindfulness implies the intention to do so.

Awareness/Meta-Awareness

The fourth mechanism is awareness/meta-awareness. Rapgay and Bystrisky (2009) define awareness as a “stable and specific state of consciousness” (p. 148). It is essential that people who wish to practice mindfulness have some level of awareness of themselves, that is, they know that they are having an experience, which is the ‘usual’ waking state of consciousness conceptualised in Western psychology (Brown & Ryan, 2003; Walsh & Vaughan, 1993). For example, an individual may be aware/know that it is raining, although he or she does not focus his or her attention on the rain. The person could focus all of his or her attention on the rain, and in order to do so he or she would need to have some level of awareness of it. Alternatively, he or she could have an image of the rain in mind that he or she could focus attention on, but again, without awareness that the image is there, it would not be possible for him or her to select it as an attentional target. Awareness of the target object is thus required in order for attention to be regulated. Individuals need to be aware of their thoughts, feelings, emotions, and so on, so that they can 1) navigate their attention around these contents of consciousness, and 2) have the capacity to carry out the tasks of mindfulness practice and develop meta-awareness.

Every account of mindfulness includes meta-awareness. It is responsible for the state of mindfulness. Teasdale et al. (2002) define meta-awareness (MA) as “a cognitive set in which negative thoughts/feelings are experienced as mental events, rather than as the self” (p.275). This is essentially the observer perspective previously discussed, in which a person realises that her or his awareness of experience necessitates that the two are separate. Teasdale et al. (2002) found that as MA increased the rates of depression relapse decreased in participants of both MBCT and cognitive therapy. They hypothesise that a central mechanism by which these two

treatment modalities exert their effects may be an ability to change an individuals' relationship to their thoughts by promoting MA. Developing MA is important because it enables self-identity to become distinct from the contents of the mind, which has implications for psychological well-being, discussed further below.

Self-Compassion

Self-compassion is included either explicitly or implicitly in mindfulness interventions (e.g., Hölzel et al., 2011) but its impact is arguably underplayed. Self-compassion has not only been found to be an outcome of mindfulness training in itself (completing an MBSR program increased self-compassion in clinicians; S. L. Shapiro, Astin, Bishop, & Cordova, 2005) but it has also been found to mediate the outcomes of mindfulness interventions such as reduced worry and fear of emotion (Keng, Smoski, Robins, Ekblad, & Brantley, 2012), lowered risk of depressive relapse in MBCT despite no change in reactivity (Kuyken et al., 2010), and increased happiness (Hollis-Walker & Colosimo, 2011). Additionally MacBeth and Gumley (2012) found in their meta-analysis that self-compassion was related to reduced rates of anxiety, depression, and stress in both clinical and non-clinical samples. Taken together, the above findings indicate that self-compassion is a pertinent area to explore. Due to the fact that self-compassion is implicated in mindfulness, it is accepted that it may constitute a core mechanism. It is one, however, whose importance should be emphasised and made more explicit.

In accounts of the mechanisms by which mindfulness operates, self-compassion is often overlooked, and if included, it is mentioned as an adjunct that does not 'hang' together with the rest of the theory (Hölzel et al., 2011). The issue is perhaps that self-compassion, and indeed compassion itself, have been introduced to the psychological literature fairly recently, and are relatively poorly understood. Neff (2003b) offers one description:

Compassion involves being touched by the suffering of others, opening one's awareness to others' pain and not avoiding or disconnecting from it, so that feelings of kindness toward others and the desire to alleviate their suffering emerge ... It also involves offering nonjudgmental understanding to those who fail or do wrong, so that their actions and behaviors are seen in the context of shared human fallibility. Self-compassion, therefore, involves being touched by and open to one's

own suffering, not avoiding or disconnecting from it, generating the desire to alleviate one's suffering and to heal oneself with kindness. Self-compassion also involves offering nonjudgmental understanding to one's pain, inadequacies and failures, so that one's experience is seen as part of the larger human experience. (pp. 86-87).

Self-compassion essentially entails an attitude, yet it is of greater significance than many other attitudes because it involves an attitude towards the self, and the self-concept has huge psychological impact (Gilbert, 2009). Self-compassion is hence regarded and addressed separately to the broader *attitude* section above.

Self-esteem is another attitude towards the self that affects psychological functioning (Neff, 2003b). However, there is a fundamental difference between these two attitudes towards the self. Self-esteem is derived from performance-based judgments of oneself, usually in comparison with others. Criticism and evaluation create feelings of disconnection that are detrimental to psychological well-being (Gilbert, 2009). On the other hand, self-compassion is only possible where self judgment is suspended and replaced with kindness and understanding (Neff, 2003b). Self-compassion thus generates positive feelings towards the self that are not reliant on external stimuli, strategies that create feelings of disconnection, or unbalanced or biased views of the self (all of which contribute to psychological suffering; see Neff, 2003b).

Psychopathology often arises from unrealistic cognitions, and psychotherapy aims to help clients to view reality in a more balanced and realistic light (S. Hayes, Follette, et al., 2004). However, Neff (2003a) points out that both high and low self-esteem do not necessarily foster a realistic balanced view of reality. Neff (2003a) suggests that self-compassion, on the other hand, side-steps the problem of evaluation-based representations of reality, and is instead based on the assumptions that there is a common human experience of suffering, and that all people have equal intrinsic value. Neff (2003a) explains that these assumptions create a connectedness that is based on an attitude of kindness and affection, which in turn foster positive affect towards both the self and others, since others are no longer a threat to the self and instead are seen as allies in life.

Gilbert (2009) addresses the importance of the emergent property of the 'self' and psychological well-being. He notes that the sense of self can become problematic when experience is critically evaluated in terms of the implications that it has for this

sense of self, and further claims that self-compassion provides a remedy for the conundrum of being self-aware and thus being able to have an attitude towards oneself.

Roberts and Monroe (1994) developed a multi-dimensional model of self-esteem variability (SEV; self-esteem level changes). This model is based on their previous finding that SEV, as opposed to self-esteem level itself, predicted the onset of depressive symptoms (Roberts & Monroe, 1992). They hypothesised four predictors of SEV. These were deriving self-esteem from limited sources (*limited sources of self-esteem*), adopting *negative generalisations* (e.g. generalizing one event, such as a failure, to all other events), possessing a *defectiveness schema* about the self, and *negative life events*. Further research has provided support for this model (Butler, Hokanson, & Flynn, 1994; Kernis et al., 1998). A. M. Hayes, Harris, and Carver (2004) specifically tested the four hypothesised predictors of SEV in participants who either had a history of depression or no history, and found that increased severity of past depression symptoms was associated with increases in all four predictors. Additionally, negative life events predicted SEV, and these events interacted with defectiveness schemas and generalization to predict SEV as well. Increased negative generalization was a direct predictor of increases in SEV.

Taken together, the findings that self-esteem is both a predictor of psychopathology and can easily become problematic on its own, and that variability therein is associated with depression, suggest that replacing self-judgment and comparison with others with a self-attitude that does not rely on evaluations of performance but instead on more positive components of kindness, affection, and understanding, may improve psychological outcomes. The adoption and activation of an alternative attitude towards the self may be part of the function that self-compassion plays in mindfulness (Neff, 2003b). For example, comparisons with others (used in self-esteem evaluations) contribute to feelings of isolation and disconnectedness (which are related to depression and other maladaptive states), whereas recognizing one's experience as common to humanity in self-compassion contributes to well-being (Neff, 2003b).

Self-esteem is derived from placing a disproportionate amount of value on the implications of one's experience for one's sense of self-worth (Neff, 2003a), which, as already discussed, encompasses identifying with experience, the cessation of which leads to improved self-regulation and psychological functioning (Brown & Ryan,

2003). Thus self-compassion necessitates the cessation of comparative and judgmental processing, and in this way is conducive to the practice of mindfulness techniques. The observer perspective is also applied in self-compassion, in that feelings of self-compassion are not identified with. They too are known and recognized as mental events (Neff, 2003b).

Neff (2003b) claims that directing kindness towards oneself creates an ‘emotionally safe’ environment in which to explore one’s experience and difficulties therein, which she argues is conducive to mindfulness practice, since exploring experience is integral to the techniques involved. Gilbert (2009) proposes one account of how self-compassion operates to produce positive outcomes associated with mindfulness, which is linked to the emotionally safe account offered by Neff. Gilbert (2009) suggests that there are three types of affect regulation functions that form interacting, albeit separate, systems. These are a *threat and self-protection* system, *incentive and resource-seeking* system, and a *soothing and contentment* system.

