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ORIGINAL ARTICLE

Mindfulness, Depression and Modes of Mind

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Abstract The author introduces the special section on mindfulness: four articles that between them explore the correlates of mindfulness in both cross-sectional and treatment studies. Results from these studies, taken together, suggest a close association between higher levels of mindfulness, either as a trait or as cultivated during treatment, and lower levels of rumination, avoidance, perfectionism and maladaptive self-guides. These four characteristics can be seen as different aspects of the same 'mode of mind', which prioritizes the resolution of discrepancies between ideas of current and desired states using a test-operate-test-exit sequence. Mindfulness training allows people to recognize when this mode of mind is operating, to disengage from it if they choose, and to enter an alternative mode of mind characterized by prioritizing intentional and direct perception of moment-by-moment experience, in which thoughts are seen as mental events, and judgemental striving for goals is seen, accepted and 'let go'.

Keywords Mindfulness · Depression · MBCT · MBSR · Discrepancy-based processing · Rumination · Avoidance · Self-guides · Perfectionism

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Mindfulness is a translation of the Pali word *sati*, originating from the Sanskrit for 'remembering'. It came, in the ancient Buddhist texts, to refer to the awareness that may accompany any thought or action, what has more recently been called 'autonoetic awareness' (awareness that is aware of itself; Tulving 1983). In its more common usage in recent clinical literature, it has come to mean the *awareness that emerges* as a by-product of cultivating three related skills:

(a) intentionally paying attention to moment-by-moment events as they unfold in the internal and external world,
(b) noticing habitual reactions to such events, often characterized by aversion or attachment (commonly resulting in rumination and avoidance),
(c) cultivating the ability to respond to events, and to our reactions to them, with an attitude of open curiosity and compassion.

Over recent years, interest in mindfulness-based approaches in mental and physical healthcare has grown considerably. There have been a number of reasons for this. First, the use of mindfulness as a central element in the skills training in Dialectical Behaviour Therapy for chronically self-harming patients with a diagnosis of borderline personality disorder (see Linehan 1993 for review) introduced the term to many practitioners who had not been familiar with such meditative practices before. Second, the parallel development of mindfulness-based stress

reduction (MBSR) for chronic pain, stress and anxiety in a general hospital setting by Kabat-Zinn and colleagues showed that the approach could be effective even if not part of a complex package of therapy tools (e.g. Kabat-Zinn et al. 1986, 1992; Miller et al. 1995), with a subsequent RCT demonstrating the effectiveness of MBSR as a treatment for psoriasis (Kabat-Zinn et al. 1998).

The practices used in MBSR, derived from Buddhist practices but adapted to a secular context, address what might be termed *universal vulnerabilities*: those mental or behavioural habits that undermine well-being and maintain chronic feelings of dissatisfaction because of certain universal aspects of being human: having language, taking such language literally, using thought-based processes to elaborate, solve or escape from problems, and persisting in using such strategies even if these do not solve the problem (as in the 'problem' of sad or anxious mood). This capacity of mindfulness to address universal vulnerabilities is particularly helpful in MBSR, with its large classes of people with many different diagnoses and problems.

With the help of Kabat-Zinn and his colleagues, several derivatives of MBSR have focused on the application of mindfulness to particular diagnostic groups. Usually taught in smaller classes, these second generation applications of MBSR use all (or virtually all) of the same practices as in MBSR, but add elements that address the *specific vulnerabilities* of the patients that come for help. For example, MBCT (Segal et al. 2002) emphasises negative thought patterns in depression and the particular warning signs and triggers for future episodes, and MB-EAT (Kristeller and Hallett 1999) emphasises triggers for over-eating.

The four papers in this special section focus on depression and the negative patterns of thinking that accompany this mood state. Therefore, as background, I briefly review previous work on depression as a case example of the type of specific vulnerability that mindfulness addresses.

Depression

The perceived need for a new approach to depression arose from the realization that depression is often a chronic relapsing condition. Research has found relapse rates of 50–80% in those who have been depressed before (Judd 1997; Mueller et al. 1999). The number of previous episodes is one of the strongest predictors of relapse/recurrence (Kessing et al. 2004) and even treatment of an acute episode by normally effective means leaves a substantial minority failing to meet criteria for recovery. Then, even following apparently successful treatment, relapse (back into the same episode) or recurrence (a new episode) is the norm for many patients (Hollon et al. 2006). By the end of the 1980s, this pattern was clear, but the underlying vulnerability that kept patients at risk for future episodes was not clear. Nor did we know why cognitive therapy had been so successful in reducing risk of relapse and recurrence. The detail of our own work in this area is given in Segal et al. (2002), so only its conclusions will be given here.