The function of the threat and self-protection system is to “pick up on threats quickly and then give us bursts of feeling” (Gilbert, 2009, p. 23) that motivate us to act in self-protecting ways (much like the ‘driven-doing mode’ outlined by Segal et al., 2013). The incentive and resource-seeking system functions to “give us positive feelings that ... motivate ... us to seek out resources that we ... need to survive and prosper” (Gilbert, 2009, p. 23; parallels the ‘doing-mode’ proposed by Segal et al., 2013). Finally, the soothing and contentment system restores a person’s emotional balance by recognizing that they have everything they need (similar to the notion of ‘being mode’ from Segal et al., 2013), which gives rise to contentment, that is, “not striving or wanting anything” (Gilbert, 2009, p. 24). Gilbert (2009) suggests that when the two former systems are not balanced and regulated by activation of the latter system, people become “stressed and distressed” (p. 26). Gilbert (2009) argues that the ‘soothing and contentment’ system is activated by kindness and affection, and that it is “vital for our well-being” (p. 25). Given this line of reasoning, it makes sense that self-compassion would give rise to the positive outcomes associated with mindfulness. That is, if self-compassion is what activates an affect-regulation system that is associated with satisfaction with the way things are, then it would be conducive and perhaps essential to fostering an attitude of acceptance towards experience that is purportedly essential in a mindfulness state.

Chapter Conclusion

The common elements listed above are essentially descriptive accounts of mechanisms involved in how mindfulness practice works, and have served as a starting point in theories that attempt to explain this. Although the theories provide useful descriptions of how mindfulness operates, they do not clearly specify how the mechanisms interact or how they operate psychologically to create a state of mindfulness, or how this state results in symptom reduction, or many of the other outcomes of mindfulness practice. Essentially they lack a model of the fundamental psychological changes that take place through mindfulness practice. With best practice in mind, it is timely that theories begin to attempt to identify the underlying mechanisms that underpin mindfulness practice. The following chapter proposes one such possible model of psychological functioning and offers an explanation for how mindfulness may operate therein.

CHAPTER 3 – THE DECONTEXTUALISING MODEL OF MINDFULNESS

Existing theories about the mechanisms by which mindfulness works are underdeveloped in that they provide a list of interacting components, but lack an explanation for the underlying psychological mechanisms that operate to produce the outcomes of mindfulness practice. To put it simply, why does paying attention to and being aware of the present moment change a person's relationship to their experience? How does this fundamental change happen? What is the role of intention, attitude, and self-compassion, and why are they considered essential in practicing mindfulness (e.g., Kabat-Zinn, 1990)?

The Decontextualising Model of Mindfulness

The decontextualising model of mindfulness (DMM) proposed here contributes one interpretation of how attention regulation and levels of intentional awareness operate to produce a fundamental change in an individual's information processing style, which results in the experiential state of mindfulness and the observed outcomes. Information processing concerns the way events in the mind are construed, interpreted, and managed. For example, in depression there is a negative-bias, whereby information tends to be processed in a negative light, and attention favours negative events. Mental events are *representations* as they refer to some aspect of the self or the world, and as such, have conceptual content, such as thoughts, feelings, sensations and emotions. The DMM also helps to explain the role of intention and attitudes in mindfulness practice.

The DMM is based on Powers' (1973) model of self-regulation, which provides a useful framework for understanding the way attention, information processing, and action are causally related. Powers' model is an elaboration of, and alternative to, pure behaviourist models, as it conceptualises the organism as an active participant in its responses to the environment. Recent theorists such as Carver and Scheier (1998) have used Powers' model to develop their own theories of self-regulation. Powers argued that behaviour is guided by hierarchically organised goals, which are connected and modified via *feedback control*.

Feedback loops are one of two fundamental components of Powers' (1973) original model (the other being their hierarchical organisation – outlined below). According to Carver and Scheier (1998) in their elaboration of the Powers model,

“feedback processes involve the control or regulation of certain values within a system” (p.10) via four interacting components. Feedback loops include an *input*, a *reference value*, a *comparator*, and an *output*. In its original conceptualisation, feedback processes were part of the fundamental “science of communication and control” (Carver & Scheier, 1998, p.10). However, for the purposes of the current explanation, behavioural examples will be used.

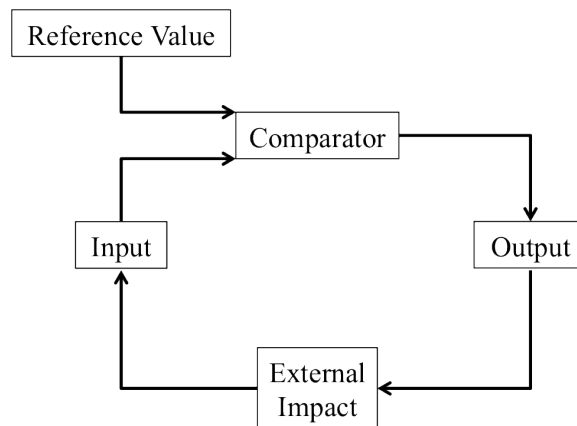


Figure 1. Depiction of a feedback loop, adapted from Carver and Scheier (1998).

In this model (see Figure 1) the comparator compares the input with the reference value, and if necessary, adjusts output to influence the external impact and subsequent input so that it (the input) is more congruent with the reference value. ‘Input’ is the information entering the system from the external environment (e.g. perception of a spouse’s unhappy look). ‘Reference values’ are likened to goals (e.g. ‘keep my spouse happy’), and the ‘comparator’ compares the input with the reference value. It then either discerns that the two are different or that they are not. The result is the output function, which is anything that the system does to have an impact on its environment. If the comparator found a difference between the reference value and the input (e.g. the goal is to ‘keep my spouse happy’, but the information from the input is that ‘my spouse is not happy’), the output would be altered accordingly, whereby an attempt to manipulate input to match the reference value would occur (e.g. ‘console my spouse’). If no difference is found (e.g. the goal is to ‘keep my spouse happy’, and the information from the input is that ‘my spouse appears happy’) the output remains the same (which may be no action at all). There may also be a secondary system that operates to alter the reference value to be more like the

input (e.g. the spouse remains unhappy regardless of what the individual does, so the reference value is altered to accommodate this and reduce stress on the system).

The notion of *hierarchicality* has been incorporated into theories covering a range of behavioural phenomena (see Carver & Scheier, 1998). This concept refers to hierarchically organised *levels of abstraction*, which is a continuum ranging from concrete to abstract conceptualisations. The abstract level involves general superordinate concepts that convey abstract meaning, such as the goal to be a good neighbour. The concrete level constitutes specific subordinate concepts that convey the 'how' of an action or event, for example, shovelling snow off the neighbour's driveway in the service of the goal of being a good neighbour (Watkins et al., 2009). Note that in the two examples above, the same action may be completed but conceptualised in either more abstract or more concrete terms (discussed further below). In Powers' (1973) original model, feedback control loops are organised from concrete to abstract to provide a system for the self-regulation of behaviour.

In Powers (1973) model, the highest level of abstraction of a goal is a *system concept*, which are values such as the 'ideal self'. The system concept provides *principle* control to the next level of abstraction. That is, the output of the system concept provides a guiding principle as a starting point on how to achieve behaviour that conforms to that value. The proceeding feedback loops are *programs* that determine increasingly concrete guides for the action that is the manifestation of the system value and guiding principle. The output of each level of abstraction provides a reference value for the next, more concrete level down, and in this way behaviour is regulated in relation to goals and ultimately higher-order values. For example, one way to 'be' the ideal self is to 'be a good neighbour', and to be a good neighbour is to 'shovel snow off the neighbour's driveway', and to do this is to 'pick up a shovel and move the snow', which translates to concrete muscle movements and subsequent action. Each of these feedback processes manages their respective discrepancies simultaneously, each at their appropriate individual level of abstraction (Carver & Scheier, 1998). The structure of the system is such that the system concept is translated into increasingly concrete goals until it terminates as the execution of an appropriate action, which fulfils the goals of each feedback loop (see Figure 2).

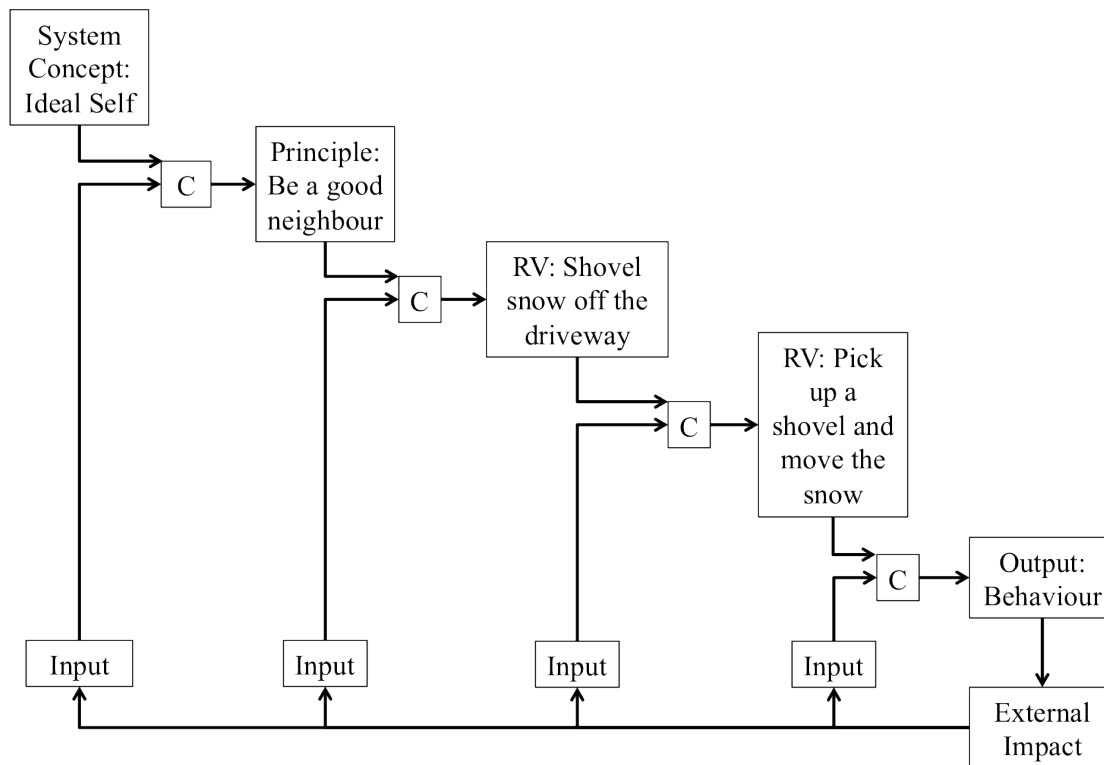


Figure 2. A depiction of Powers' (1973) model of hierarchically organised feedback loops (adapted from Carver and Scheier (1998)). *C* is the comparator and *RV* is the reference value. The output of each comparator is the reference value for the next comparator, until the final feedback loop, which terminates in action.

For example, a self-maintaining feedback loop in depression could include 'failure' as the system concept, with the principle of 'avoid failure', and the reference values of 'do not try' (reasoned by the inevitability of failure), followed by 'stay in bed' at the next most concrete level, which would result in the output behaviour of lying down and not moving (i.e., staying in bed). The dysphoric mood that may have initially activated this system concept in the first place is then maintained by the lack of opportunity for an activity or the environment to disrupt its presence. Thus, the input generated from the behaviour of staying in bed is dysphoric mood, which effectively both activates and then maintains the hierarchical feedback loop system (this is a highly simplified version of possible depressive feedback patterns and is employed for illustrative purposes only).

A person's awareness of, and reflection on, mental events can also be conceptualised using Powers' (1973) model. Vallacher and Wegner's (1985) *action identification theory*, which is partially derived from Powers' (1973) original theory, describes how people conceptualise their own actions. According to Vallacher and

Wegner (1985) people mentally conceptualise their actions at various levels of abstraction. For example, the same action can either be subjectively thought of as the abstract concept of ‘helping a neighbour’ or the more concrete description of ‘moving snow off a driveway’ (and indeed even more concrete as ‘contracting muscles in a certain sequence’). This is essentially a hierarchically linked ladder of meaning or abstraction. Each level of abstraction captures a unique perspective on the action and its associated information processing. That is, thoughts about the action are either abstract and elaborate, or more concrete and grounded in the mechanics and reality of the action in the time and space within which it occurs.

A novel action is often thought about in concrete terms (Vallacher & Wegner, 1985). As an action is practiced more, it becomes more ‘fluid’ (less effortful). As it becomes more fluid, a process termed *emergence* occurs whereby the person executing the action comes to think of it in more abstract terms (Carver & Scheier, 1998). The more abstract the conceptualisation, the more value-laden and removed from the actual, concrete experience it becomes. The concept of emergence is useful in explaining how cognitive errors develop and are maintained. For example, a person with depression tends to think about specific events in a negative way, and as this becomes more fluent, emergence occurs and her or his thinking becomes more abstract. This leads to overgeneralisation, which is a cognitive error common to people with depression, whereby general blanket statements are applied to all aspects of experience (e.g., *I am a failure*). A bias towards thinking about events in which one failed leads to the emergence of the abstract concept that the individual is a failure.

The level at which actions are thought about determines their meaning and thus influences subsequent behaviour. Elaboration on experience takes it beyond face value and may generate problematic cognitive errors. Take for example obsessions and compulsions. A thought (the obsession) is taken to mean that the person actually wants to complete the thought as an action. For example, a mother has a fleeting thought of drowning her baby in the bathtub and interprets this thought as meaning she must actually want to drown her baby (although she does not feel a desire to do so). She believes that if she completes a compulsion, such as washing her hands 10 times, the thought will be ‘cancelled out’ and this brings her back to neutrality by reducing the distress associated with the meaning of her thought. This thought-feeling-action cycle is an extremely value-laden process.

Compare this to concrete conceptualisations of the same scenario – a thought is merely a passing image in the mind that when extracted from its meaning-rich context, loses its typical meaning, and washing hands has no value-based repercussions whatsoever. To put it differently, actions are partially influenced by the abstract meaning that is placed on specific situations and internal events. The level of abstraction at which attention is focussed is therefore psychologically significant, because it will impact on the meaning that is derived from experience and thus subsequent behaviour. The focus of attention during the action in a sense determines exactly what type of action it is at that time.

Essentially, the basis of the DMM is formed by the supposition that self-regulation is guided by hierarchically linked feedback loops, and that this also provides a framework for thoughts to occur in, that is, a way for people to think about their experience. Decontextualising mental events (a) disengages maladaptive hierarchical systems and the associated levels of actions and then (b) provides ‘room’ for creating more adaptive or competing system concepts (e.g. compassion) that lead to action options that are more likely to result in fulfilling outcomes.

The DMM in Mindfulness

Attention and Awareness

In mindfulness, the key technique is directing attention away from a more abstract focus of awareness to concrete events occurring in the here and now, including observing an abstract thought as an isolated event. Hence, the person practicing mindfulness escapes from, or avoids, engaging a more elaborated and conscious stream of *thinking about* experience. This is the first of two sets of processes in mindfulness. For example, when practicing mindfulness, rather than attending to abstract ruminative thoughts (going over and over negative events and their meaning), a person with depression redirects his or her attention to the sensation of breathing. Alternatively, she or he may redirect her or his attention to observing the occurrence of a ruminative thought as an isolated event.

According to the DMM, by narrowing the focus of attention to the most concrete level of meaning possible – located within a specific time and place (e.g. focusing attention on the sensation of *breathing right now*, or a thought occurring in isolation, right now) – events in the mind are effectively *decontextualized* (hence the name of the model). That is, events in the mind are removed from their typical web

of associations and meanings, and exposed for what they really are – merely separate and transitory occurrences within the field of awareness, that are not necessarily true or false or important. When attention is not consumed by the contents of a hierarchical system but is rather focussed on the presence of the hierarchical system itself and therefore not engaged in cognitive elaborations, the link between mental events and the associated cognitive elaboration is weakened and the hierarchical system within which mental events are entrenched is deactivated, while awareness of what is occurring at the most concrete experiential level, without evaluation, is strengthened. Thus, the system is still present, but it is not experienced as a value-laden conceptually linked web, and instead as impulses occurring in each isolated moment. This process is negatively reinforcing because it enables people to terminate the dysfunctional stream of negative thoughts and feelings, and thus increases the likelihood that they will practice this strategy in future.

Self-evaluative beliefs and attitudes require generalisations beyond a specific time and place to objects such as a continuing self or persisting states of affairs, extending into the past or future. However from a mindfulness perspective, all that really exists is the current focus of attention: a particular element of experience. When events in the mind are decontextualised, they ultimately have no necessary self-evaluative implications: thoughts, feelings, and emotions are specific events occurring here and now at a particular time and place. Moreover, the self-concept itself is decontextualized because there has been a shift from an elaborative, rich cluster of associations about the person, his or her life and circumstances, to a relatively ‘thin’ layer of associations relating to sensations, or rudimentary aspects of experience, at a unique moment in time (i.e., the ‘present’).

Following decontextualisation of mental events including those related to the self-concept, identity no longer resides with the contents of consciousness, but instead with that which is conscious of them – the observer. This meta-awareness exists outside of the hierarchical systems, and is therefore not explained by them. Indeed, there are an abundance of theories about consciousness, and the DMM simply assumes that it exists and is responsible for wilful direction of attention.

Cognitive ‘space’ is created when certain elaborate systems are deactivated since the attentional resources that these were using become available for other tasks. The concept of mental space has been used before by Scheff (1981) who describes that the optimal distance to have from one’s experience in order to deal

with it effectively is when “one is simultaneously and equally a participant and an observer” (p. 46). This is exactly what practicing mindfulness does – it allows a person to at once be both the observer of their experience while simultaneously directly experiencing their experience, working with both in equal parts.

Self-Compassion

The cognitive space created through the use of mindfulness techniques may be necessary in order to introduce self-compassion; the second set of processes integral to mindfulness (Neff, 2003b). According to the DMM, self-compassion forms a system concept with related principles and reference values. However, since it is occurring within the context of a mindful state, it is not identified as the self-concept either, which instead remains as the observer perspective.