It turned out that continued risk of relapse and recurrence is brought about by increased *cognitive reactivity* to small changes in depressed mood (see Segal et al. 1996; Teasdale et al. 1995 for reviews). People differ, one from another, in the relative ease with which maladaptive cognitions or cognitive styles that were present during previous depressive episodes are re-activated by mild (non-pathological) mood fluctuations (see Ingram et al. 1998; Segal and Ingram 1994; Lau et al. 2004).

This 'differential activation' model suggests that feelings of low self-worth, hopelessness, failure and rejection originally arise as features of global self-referent negative thinking during early episodes of depression. These early episodes of depression may be created by a combination of genetic vulnerability and early adversity, and recent life events (Caspi et al. 2003), but, however they arise, during these episodes, changes take place due to the co-occurrence of symptoms: negative patterns of thinking (e.g. 'I'm a worthless failure'), feelings (e.g., hopelessness, sadness and anger), physical sensations (e.g., gastrointestinal changes, sensations of fatigue and sluggishness) and behaviour (e.g., withdrawal and avoidance) together with strategies aimed at reducing the impact of such thoughts and experiences (e.g. suppression and rumination). The result is that the mild re-occurrence of any of these elements of the pattern in the future can activate any of the other elements. As is most commonly seen in depression, very mild depressed mood, however caused, activates these old habitual patterns of thinking, *reinstating*

cognitive patterns that then powerfully contribute to re-emergence of depression. These re-activated processes bring on-line both negative contents (Segal et al. 1999, 2006) and a discrepancy-based mode of processing that is intended to help, but backfires (see below).

The theory suggested that, if we wished to modify risk of recurrence, we should understand the aetiology and mechanisms underlying both the reactivity and the maladaptive mode of processing, find ways to gain control over its critical variables, incorporate these procedures into psychological treatment and test their efficacy in reducing vulnerability and lowering recurrence of depression. Mindfulness-based Cognitive Therapy (MBCT; Segal et al. 2002) was specifically designed to reduce risk of relapse in major depression by teaching patients in remission from recurrent major depression to become more aware of, and to relate differently to, their thoughts, feelings, and bodily sensations and by targeting the mode of processing these patients use when their mood begins to deteriorate.

Two trials have evaluated its efficacy in preventing relapse in depression, showing that in patients with three or more previous episodes of depression, MBCT reduces the recurrence rate in the subsequent 12 months by around 50% (Teasdale et al. 2000; Ma and Teasdale 2004). Two further open trials have made preliminary examinations of its potential to help depression that had been found to be resistant to antidepressants (Eisendrath et al. 2008) or to both antidepressant and cognitive treatment (Kenny and Williams 2007). Kingston et al. (2007) have additionally found that MBCT reduces residual symptoms of depression.

Kuyken et al. (2008) conducted an 'equivalence' trial for depressed patients who met criteria for recovery and were still on medication. Their aim was to test the comparability of outcomes for those who were randomly allocated either to (a) discontinue medication and participate in MBCT classes or (b) continue their medication. Results at 15 months follow-up showed that relapse rates were comparable, with a trend towards a better outcome for MBCT (47% relapse) compared to continued medication (60%). There were also significant differences in continuous measures of severity of symptoms (HRSD and BDI) favouring those who changed from medication to MBCT.

Thus, while there is still much to be done, progress in this field has been made, and the next step is to understand the mechanisms that underlie mindfulness and its cultivation in treatment. For this, we need to combine laboratory experiments (e.g. Arch and Craske 2006; Broderick 2005) with studies that (a) examine what correlates with mindfulness as a trait, and (b) what changes with it in treatment. Each of the four studies in the special section make an important contribution to this endeavour.

The Four Articles

The article by Frewen et al. (2008) focuses on people's *reactions* to their own negative thoughts. They assessed not only the frequency with which negative thoughts occur, but whether people are able to 'let go' of them. They assessed mindfulness using the Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al. 2004) and a behavioural test of breath focus versus mind-wandering over a 15 min sitting with instructions to focus on the breath. They found that naturally occurring variations in trait mindfulness correlated with both frequency and the ability to let go of negative thoughts.