Hierarchically organised levels of abstraction may explain how self-compassion (along with other positive structures) is established psychologically. ‘Self-compassion’ provides the system concept, from which arise at least three principles outlined by Neff (2003a): kindness towards oneself; recognition of the commonality of human experience; and acceptance and allowance of experience. Each of these clusters of self-compassion then filter down into increasingly concrete reference values that eventuate in self-compassionate behaviour, as well as elaborate systems for thinking about the self that are compassionate. This is positively reinforcing because it results in constructive self-evaluative observations and feelings, which in turn increases the use of techniques such as self-compassion, and activates and therefore strengthens the systems to which it is associated.

Perhaps one way in which self-compassion achieves positive psychological outcomes is through the medium of the ‘self’. Recall that the self-concept has high implications for psychological wellbeing. It seems that perhaps self-compassion results in profound psychological outcomes because it involves purposefully creating positive systems related to the *self* that do not require judgment and comparison but instead positively valenced qualities such as kindness and understanding.

Intention and Attitude

Powers (1973) control hierarchy model offers one explanation for how intention and attitude operate as mechanisms conducive, and arguably essential, for mindfulness practice (e.g., S. L. Shapiro et al., 2006). Formulating an intention creates a system concept that provides the purpose for practicing mindfulness, and

thus sets up a goal system hierarchy that results in the behaviour of practicing mindfulness. Having a certain non-judgmental self-compassionate attitude towards any aspect of experience that arises during mindfulness practice also creates system concepts that produce acceptance, understanding and non-reactivity in the face of thoughts, feelings, and sensations, which is crucial to the successful practice of mindfulness. When activated, these systems influence the self-regulation of behaviour as well as ways of thinking about oneself and experience. They override many of the systems that hold identity within the confines of mental events, and thus aid in the realisation that mental events are separate from the observer of them.

Systems are created and activated when elaborate hierarchical systems are created and strengthened by focussing on them and mentally rehearsing the system concepts and principles guiding behaviour. This may be what happens when intention and attitude towards mindfulness practice are formulated, and in this way a person can at once disengage from unhelpful psychological patterns and create helpful ones. This demonstrates the flexibility of the DMM; it does not assume that someone always has higher-level goals, but that they can learn to form them as a consequence of experience, which leads to the development of new schemas.

The DMM in Depression

In Beck's (1976) cognitive theory of depression, there are three major constructs: underlying beliefs; the cognitive triad; and information processing. The cognitive triad is comprised of the self, the world, and the future. In depression, all three are viewed negatively. Underlying beliefs are hypothesised to develop from early experience and encompass rules for interpreting experience, which arise as automatic thoughts. An example of a problematic underlying belief that may lead to depression is, "*I am only worth anything if I am successful*". When strictly adhered to, this belief may give rise to the thought "*I am worthless*" following perceived failure. Finally, information processing, as already outlined above, involves the way experience or information entering awareness is interpreted or processed.

In depression, information processing becomes distorted such that there is a preoccupation with rumination on negative thoughts (negative bias), single negative events are generalised to provide a view of all other events (overgeneralisation) and positive events are attributed to external unstable factors, or seen as 'one-off's' (abstraction). Avoidance and suppression of negative thoughts paradoxically has the

opposite effect and the frequency of the very thoughts that the person sought to diminish actually increases. This preoccupation with thoughts-about and interpretations-of experience means that attention is given entirely to negative thoughts and evaluations.

Attention

From a mindfulness perspective, those suffering from depression need to learn to re-direct their attention *away* from the abstract negative elaboration *about* their experience, and *towards* concrete experience itself, as it occurs in a specific time and place, that is, here and now. According to the DMM, attending to the presence of mental events entrenched in hierarchical systems, and not to their content, decontextualises mental events and thereby both deactivates the hierarchical processes involved therein and weakens the elaborate links between mental events. In mindfulness, problematic cognitions as well as maladaptive cognitive styles (e.g., rumination) that are characteristic in depression are decontextualised. The decontextualising process prevents the unfolding of a cascade of depressive thoughts and rumination, which is hypothesised to prevent further negative, elaborative information processing.

Intention

According to the DMM perspective, forming intentions creates system hierarchies in relation to mindfulness practice, experience, and the self, and since these systems are implicated in the self-regulation of behaviour, they are conducive to practice.

Attitude and Awareness/Meta-Awareness

Attitudes of acceptance and non-judgment are cultivated in mindfulness practice. According to the DMM perspective, attitudes such as these create an evaluative hierarchical system that terminates in accepting and non-judgmental behaviour (even if the behaviour is purely cognitive). Activating these hierarchical systems, via practicing mindfulness and periodically reminding oneself or being reminded to accept and not judge one's experience, strengthens them and aids mindfulness practice. Attitudes, which are created in essentially the same way as depressive ruminative loops, are then purposefully selected to guide and regulate behaviour, rather than ruminative systems and belief systems regarding the efficacy of ruminative thinking. The difference is not only that these new attitude systems are

positively valenced, but also perhaps more importantly, that they aid in directing awareness to observe the *presence* of the contents of consciousness and to not engage with the contents themselves, which gives rise to identification with meta-awareness.

Self-Compassion

Identifying with the observer perspective creates cognitive ‘space’, which according to the DMM perspective is utilised to introduce hierarchically linked self-compassion systems. This provides an attitude towards the self and one’s experience that is understanding and affectionate. In effect, one is both operating from an observer perspective and generating feelings of self-compassion towards all aspects of this new self-identity and its experience. In other words, as a hierarchical system, self-compassion guides accepting, kind and understanding attitudes towards the self, including the experience that the self is having, and therefore aids further mindfulness practice and strengthening of a mindfulness state. According to the DMM self-compassion provides an alternative to negative self-concepts and evaluations and the associated negative affect common in depression.

Chapter Conclusion

The DMM integrates Powers’ (1973) model and Vallacher and Wegner’s (1985) model to illustrate one possible explanation for how the mind is constructed psychologically and how mindfulness techniques might operate therein to produce a state of mindfulness. The DMM explains how attention is directed around hierarchically linked feedback loops to expand awareness to meta-awareness where the contents of the mind cease to constitute the self. The DMM also explains how attention to certain attitudes and intentions creates hierarchically linked feedback loops that provide contents of the mind that are conducive to mindfulness practice. Additionally, the DMM addresses the role of self-compassion, and explains that it may operate as a special kind of hierarchical system that guides the attitude towards the self and in that way improves psychological well-being, which the self-concept has high implications for. The DMM has also been applied to depression to demonstrate its pliability from pure theory to applications within psychopathology.

However, as with any theory, it is important to critically evaluate the DMM on a number of levels. In the following chapter, the DMM is evaluated against other

models of mindfulness, other psychotherapies, mechanisms of change in psychotherapy, and finally, for its adequacy as a theory.

CHAPTER 4 – EVALUATING THE DMM

The DMM and Mindfulness Interventions

To test the utility of the DMM as a theory it must be evaluated in terms of its ability to explain phenomena proposed in accounts of how mindfulness works. This is addressed here in relation to the accounts covered in chapter two.

Mindfulness-Based Stress Reduction

In his account of how mindfulness operates in the Mindfulness-Based Stress Reduction (MBSR) program, Kabat-Zinn (1982) states that mental events lose their influence over an individual “*simply by being observed*” (p. 35). In the DMM, directing attention to events in the mind as isolated events unconnected to any meaning explains how simple observation operates to remove the impact of internal events. That is, because mental events are decontextualized when observed, they no longer elicit associated value-laden elaboration, and thus “lose considerable power and urgency” (p. 35). It makes sense then, that as Kabat-Zinn (1982) states, this creates exposure because the individual is exposed to the event without reacting to it in the usual way, since it is decontextualised. Desensitisation follows because the hierarchical system previously related to the event is deactivated and thus the individual habituates to its presence as a non-threatening phenomenon.

In order to decontextualise events in the mind, the individual must direct attention to them and recognise that since they are observing the event, they must be operating from an awareness that is separate from it. This explains Kabat-Zinn’s (1982) claim; that through observing experience, the individual learns that they are separate from their experience.

Kabat-Zinn’s (1982) conjecture that accepting and ‘allowing’ experience leads to improved coping skills can be linked back to the explanation offered by the DMM, in which attitudes are established as hierarchical systems that provide self-regulation strategies. Acceptance and allowance can be used to tolerate any aspect of experience that may arise, and allow it to arise and pass away, rather than prolonging it through suppression or clinging.

The skill of decontextualising itself can also be seen as a coping skill. Decontextualising thoughts, emotions, and feelings detaches them from their typical web of meaning and weakens their power to influence subsequent reactions and

actions (since they are no longer associated with these further elaborations). This is in line with Kabat-Zinn's reasoning that internal reactivity leads to suffering, and thus it follows that the removal of reactivity will reduce suffering.

The 'cognitive space' created by deactivation of the hierarchical systems allows for the clarity of perception that Kabat-Zinn refers to. In this space, the research shows that people are also able to self-regulate and manage their emotions without deferring to habitual, dysfunctional ways of thinking, feeling, and behaving (Brown & Ryan, 2003). Instead, people are able to utilise the cognitive space to do the mental work of considering that experience can inform, rather than control, action. According to the DMM, mental events no longer control action because they have been decontextualised and are thus no longer meaningful in the way that they used to be. That is, emotions, thoughts, and sensations do not have the same associations that they used to, and if they do, these are not taken as determinants of subsequent behaviour.

Mindfulness-Based Cognitive Therapy

The DMM is also aligned with Segal et al.'s (2013) model of depression for Mindfulness-Based Cognitive Therapy (MBCT), which states that repeated rehearsal of ruminative loops strengthens the depressive pathway, thus increasing the likelihood of relapse following a trigger. In the DMM, increases in activation of the hierarchical system correspond to strengthening of the elaborate associations therein, and thus with each depressive episode, the related hierarchical systems are strengthened, and relapse likelihood increases.

The DMM explains the finding that mood dysphoria may be enough to trigger relapse after a person has been depressed twice (Ingram et al., 2011). In terms of input, the original pathway will usually be triggered by an external negative event, which the individual interprets in a certain way, and this creates dysphoria. Given that the triggering event itself inevitably passes, the associated dysphoria becomes the input that keeps the system active. MBCT may therefore be effective because along with related depressive thoughts and feelings, dysphoria is decontextualized, and thus removed from the hierarchical system. It is experienced as an isolated event that does not preclude the onset of depressive symptoms (since as an isolated event, it is no longer associated with these). The result is the exit from the 'ruminative loop'.

Segal et al. (2013) propose that higher-level belief systems may drive the use of rumination. According to the DMM, when rumination is decontextualized, the belief that drives it is also deactivated, which further aids in the cessation of rumination.

The DMM also offers a possible mechanism underlying the explanation offered by Teasdale et al. (2000) for their finding that for people previously depressed three times or more, MBCT was significantly more efficacious than treatment as usual (TAU), but that it was equal to TAU for participants who had been previously depressed only twice. Recall that the authors explain this finding with the rationale that both the pattern of depressive thinking was stronger in those depressed three times, and was also more likely to be triggered by an internal event. It may be that decontextualizing is more useful when the hierarchical system is stronger and thus harder to weaken using TAU, which involves the use of cognitive techniques such as introducing ‘more realistic’ thoughts to replace hierarchical systems.

The DMM also provides an explanation for the underpinnings of the ‘modes of mind’ that Segal et al. (2013) refer to, and their rationale that MBCT teaches participants to exit one mode and enter another. Recall that the ‘doing’ mode is characterised by searching for discrepancies between ‘ideal’ and ‘actual’ experience and seeking to reduce any discrepancies found. Meanwhile, the ‘driven-doing’ mode occurs when the function of the doing mode is applied to the internal world and a person’s self-concept. From the perspective of the DMM, the modes can be thought of as a cluster of hierarchically linked levels of abstraction pertaining to an overall system concept. These are activated by the concepts at each level themselves, and regulated through the use of the comparators (that compare input with the reference value).

For example, my ‘ideal self’ is the system concept, and a related principle is that of being organised. If my bed is unmade, I can reduce the discrepancy found by the comparator between the unmade bed and my conceptualisation of myself as organised by making the bed. If I forgot a friend’s birthday, only to be reminded of it the next day, the comparator would detect a discrepancy between the principle to be organised and my reality; that I forgot a friend’s birthday. In the ‘driven-doing’ mode, the comparator would activate an elaborate hierarchical system in relation to thoughts about my self and my failure to actualise my ideal self, and the implications

this has for my sense of self. The ‘solution’, therefore, is to think of myself as a failure. Activating the self-concept of ‘I am a failure’ involves the activation of further hierarchical elaborative systems involving thinking about my experience and myself. The discrepancy may be resolved, but at a high cost – the adoption of the concept of myself as a failure, and the subsequent negative outcomes. Additionally, the original discrepancy with my ideal self-concept has not been resolved, and until the system manages to do so, it will continue to activate the elaborate hierarchical systems relating to my self as a failure. It becomes clear that these linked systems form an entire pattern of thinking and processing information that all fit under the umbrella of ‘driven-doing’ mode.

The third and final mode formulated by Segal et al. (2013) is the ‘being’ mode, which is essentially contentment with the way things are. According to the DMM, the key difference is that the being mode does not involve the activation of hierarchical systems that pertain to comparisons between how things are and how they ‘should’ be. What remains is the present moment, and acceptance of it as it is, since there are no means-end gains to be made. Exiting the ‘driven-doing’ mode and activating the ‘being’ mode can be conceptualised as the outcome of decontextualising hierarchical systems. Thus, problematic processing is not utilised because there is no need to place great importance on any event. Goals may still guide behaviour, but the focus is not on the elaborations, and is instead on isolated events occurring in the here and now. Additionally, as mentioned above in relation to MBSR, decontextualizing events in the mind reveals the self as the observer of these events and not the events themselves, which no longer have the importance for the sense of self that they used to. When concepts in the mind and experience do not have implications for the self, ‘driven-doing’ mode becomes void, since by definition it involves interpreting experience as relevant to the self.

ACT and Relational Frame Theory

The DMM is also compatible with S. Hayes et al. (2001) Relational Frame Theory (RFT). RFT provides a framework for understanding human language and higher cognition. It is possible that RFT is comprised of an underlying system of hierarchically organised systems that are interconnected and interrelated. As a foundation for ACT, RFT provides a framework for understanding the inflexibility of thinking that can arise. Cognitive inflexibility may be related to the hierarchical

systems of the DMM in that the more a system is activated, the stronger it gets. The stronger the system, the more inflexible and resistant to change and difficult to exit it becomes. Given this line of reasoning it makes sense that decontextualizing the network would enable more cognitive flexibility. That is, thoughts lose their gravity and weight, and therefore are not held as rigidly, which frees up flexibility in the sense that alternative thoughts do not threaten the sense of self – since they are not ‘me’. Additionally, cognitive space is created in which to introduce new systems. Moreover, when the person is not caught up in thinking-about experience, they are better equipped to respond to each unique experience as it arises in each new moment.

Acceptance is a cornerstone of ACT, and in terms of the DMM, constitutes another hierarchical system that is introduced to regulate behaviour. It also may activate hierarchical networks that are related to contentment, since this is the opposite of craving and aversion, and is created by adopting attitudes that do not require discrepancy reduction. When thoughts are decontextualised it is apparent that they do not *necessarily* have any implications for the self or reality. Moreover, the skill of decontextualizing empowers individuals to be able to exit old reaction patterns, and therefore is a coping skill in itself.

The DMM and Theories of Mindfulness

S. L. Shapiro et al. (2006)

The DMM presents one interpretation for how the three types of processes proposed by S. L. Shapiro et al. (2006) have their effect. As already addressed above, in the DMM intention and attitude are essentially comprised of hierarchical levels of abstraction that guide behaviour. According to the DMM, attention, the third factor, operates to decontextualize events in the mind. When events in the mind are decontextualized they lose their implications for the self (‘I’ and ‘me’), which leads to the shift in perspective (‘reperceiving’) that S. L. Shapiro et al. (2006) propose, because one realises that awareness is separate from the contents of the mind.

Shapiro et al. (2006) argue reperceiving, or disidentifying from the contents of consciousness, enables cognitive, emotional and behavioural flexibility. In the DMM, this means that new system concepts and related hierarchical systems involving alternative cognitive, emotional, and behavioural response options can be created and practiced without threatening the value or status of the self.

Shapiro et al. (2006) suggest that values clarification is an outcome that follows re-perceiving. This makes sense with the DMM, because decontextualizing removes thoughts, including values, from their web of associated meaning, and therefore enables examination of what guides behaviour, and the ability to make informed, rather than reflexive, choices in regards to the values to uphold and those to discard.

The final two outcomes Shapiro et al. (2006) put forth are self-regulation and exposure, both of which have been covered in relation to the DMM above.

Hölzel et al. (2011)

The DMM possibly also underpins the mechanisms Hölzel et al. (2011) describe. Sustained attention to the body is key in their theory, and in terms of the DMM, directing attention to the body decontextualises events in the mind by maintaining focus on the most concrete aspect of experience available, which is occurring in the body in the present moment. Thus, elaborate rehearsal of hierarchical systems is disrupted. The DMM framework has already been applied to the construction of attitudes and the processes of exposure and extinction in mindfulness that Hölzel et al. (2011) suggest in their theory.

Hölzel et al. (2011) propose that a *shift in perspective on the self* is the outcome of the interaction of the above mechanisms, which in terms of the DMM, is a change in the system concept of the 'self', where mental concepts no longer comprise identity, but identity is rather with the enduring observer awareness.

Hölzel et al. (2011) attempt to incorporate self-compassion into their theory as an emotion-regulation technique that somehow contributes to a shift in perspective on the self. Self-compassion is an attitude towards the self, and operates as an alternative to self-esteem, whereby judgments and performance-based comparisons with others are no longer relevant for the concept of the self (since, as mentioned above, 'self' is no longer made up of these concepts). In the DMM, self-compassion forms a system concept that guides this type of thinking, feeling, and behaving, which as already discussed, are conducive to mindfulness practice.