In a second study of students who had come to a student-counselling service for help, both MAAS and KIMS changed from pre- to post-treatment in students participating in mindful awareness training (based on MBSR and MBCT). As predicted, both frequency and letting go changed as well. This study is an essential first test, using a correlational design (both at one point in time, and also change across time) demonstrating that certain key variables are associated with mindfulness. The ability to let go of thoughts is key to dealing with the tendency to see one's mind, its contents and processes, as uncontrollable.

The paper is also potentially important for its use of a behavioral measure of mindfulness. Although they are cautious about their Meditation Breath Attention Score (asking people every 3 min to respond to a bell by raising the right hand if attention was on the breath and the left hand if the mind had wandered at that moment), such momentary time-sampling has many advantages: it is generally better than retrospective recall; it does not demand a verbal

response that might be even more disruptive; it yields a range of scores (0–5) with a mean score that is moderately central ($M = 2.4$; SD = 1.2) and was normally distributed; it correlates significantly with the MAAS and most of the KIMS sub-scales (especially Act with Awareness subscale; $r(63) = 0.49$; $p < 0.001$). This is a important contribution to our means of assessing mindful awareness.

Kumar et al. (2008) used a newly derived measure of mindfulness (the CAMS) to assess participants' ability to regulate attention, their orientation to and immediate awareness of experience, and the extent to which they held an attitude of acceptance and non-judgement towards experience. They examined changes in these variables to see if they co-varied with changes in depressed mood, rumination (Response Style Questionnaire, Nolen-Hoeksema 1991) and avoidance (Acceptance and Action Questionnaire, AAQ, Hayes et al. 2004). They examined patients with a diagnosis of major depression who were participating in 20–24 sessions of exposure-based cognitive therapy.

This form of therapy includes mindfulness training based on MBSR and MBCT in the first eight sessions, which is seen as foundational for the exposure work that follows it, and some practices derived from MBCT in the second eight (exposure focused) sessions.

The results showed that mindfulness on the CAMS increased significantly during the treatment, and avoidance and rumination declined. Further, the greater the change in mindfulness, the greater the reduction in depressed mood, and in the extent to which participants dealt with difficulties through rumination and avoidance. This is exactly what would be predicted if mindfulness was teaching participants to disengage from an unhelpful mode of mind (see later) and is nicely consistent with an earlier study examining changes in rumination with mindfulness training (Ramel et al. 2004).

Crane et al. (2008) examined the effect of mindfulness training (MBCT) versus treatment as usual (TAU) on sense of self in patients who were in recovery from major depression and had a history of suicidal ideation, planning or behavior. Based on self-discrepancy theory (Higgins 1987), that suggests that people have cognitive structures that monitor the relation between current self-concept and self-related goals (self-guides), Crane et al. used a self-discrepancy questionnaire (Carver et al. 1999) to assess the degree to which previously depressed (but now recovered) patients perceive a discrepancy between actual and ideal self. Previous studies (e.g. by Strauman et al. 2001) had shown that a large perceived discrepancy from ideal self guides is associated with depression. Importantly for this study of recovered patients, such discrepancy can also be more easily primed in patients who have been depressed in the past but are currently in remission or recovery. Could mindfulness training protect people from such priming and re-activation of maladaptive self-guides?

The results showed that, as predicted, in both the MBCT and TAU groups (who started with equivalent levels of self-discrepancy) baseline level of depression was associated with larger discrepancies between ideal and actual self. By the end of treatment period, there were large and significant differences between MBCT and TAU groups, such that the MBCT group had a smaller discrepancy than the TAU group. Additionally (and picking up the theme of 'letting go' raised in Frewen et al.'s paper), in the MBCT group, the more the participants let go of unhelpful self-guides (such as the goal to 'be physically attractive' or 'to always be in control'), the more they shifted towards having smaller discrepancies between actual and ideal self at the end of treatment.