Other Theories of Mindfulness

Baer et al. (2006) found that self-compassion was most strongly correlated with reduced reactivity, which according to the DMM, is due to the attitude of compassion directed towards the self facilitating non-reactivity to experience. Recall

that in the DMM, the system concept of self-compassion is hierarchically linked to kindness towards the self, recognition of the commonality of the human experience, and acceptance of experience. Perhaps internal states are not as governed by experience when mental representations of experience do not have implications for the self, and bringing kindness, acceptance and a less self-centred approach to experience facilitates the separation of self-identity and experience and the ability to tolerate a variety of states without needing to react to them.

Brown et al. (2007) attribute the overall efficacy of mindfulness to a “disengagement from self-concern” (p. 227), where ‘self-concern’ is defined as mental events related to the self, or the self-concept. In the DMM, the self-concept is decontextualised, and the self is identified as the observer perspective existing outside of the contents of awareness, including mental hierarchical systems. That is, the contents of consciousness, including pain and pleasure, lose their relevance to the self, and therefore do not dictate thought, feelings, or actions. The other mechanisms of mindfulness touched on by Brown et al. (2007) are covered above.

Summary

The DMM thus offers a potential hypothesis of the psychological framework that underpins the mechanisms by which mindfulness works. It fits with explanations of MBSR, MBCT, ACT and RFT, as well as theories that directly address the mechanisms at play, in both mindfulness techniques as well as how they create mindfulness as a state.

The DMM and Cognitive Behaviour Therapy

In this section, mindfulness is compared to Cognitive Behaviour Therapy (CBT) to demonstrate that mindfulness adds therapeutic value and that the DMM contributes explanatory value.

To use the diathesis-stress model of psychopathology, it is possible that a genetic predisposition may make an individual vulnerable to developing psychological difficulties in certain circumstances (see Lazarus, 1993). These circumstances might involve the repetition of altered mood states in conjunction with adverse experiences, which, if repeated over time, according to the DMM could create a system level concept regarding the self or the world. This system then creates a hierarchy of associated cognitions, feelings and actions, and their environmental consequences, which constitute a dysfunctional stable ‘system’. Mindfulness and CBT

seek to disturb or deactivate this system via shifting attentional levels and subsequent information processing.

CBT is currently the standard recommended treatment for most psychological disorders, including depression (e.g., NICE, 2009). CBT is based on the rationale that thoughts, behaviour, emotions and physiology all interact and influence each other (Westbrook, Kennerley, & Kirk, 2011). Thoughts and behaviour are targeted in treatment, since these are the areas most apt for intervention.

CBT acknowledges that thoughts come and go and are not necessarily true or false; and aims to help clients to realise this (Westbrook et al., 2011). CBT also acknowledges that thoughts affect the way that events are interpreted and responded to, and that these cognitions are not always accurate or helpful. CBT, therefore, endeavours to change those thoughts via cognitive restructuring. The aim of cognitive restructuring is to bring to light automatic thoughts and underlying beliefs and test them against reality. In doing so, unhelpful thoughts and beliefs are replaced with more realistic, accurate and useful ones. The result is a more balanced view of the self, others, and the world, which decreases distress (Westbrook et al., 2011).

Behaviour is also targeted in CBT. Behavioural activation is a technique for overcoming habits of withdrawal, avoidance, and inactivity, and involves confronting unhelpful behaviours that keep the person's problems going (such as avoidance, both to internal and external experience, which prevents opportunities to learn other more helpful behaviours), and trying out other ways of behaving and noticing the effect this has on their thoughts, emotions, and physiology (Westbrook et al., 2011).

Exposure therapy is another behavioural technique and is based on classical conditioning, and aims to change the fear response to stimuli that are not actually threatening. In exposure therapy, clients are exposed to the very stimuli that they fear and habitually avoid because it provides an opportunity to learn that it is not actually threatening. They learn to relax in the presence of the stimuli, and since it is no longer paired with a fear response, symptoms improve (via a process of extinction) (Westbrook et al., 2011).

Essentially, CBT provides people with adaptive cognitions and behaviour alternatives that help people to manage themselves and their world. The rationale makes sense. If thoughts and behaviours create psychological distress, then changing them should alleviate the problem(s). The difference between CBT and mindfulness is that CBT seeks to solve a problem by changing cognitions and thereby

inadvertently concedes power to thoughts; whereas mindfulness on the other hand *exits* the perpetual reactive thought processes altogether. Through mindfulness practice, a person's thoughts and behaviour no longer have 'power' over them. That is, they are able to observe their thoughts about experience as something unconnected to themselves, or re-direct attention away from such thoughts, and thus disempower them.

Cognitive restructuring is used both in CBT and mindfulness. The DMM is one potential account for how the mind is constructed psychologically and can therefore be applied to cognitive restructuring in CBT as well. However, cognitive restructuring operates in a different way in mindfulness. According to the DMM, in mindfulness, unhelpful hierarchical systems are deactivated, and helpful systems are constructed and activated. Yet, as mentioned above, these systems are decontextualised and therefore do not have implications for the self. They thus create a more pleasant experience than unhelpful systems, but they are not ultimately in control. Rather, the self from the observer perspective is.

Mindfulness also employs techniques of exposure, but gives a different rationale than that employed by proponents of CBT. That is, it is argued that mindfulness ultimately empowers people to exit the trap of being governed by cognitions (Brown et al., 2007b). For example, when individuals enter a depressive state, they tend to attempt to avoid painful thoughts, thereby inadvertently increasing them. Trying to change thoughts, while trapped in a depressive ruminative loop, is a difficult and perhaps impossible task, because to do so, the hierarchical system in which the thoughts reside must be activated. According to the DMM, activating a system strengthens it, and results in increased engagement with it. When a relapse begins to occur for people who are trained in mindfulness, they are able to actually exit the trap of thinking. They can acknowledge, "*here are those ruminative depressive thoughts*", but not engage with them in the way that CBT requires. Instead thoughts and feelings are allowed to be present and attention is focussed on the concrete level of their experience occurring in the here and now. When experience is not judged and reacted to, it is not as painful, and fades much faster, because elaborate hierarchical systems are deactivated.

There are similarities between CBT and mindfulness, but their underlying rationale and thus use of similar strategies function differently (House & Loewenthal,

2008). The DMM offers a possible underlying framework that explains how these strategies deal with the same psychological components differently.

To summarise, firstly, both use decentering, yet this is a major component of mindfulness practice that creates the mindfulness state, whereas in CBT it is used as a rationale for changing and challenging thoughts. According to the DMM, decentering is part of decontextualising. That is, acknowledging thoughts as not necessarily accurate reflections of reality begins to remove their system from a position where it governs behaviour. Decentering does not however reveal thoughts as isolated events occurring in the here and now, and thus does not foster the development of the observer perspective, or the mindful state.

Secondly, both CBT and mindfulness involve cognitive restructuring, in what the DMM conceptualises as the deactivation of unhelpful hierarchical systems and the creation and activation of helpful ones. In mindfulness however, these systems are decontextualised, and therefore not necessarily meaningful for the self, and hence, not reacted to or given undue importance.

Finally, exposure is used in both methods, however, in CBT its purpose is to reduce negative reactivity, whereas in mindfulness it is used to allow reactivity to reside within oneself, and yet not allow it to govern behaviour.

Key Mechanisms of Change in Psychotherapy

The Therapeutic Relationship

The client, the therapist, and the context all have an impact on treatment outcomes (Norcross & Lambert, 2011). Additionally, not only the treatment method employed, but also the therapeutic relationship in which it is delivered predict treatment outcomes (Norcross, 2011). The therapeutic relationship is defined as “the feelings and attitudes that therapist and client have toward one another, and the manner in which these are expressed” (Norcross & Lambert, 2011, p.5). The therapeutic relationship has been addressed in the mindfulness literature in terms of the utility of training clinicians in their personal use of mindfulness (Germer, Siegel, & Fulton, 2013). Empathy accounts for a large portion of the effect of mindfulness on the therapeutic relationship. Other contributing factors are the clinician’s genuineness, warmth, understanding and acceptance, positive regard, and consensus (Germer et al., 2013).

Mindfulness practice cultivates qualities that are conducive to a good therapeutic relationship, and it is therefore not only relevant as a treatment method, but also as a tool for clinicians to use to enhance outcomes through their direct alliance with the client. The ability to respond to each unique moment fosters being open to changes in clinicians' hypotheses and formulations as they uncover more phenomena in assessment (Fulton, 2013).

A theoretical understanding of how mindfulness works increases the justification for its use in clinical training programs, and also for clinicians who want to develop aspects of themselves in order to enhance their therapeutic effectiveness. Evidence is emerging for the efficacy of treatment with a therapist who possesses mindfulness characteristics. The implications for the therapeutic relationship - a key mechanism of change – warrant mindfulness as an avenue to explore in the interests of developing best practice in clinical contexts. Surrey and Kramer (2013) conceptualise the use of mindfulness in the therapeutic relationship as 'relational mindfulness', which basically involves being mindful of the relationship between the client and the therapist, and changes therein, which enhances the navigation of the relationship and its subsequent efficacy as a therapeutic tool.

The DMM provides a possible underlying framework that may explain how mindfulness enhances the therapeutic relationship. Firstly, the presence of the qualities of compassion influences the therapeutic relationship (Germer et al., 2013). Perhaps mindfulness practice on the part of the therapist fosters compassion-related system concepts, and when these are activated regularly, they have flow-on effects to the therapeutic relationship. Secondly, according to the DMM, when mental events are decontextualised, cognitive 'space' arises. From this space, the therapist may then be better able to observe his or her own thoughts and hypotheses, reactions and counter-transference, and choose how to respond in light of those. She or he may also be more flexible in their thinking about the case, since the thoughts do not have implications for his or her self-concept. In other words, the therapist is able to navigate her or his thinking on a case with increasing clarity and detachment.

Freud and Psychoanalysis

Recall that Freud postulated that effective treatment involves an open dialogue between the client and the therapist that *enables the unconscious to surface into conscious awareness*. The DMM proposes that the unconscious is made up of system hierarchies that direct cognition, behaviour, and emotion. Perhaps talking

therapy helps to illuminate these systems to the client, or to the therapist who can then direct the client's attention to their presence. Mindfulness is perhaps another technique that facilitates the process of making the unconscious conscious, or bringing hierarchical systems into awareness. The focus of mindfulness practice is different to that of talking therapy, in that the purpose is to observe the presence of the systems, rather than to delve into attempting to understand how they operate.

The DMM's Adequacy as a Theory

Epistemic values guide theory evaluation to provide an indication of their explanatory adequacy and usefulness. This subsequently influences how readily the theory will be accepted on the basis that by meeting more of the criteria of the values, the more likely they are to be true and accurate reflections of reality (Hooker, 1987; Newton-Smith, 2000).

Predictive accuracy, empirical adequacy and scope address a theory's ability to account for empirical research and the range of phenomena requiring explanation. The DMM adequately explains what have been identified as the key components operating in mindfulness, namely attention, intention, attitude, awareness and meta-awareness, and self-compassion. It also provides an explanation for the mechanisms that arise from these core elements, such as exposure, insight, self-regulation, emotion regulation, and adoption of a new perspective and thus change in self-identity.

Additionally, the DMM accounts for findings in regards to both the efficacy of MBIs as well as findings from research that investigates how mindfulness operates. The model accounts for why MBCT is more effective in preventing relapse than CBT, and how psychoanalysis may operate. It does not account for why any other treatment may or may not work, and why different individuals prefer different modes of treatment. Additionally, the therapeutic relationship is consistently found to be a major predictor of treatment effectiveness, and the model does not override this finding (Norcross, 2011). However, the model does account for why mindfulness on the part of the therapist can positively influence the therapeutic relationship (Germer et al., 2013).

One example of how the DMM offers an explanation for the research findings about the way that mindfulness works comes from Coffey and Hartman (2008). They found that reduced rumination and increased emotion regulation and non-

attachment mediate the inverse relationship between mindfulness and psychological distress. The DMM explains how mindfulness practice interrupts rumination, and promotes emotion regulation. The DMM also accounts for why ‘concreteness training’ is efficacious in reducing dysphoria, a symptom of depression purportedly brought about by over-general abstract thinking styles (Watkins et al., 2009).

Another example involves Teasdale et al.’s (2000) finding that MBCT is an effective program for relapse prevention in people who have been depressed three or more times, but is no more effective than treatment as usual (TAU) for those depressed two times. The DMM’s explanation for this is not dissimilar to that offered by Teasdale et al. (2000), but the DMM provides an underlying process that accounts for this finding. The authors explain their finding through their rationale that people who have been depressed three or more times have an established autonomous depressive thinking style that is activated by dysphoria, and MBCT is specifically designed for preventing this type of relapse. The present model is aligned with this, in that repeatedly activating the hierarchical systems strengthens their associations. Thus, people who have been depressed three times have a stronger depressive system than those previously depressed twice. For those depressed twice, their system is still under construction and in the process of being strengthened through reactivation via depression following dysphoria in reaction to a negative life event. This creation of meaning rich associations can be exited through the use of mindfulness, but it can also be interrupted through TAU, because the loop is not as strong. People with a history of three or more depressions have both the meaning-creation and the strong loop to exit, and therefore, mindfulness is more effective for them, because it is operating on the key process involved in their relapse (i.e. reactions to dysphoric mood and the web of associations therein).

Internal coherence considers the presence of contradictions or logical gaps in a theory. Hierarchically organised feedback loops are the main concept in the DMM, and provide a framework to illustrate one possible way that the mind may be organised, both in terms of the regulation of goal-directed behaviour, and in terms of how people conceptualise, or think about, their own experiences. The notion that the same system guides how behaviour is both executed and thought about does not produce a contradiction or logical gap. One possible contradiction exists however, in terms of decentering events in the mind, yet continuing to be effected by attitudes such as self-compassion. It may be that the point is not to only endure suffering, but

to detach from it and also induce more pleasant positive states. However, it seems that the key point is the change in the implications that mental events and experience have for one's self-concept.

External consistency assesses whether the theory is in accord with accepted background theories. The concepts in the model are based on other key theories in psychology, including Power's (1973) model of self-regulation and Vallacher & Wegner's (1985) action identification theory, as well as in more specific accounts of how mindfulness works (Baer, 2003; Baer et al., 2006; Brown et al., 2007b; S. Hayes et al., 1999; Hölzel et al., 2011; Kabat-Zinn, 1982; Linehan, 1993a, 1993b; Segal et al., 2013; S. L. Shapiro et al., 2006).

Unifying power relates to when several theories previously viewed as separate "are subsumed into a theory of broader scope" (McAllister, 2000, p.537). The DMM unifies theories of mindfulness that are connected by the subject matter, but which lack explanations for what underpins the phenomena that they all attempt to explain. It also explains findings in research that were accounted for via a specific theory pertaining to that instance, which did not generalise (e.g. see above for differences in efficacy with depression relapse). The model describes and explains the different constructs and how they interact. It predicts what the essential elements to mindfulness practice are, and what the outcomes will be if these are utilised. It also strengthens the use of mindfulness as an intervention because it provides mechanisms that are based on pre-established conceptualisations for how mindfulness is operating on a psychological level. This makes it a safer tool, since the essential components are deeply understood – both what they are and how they are working on a fundamental level.

Fertility and heuristic value: The use of mindfulness in clinical practice is burgeoning, while comprehensive theories are lacking. It is of utmost importance to uphold the scientist-practitioner model, and indeed the integrity of clinical practice via sound theories underpinning this practice. Fertility or heuristic value concerns the extent to which a theory provokes novel predictions and stimulates new avenues of inquiry. In a clinical setting this may also include the generation of new and effective interventions based on the theory. The DMM can generate novel empirical research, inasmuch as doing so would provide evidence in support of the DMM as a legitimate framework in which to utilise in the scientist-practitioner model of clinical practice. Additionally, it provides a meaningful and comprehensive framework that

can be utilised as a basis for developing interventions that are effective, and that can be tested when they are not (since the model provides underlying causal mechanisms and a systematic approach to the psychological underpinnings of mindfulness practice).

Simplicity refers to whether a theory makes few theoretical assumptions. The DMM assumes that self-regulation is constructed in a certain hierarchical organisation consisting of feedback loops, as is thinking-about one's experience. Although this is a useful conceptualisation and many different theorists have used this basis to develop many different models of different phenomenon, it still may be incorrect. However, the present theory assumes that it is correct. Given the wide usage of these assumptions, no 'leap of faith' is required. It also follows typical cause-and-effect reasoning.

Explanatory depth considers a theory's ability to describe core underlying causes and processes. The DMM fulfils this criterion as it identifies a possible system that is affected by the process of mindfulness. That is, the model proposes that the function of hierarchically organised feedback loops, which are postulated to form the psychological basis of thinking and behaviour, is altered by the key processes in mindfulness, of attention, intention, attitude, awareness/meta-awareness, and self-compassion.

Summary

The advantage of the current model is that it provides a rationale for why the key components of mindfulness techniques are important and exhibits how they need to be utilised in order to be effective in treatment. By providing a framework in which to think about and evaluate mindfulness interventions, clinicians are empowered to 1) use mindfulness intervention effectively and 2) develop mindfulness based programs that are grounded in sound theory. Additionally, it provides a framework in which to tailor individual treatment, and to investigate the reasons why such treatment may be ineffective – there are logical steps to follow and uncover where the treatment did not match the model.

The DMM provides a plausible explanation for research findings as well as providing a direction to disentangle the mindfulness literature over mechanisms of change and stimulate further theories that integrate underlying mechanisms, perhaps developed from the DMM, about how the mind works psychologically and thus how mindfulness interacts with it. The theory does not however seek to provide

an overarching model of psychotherapy and how it works, nor does it attempt to explain the role of consciousness, or the nature of the observer perspective and from whence it may arise.