The results raise the possibility that one way in which MBCT protects against relapse and recurrence in depression is by protecting against future priming of ideal self-guides, either by reducing participants' tendency to engage with self-discrepancies, or by encouraging participants to let go of inappropriate 'higher order' goals. Letting go of these goals are important if they is relatively unattainable, since they are liable to initiate abstract ruminative thinking that backfires, actually reducing the chances that a person will take concrete steps towards valued goals (Watkins 2008; see Watkins et al. 2007 for a promising cognitive treatment based on this understanding).

Argus and Thompson (2008) examined self-orientated perfectionism, that aspect of perfectionism that has been found to be closely associated with depression. Setting high standards for oneself might be seen as adaptive, but if these are unrealistic, together with strict evaluation of performance and fearfulness of failure, then, they hypothesise, people are highly vulnerable to problems if they perceive their actual

ability as low (that is, their own standards will be difficult or impossible to achieve). This study examined this 'buffering' hypothesis (i.e. whether perceived problem solving ability might limit the damaging effects of perfectionism) in 141 depressed in-patients. They also used the MAAS to assess trait levels of mindful awareness in their patients. The study therefore allowed them to see to what extent each of the variables (perfectionism, perceived problem solving ability and mindful awareness) explain variance in depression severity.

Although the results showed no evidence for the buffering hypothesis, both maladaptive perfectionism (a high level of discrepancy between standards and perceived attainment) and perceived problem solving ability correlated with depression severity if examined individually. However, they found that when MAAS was entered into the regression analysis, the picture changed. Mindful awareness explained 21% of the variance in depression severity, the correlation between social problem solving and depression disappeared and the association between perfectionism and depression was reduced to around 6% of variance explained.

The authors link their findings with those of Watkins and Baracaia (2002) who asked participants to focus (during a problem solving task) either on *why* they had the problem (state-oriented focus) or *how* they were deciding to solve the problem (process, or action-orientated focus). Results showed that *action*-orientation increased problem solving ability in currently depressed patients, whereas *state*-orientation impaired problem-solving in recovered-depressed patients.

Argus and Thompson suggest that the action versus state orientation analogises naturally occurring individual differences in mindful awareness as assessed by the MAAS. The connection is a potentially very fruitful one, since it links with general theories of volitional control (Kuhl and Helle 1986) that are likely to be important in understanding the psychological processes underlying mindfulness. I shall return to this issue later.

Before leaving the four studies however, it is important to note how the correlation between the MAAS and depression severity in Argus and Thompson and in Frewen et al., and the relation between depression and CAMS by Kumar et al., (which includes assessment of the ability to regulate attention) changes our view of the depressive symptom we call 'concentration difficulties'. In the Diagnostic and Statistical Manual (DSM) this refers to reports by the patient of *difficulties with concentration or the ability to think. (This can also be seen by others as indecisiveness.)* This symptom has often been viewed as a mere epiphenomenon of depression severity—a symptom that will clear up as depression recovers, and not so 'central' or important for a therapist to understand as sad mood, lack of interest, guilt, or suicidal feelings. The data presented in these three studies suggest a different perspective—that the type of cognitive failures reported by depressed patients may be the tip of an iceberg—with the remainder of the iceberg being assessed by the MAAS and other measures of mindfulness. This increased significance of concentration difficulties as a central rather than peripheral aspect of depression is also consistent with other recent evidence suggesting that the presence of such difficulties (along with suicidal ideation), is one of the symptoms of depression that is most likely to recur if depression returns (Williams et al. 2006).

Now I shall draw back and consider these data alongside other developments within experimental and clinical psychology. In particular, I wish to explore the claim that mindfulness teaches people to be aware of a whole mode of mind. Although this is an explicitly cognitive account, I believe it is consistent with the behavioural account of Hayes and colleagues (see Hayes and Shenk 2004).

Modes of Processing

To date, most definitions of mindfulness have focussed, quite rightly, on the cultivation of deliberate (intentional) *regulation of attention* towards experience of external or internal stimuli as they occur from moment-to-moment, together with an *attitude of non-judgement and acceptance* (Bishop et al. 2004b). Consistent with this emphasis, the studies in this special section show how the cultivation of mindfulness is associated with decreasing avoidance and rumination, and with 'letting go' of negative thoughts and inappropriate and unattainable self-guides. But, taken together, the studies also allow us to consider important themes that extend our understanding of what mindfulness is and does. Notice, for example, that rumination and avoidance

tend to change together. This, in turn, is associated with letting go of thoughts or goals that had previously been seen as important. Together, this suggests that a whole mode of mind—whole patterns of processing—are changing together. To understand this mode shift, we need to return to our understanding of *attention* itself. Our analysis of recurrent depression has been influenced by several researchers in the field of attention and self-control theories of emotional disorders. Some of what follows is hinted at in Segal et al. (2002) and Williams et al. (2007). My aim here is to state it more formally, and to draw out its links with other related work.