CHAPTER 5 – CONCLUSION

This current paper addressed the emergence of mindfulness in Western psychology and the importance of gaining a theoretical understanding of mindfulness so that practice can develop with a grounded foundation. The theoretical accounts to date were outlined, and the core components of mindfulness techniques were extracted. The DMM was proposed as one possible explanation for a unifying theory of how these components of mindfulness techniques interact to produce the effects of mindfulness practice, including the emergence of the mindfulness state. The DMM was also evaluated, and is intended to provoke further theoretical and empirical investigation.

The main aim of the current study was to elucidate the core mechanisms of mindfulness proposed across the literature, and present the DMM as one potential account for the psychological processes that may be affected in mindfulness practice. The DMM hypothesises that hierarchical systems composed of feedback loops organised in increasing levels of abstraction make up the structure of the contents of the mind. In the DMM, people both act and think about their actions according to this model. When mindfulness techniques are employed, attention is regulated so that awareness does not become focussed on the contents of the hierarchical systems, but instead on their presence. Doing so intentionally and with an attitude of acceptance and non-judgment decontextualises mental events and simultaneously gives rise to cognitive space and the realisation that the one observing mental events is separate from that which is being observed. The observer perspective is adopted as the self-identity, replacing a self-identity comprised of mental events.

Self-identity then exists outside of the hierarchical systems, and the systems are therefore no longer as crucially self-relevant as they once were. Self-compassion is a system set up in the cognitive space made available by decontextualising to guide behaviour in positive and adaptive ways, but it is still not identified with. The DMM assumes that hierarchical systems continue to provide ways to behave and ways of thinking about behaviour. Yet, through decontextualising they do not govern behaviour, because from the observer perspective, “the fact that one can comprehensively *look at* them means that one has ceased using them as something *with which to look at*, and thus distort, reality” (Wilber, 1993, p. 29). Therefore, the systems are not reflexive behaviour patterns, but instead provide one possible way of

doing or thinking, while the observer is free to choose and create novel responses that are more flexible and applicable to the present situation.

The current investigation into the mechanisms of mindfulness has highlighted key points about the ‘self’. Firstly, self-identity may be crucial in psychological well-being, but not in the typical psychological sense. That is, bolstering a sense of ‘self’ that is based on mental concepts, even if they are positive, may not actually be beneficial. Instead, mindfulness suggests that removing identity from concepts entirely may be a key avenue to well-being. This is not surprising when looking at the Buddhist philosophical explanation for what mindfulness is intended to do. Recall that mindfulness was originally developed to reveal what is known in Buddhism as the ‘three marks of existence’, and they are *impermanence* (all things are temporary), *egolessness* (there is no such thing as an enduring self), and *suffering* (suffering is caused by clinging to the illusion of a permanent self) (Bodhi, 2003).

Whether we accept or reject these assumptions of Buddhism, it is clear theoretically and empirically that MBIs may be having the effect of encouraging participants to recognise the transitory nature of their experience; that it therefore does not provide a stable self-identity; and that there is a more stable self-identity to be found in the observer perspective. According to Buddhism, identifying with the observer perspective would relieve suffering inasmuch as it is more enduring than the contents of consciousness, but it is also only temporary and will lead to suffering if it is clung to. Interesting lines of investigation would be into other states of consciousness, such as sleep, with the question in mind, what happens to the observer consciousness when one is asleep? Perhaps continual acceptance and non-judgment are at the heart of coping with the human experience.

Secondly, self-compassion is a potentially pivotal attitude in psychological well-being. It is not yet clear how or why, but it is hypothesised here that the reason is because it is an attitude towards the ‘self’, and as already discussed, the ‘self’ has large implications for psychological health. Moreover, self-compassion entails an attitude that is conducive to mindfulness practice. Taken together, the observations and findings about self-identity and self-compassion indicate that exploration of the ‘self’ may provide Western psychology with deeper understandings of human functioning and therefore provide tools to enhance well-being.

To the knowledge of the author, the DMM is the first of its kind and is aimed to stimulate further research and theorising on the psychological mechanisms that

underpin mindfulness. This is in the interests of uncovering and de-mystifying mindfulness so that it can be more widely and readily applied with grounded credibility.

Clinical Applications

The mechanisms of mindfulness techniques are distinguishable from the state that they are intended to create. The core mechanisms at play in mindfulness techniques are attention, awareness/meta-awareness, attitude, intention, and self-compassion. Recall that in mindfulness techniques attention is intentionally regulated on aspects of experience within awareness occurring in the present moment. An attitude of acceptance and non-judgment is directed towards experience. Meta-awareness arises as the resulting state. In the mindfulness state characterised by meta-awareness, mental events lose their self-relevance and meta-awareness arises outside of the contents of consciousness and is identified as the self. An attitude of self-compassion is then introduced and directed towards the self, such that positive feelings towards oneself are generated (but not identified with). The self-identity is a key point for clinicians to grasp when implementing MBIs, because they need to be able to guide and navigate their clients through the transformational experience of transitioning from identifying with contents of consciousness to identifying with consciousness (or meta-awareness) itself. It is important to understand this distinction because it allows clinicians to implement MBIs skilfully, that is, knowing the difference between what to do and what to expect that to produce.

Moreover, an understanding of the mechanisms of action that result in a mindfulness state may shed light on how certain psychopathologies arise. That is, if clinicians understand how mindfulness works clinically, they can better understand what exactly it is altering to produce positive psychological outcomes, which may illuminate what was problematic in the first place. When clinicians understand pathways to psychopathology, the maintaining factors are clearer and they are thus better equipped to intervene. Furthermore, understanding how the psychologically beneficial mindfulness state is induced provides an understanding of how to enhance well-being.

Self-compassion is a key component in mindfulness, and this may be because it forms the attitude towards the highly significant concept of the self. It seems that

mindfulness has its effects not only because of the change in relationship to experience in general that it generates, but also particularly because of the change in relationship to the self that is produced. Self-compassion both encourages positive feelings towards the self and others, which protect against psychopathology, and also fosters the practice of mindfulness techniques. Self-compassion is receiving more and more attention in the psychological literature, and may yet emerge with the coverage that it seems to deserve. As it stands at present, however, self-compassion is a technique that clinicians may do well to investigate and incorporate into evidence-based practice.

Future Research

The DMM is intended to stimulate research into the psychological mechanisms underlying the practice of mindfulness techniques. Indeed, empirical testing is necessary in order to evaluate the practical plausibility of the DMM. Such testing may involve the use of priming paradigms, for example, that test the strength of different hierarchical systems in participants before, during and after practicing mindfulness techniques. Testing the changes in the strength of hierarchical systems would reveal whether this is indeed a psychological framework that is affected by mindfulness practice.

Moreover, further investigation is required to clarify the role of self-compassion in mindfulness. The DMM proposes that self-compassion is a special kind of attitude because it involves the self, and research that clarifies how it operates is needed. According to the DMM and other theorists (e.g., Neff, 2003b) cognitive space induced by meta-awareness precedes the introduction of self-compassion. It would be interesting to measure participants' self-compassion alongside measures of meta-awareness throughout a MBI, and note any sequential changes.

Meta-awareness is not only an outcome of mindfulness practice that enables observation of experience and thus responses informed by all of the information available within one's field of awareness. It seems to have deeper implications for the sense of self. That is, through meta-awareness, mental events are observed, and since they are observed, they are separate from that which is observing. That which is observing then forms the self-identity. Following this, if mental events no longer have the same meaning for self-identity, since they are inherently separate from it, they lose their ability to govern behaviour. According to the DMM, this is because

they have been decontextualised. In order to test this aspect of the DMM, future research could explore the self-identity of participants in an MBI.

Limitations Of The DMM

The DMM is limited by what has been previously proposed in psychology. That is, it could be that hierarchical systems are not reflective of psychological structure, and have simply provided a comfortable explanation in the absence of anything more adequate. There is also as yet no evidence for the DMM, and it may be difficult to directly falsify because it is based on entirely internal and sometimes subconscious processes that are hypothesised to be at play. Also the DMM is unable to explain that which exists outside of it (i.e., consciousness) and is limited by the lack of cohesion in the current understanding of consciousness (of which there is a vast literature available in numerous fields). The DMM can all but simply assume that there is a property of awareness that is somehow able to be directed through volition and to provide a self-identity. The DMM does not offer insights into how this may be structured, other than it exists outside of the hierarchical systems and is capable of observing them.

Concluding Remarks

It appears that mindfulness, as a technique and as a state, has been well defined throughout the literature. The outcomes of MBIs have been evaluated and its efficacy is clear. It is timely that the focus shift to the less explored areas of this current and expanding topic in order to make it more accessible and credible. The current paper attempted to create a clearer idea of the nature of the mechanisms creating states of mindfulness so that we might be able to develop better ways of inducing it as well as working more with what mindfulness taps in to. Conceptualising the underlying mechanisms of mindfulness also provides a starting point for research on the causes of psychopathology and well-being, a deeper understanding of which would enable treatment that is better able to address and promote psychological health. The areas for further investigation suggested by the current paper in particular are the 'self', self-compassion, and the psychological underpinnings of mindfulness.

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