The Nature of Attention

Research on attention over the years has been concerned with how the brain is able to focus on one source of stimuli, while naturally excluding or inhibiting other, competing sources. In other words, attention is about selection and filtering, but such selection must be done in such a way that important information elsewhere in the environment is not missed. Early research in the 1960s and 1970s was concerned with whether attentional filtering occurred early or late in the processing of information. The question dominating the field was whether selection was a matter of selecting from all the available stimuli (early stage), or selecting from all available responses (late stage). In this debate, the focus was on the 'stimuli' (S) to which the organism was to 'respond' (R). S–R theories dominated psychology and the unit of analysis was the S–R pair.

Despite this emphasis, there were dissenting voices that eventually brought about a change that was gradually to spread to theories of attention. Miller et al. (1960) had suggested that the basic unit of behaviour was not stimulus–response (S–R). Instead, they suggested that behaviour was fundamentally about the pursuit of goals (and the avoidance of punishment or anti-goals), for which the format was *Test-Operate-Test-Exit* (TOTE). In such goal-directed systems, the fundamental unit of analysis is not a pair (S–R), but a triple: the current state, the goal (or desired) state, and actions to diminish the difference between the two. (In the case of undesired states, the triple could be characterised as the current state, the to-be-avoided state, and actions chosen to maintain or increase the difference between the two).

According to this analysis (see Duncan 1993 for more details) 'selection' is a matter of selecting whole triples for the control of behavior. For each alternative candidate goal that might be pursued, both (a) current state and (b) goal states, are activated and (c) the possible actions associated with them. What is usually referred to as the 'central executive' system (Baddeley 1996) is, according to this account, a central system for goal weighting and selection. It is this central 'cognitive control' system that weights alternative goals by the relative importance to the person, and, by such weighting, determines which of all goals are actually selected for pursuit. The system holds a *'task model'* in mind—a working memory description of relevant facts, rules and requirements used to control current behaviour (Duncan et al. 2008). Impairment in this system constitutes 'goal neglect', and can be seen in patients who have damage to the frontal lobes, in patients who are chronically liable to be distracted by current concerns (such as by threat stimuli in anxiety, Bishop et al. 2004a), in people with reduced *g* factor in intelligence (Duncan et al. 1996), and in experiments analogising such deficits using dual task interference, which artificially creates conditions in which conflicts occur within the goal-weighting/selection system. Now, we might add, goal neglect will also be seen in those with low trait levels of mindfulness.

Normally, the smooth pursuit of goals throughout daily life depends on automatic use of such a goal-directed weighting system. Indeed, we can see that attention directed in this way, as part of a mode of mind that is designed to problem solve, is effective most of the time.

Although this perspective has been influential in neuro-psychological analysis of patients with frontal lesions (Burgess and Shallice 1996), it had less influence in psychopathology until several researchers (e.g. Martin & Tesser 1989, 1996; Higgins 1987; Carver & Scheier 1998; Kuhl & Helle 1986) showed that maladaptive reactions to goals could be observed to contribute to many aspects of psychopathology. In short, these 'control theories' suggest that under some circumstances, people are unable either to achieve their goals, or to let go of them (see Pyszczynski and Greenberg 1987; Watkins 2008 for the application of control theory in understanding psychopathology).

When Discrepancy-based Processing Becomes Maladaptive

As Segal et al. 2002 point out, discrepancy-based processing is not in itself a problem. Indeed it has evolved because it is so useful in many different aspects of day-to-day living, where a range of external problems and tasks need to be accomplished (e.g. driving across town to work and remembering to stop off at the garage to book the car in for maintenance).

The problem comes when such processes are activated even when they are not helpful (e.g. in reaction to feelings such as sadness or anxiety, or self-beliefs such as worthlessness; Williams et al. 2007). Here, the goal in question is a self-relevant high-order goal such as 'to be happy' and the current state is a sense of sadness. In this case, because the person has registered that things are not as they would wish them to be, the same discrepancy-based processing mode that works well for external problems is automatically activated. In TOTE terms, the *Test* function has shown that something needs to change, and a representation of the current state (sadness) and the goal (being happy) and the gap between them is held in working memory, while behaviour is implemented (*Operate*) to close the gap. From time to time, another *Test* takes place to see if the goal has been achieved and, if it has, the system can *Exit* the discrepancy based mode of processing. If the goal has not been achieved, the cycle of *Test-Operate* is repeated until the goal is eventually achieved or abandoned.

Note that because this discrepancy-based ('doing') processing mode needs to hold in working memory a representation of the current state of affairs, the desired state of affairs (or a state to be avoided) so that the gap between them can be monitored, the result is a 'holding pattern'—rather than allowing the pattern to change over time. And because what is maintained are ideas (representations), the operations that are activated to *reduce* the discrepancy between current and desired states (or *maintain/increase* the gap between current and undesired states) use the same level of representation—ideas. This means that the person starts to ruminate about and elaborate, or to avoid or suppress these ideas (thoughts and images).

For external problems (e.g. getting the car to the garage for servicing), the mode can operate relatively fluently because the checking mechanism does not itself affect the external circumstances (checking how far it is to the garage does not affect the actual distance left to travel). However, when the same mode is activated as a way to reduce distress, several aspects can make things worse. First checking the degree of discrepancy and finding a mismatch (comparing how I feel with how I'd like to feel) can actually *increase* distress, and thereby increase the discrepancy picked up on the next 'test' so that the goal (feeling better) is neither achieved nor abandoned.

Second, attempts to 'problem solve' using ruminative/analytic processing act to *reduce* problem solving and maintain and exacerbate depression (Lyubomirksy and Nolen-Hoeksema 1995; Watkins and Baracaia 2002; see Watkins 2008 for review).

Third, some operations aimed at directly reducing distress, e.g. attempts to avoid or suppress the thoughts, feelings and images, make subsequent intrusion by those contents more likely and 'binds' the mood more closely to the thinking (Wenzlaff et al. 1991; Wegner 1994; Hayes et al. 1996, 1999).

Finally, the known effects of mood on memory makes it more difficult to retrieve information that might provide an alternative perspective to the negative thought (Williams et al. 1997, Chap. 5) thus increasing belief in the validity of the negative thought or image that triggered the mood.

In summary, the specific vulnerability of depression is the activation by negative mood of certain memories and global self-referent negative attitudes together with a mode of mind characterized by discrepancy-based processing in which (a) negative ideas about the self are taken to represent reality, where (b) 'matching to standard' of the current state of affairs fuels both the striving for the ideal-self and the avoidance of negative outcomes, and in which (c) ruminative/analytic attempts to problem-solve emotion and the self, as well as attempts to suppress or avoid negative thoughts and images, are used, but fail to address the discrepancy.

Meditation: Practice in Recognizing and Switching Modes

I have suggested that depressive thoughts and feelings, negative though their content is, are not, in themselves, the problem. It is the way that we react to

them—with a maladaptive processing mode—which makes them persist and intensify and gives rise to the sense that they are uncontrollable.

Mindfulness addresses the specific vulnerabilities in depression, and thus prevention of relapse/recurrence, by facilitating *early detection* of relapse-related patterns of negative thinking, feelings, and body sensations, so allowing them to be "nipped in the bud" at a stage when this may be much easier than if such warning signs are not noticed or are ignored/avoided. Further, entering a mindful mode of processing at such times allows *disengagement from* the relatively "automatic" features of the discrepancy-based mode—the avoidant and ruminative thought patterns that would otherwise fuel the relapse process.

Although such a 'mindful' state of mind can be cultivated in a number of ways, many of which are not necessarily part of the long tradition of meditative practices which most mindfulness approaches take as foundational (Hayes and Shenk 2004), there are certain key advantages in meditation as a method of mindfulness training. I am grateful to Hayes and Shenk (2004) for their review of the several ways in which, from a contextual perspective, meditation may be important.

First, in doing mode, ideas (often language based) are taken to be true. By contrast, since the invitation during meditation is to observe what happens if the products of inner language are not reinforced, in behavioural terms, meditation temporarily allows the literal, temporal and evaluative functions of such ideas to extinguish. Second, meditation practice provides a context in which what is thought *about* is no longer the central concern. It gives the opportunity to learn in a direct (experiential) way, that relating to the world from inside language interferes with open contact with the present moment. In meditation, we notice again and again that when we engage in thinking, we lose contact with the present. We notice that, for all its advantages, thinking narrows perception. Third, meditation brings the *process*, rather than just the *content*, of thinking, feeling, and sensing to the foreground—noticing that we are thinking *as* we are thinking is just like noticing breathing as we are breathing.

Fourth, meditation shows us how one of the core functions of language (predicting and evaluating) when applied to private events (thoughts and images, body sensations and emotional feelings), results naturally in experiential avoidance (not wanting to feel or think certain things that are already present). During meditation practice we have many opportunities to observe our own tendency to react to *inner* events with the freeze, fight or flight mechanism that evolved to deal with *external* threats, and to see that 'None of us can run fast enough to escape our own inner experience' (Williams et al. 2007, p. 35). Furthermore, meditation gives us the opportunity to see how such experiential avoidance directly interferes with the processes and intentions of meditation practice itself, giving many opportunities to practice *acceptance*, to cultivate awareness of and a different, more compassionate relationship to, our own habitual self-critical and 'avoidance' reactions.

Finally, meditation allows us to see how much we normally ignore the wide range of stimuli afforded by the present moment. Such 'ignoring' can come about, not only when there are threats around, but can arise with *any* thinking, reasoning, analysing, remembering, etc. Why does this happen? Because thinking, reason giving, emotional control, experiential avoidance will all narrow the relevant stimulus functions in any situation to those that emerge from within language itself. Meditation provides a context in which, by seeing language from a de-centered or 'defused' perspective, the person can make contact with a broader range of events, now available in a way that they were not before, to help regulate and inform behaviour.

In summary, meditation creates a special context so the person can see clearly what is the cost of over-reliance on the 'currency of ideas' that is part and parcel of discrepancy-based processing. Meditation practice weakens the control exerted when we take our inner speech literally, and thus helps other events, and thus other perspectives, to become available to us, allowing the emergence of alternative behaviours that may be more skillful.[1]

Mindfulness and Depression

According to the account I am exploring in this article, meditation practice aims to bring about an

[1] Hayes and Shenk make a plea, however, not to exclude other non-meditative techniques and practices that may help the de-literalization of language. This is an important point, and it reminds us not to fall into the ever-present danger of building walls between different schools of therapy and practice.

awareness of the current *mode of mind* we are in (most commonly the 'doing', discrepancy-based mode), and then to foster the ability to disengage, if we choose, from the doing mode of mind to shift to a more effective 'being' mode. Note how this analysis complements the emphasis on attending to stimuli, with *attending to the key signs that indicate which mode of processing is operating* at any time. It suggests that we will be able to observe the effects of mindfulness training not only on attentional tasks, but also (and perhaps even more clearly) in tasks that assess working memory capacity or control (see Jha et al. 2007).

In practice, for people at risk for emotional problems, the aim is to learn to notice the signature characteristics that a discrepancy-based mode is operating, at times when it is inappropriate or maladaptive. These signs may be observed in four domains: thinking, feeling, action tendencies and in physical sensations in the body. They include rumination, avoidance/suppression, a subjective sense of being 'lost in subjectivity', taking ideas (thoughts and images) as necessarily true reflections of reality, reliving the past and pre-living the future, goal-striving, and 'automatic pilot' inattentiveness, and the physical sensations of tensing, bracing and contraction that accompany such a constant state of doing (see Table 1).

In meditation we not only practice seeing how the mind wanders, and how to bring attention back again and again to the intended focus (breath, body sensations, sights, sounds, thoughts and feelings as 'mental events', etc.), but also learn to attend to the *elements* of such experience. In mindfulness we are invited over and over again to make a shift from *representational* to *direct* experience. We begin to see how we can shift attention intentionally not only *horizontally* (between objects at the same level—e.g. from chair to table to picture, etc), but also *vertically* (between different levels of processing of the same object—the shape, size, contours, color gradients, etc., of a chair). When focusing on seeing or hearing, the instruction is to focus on the 'raw sensations' of sight or of sound; noting the tendency to instantly label objects, and to practice moving 'beyond' or 'below' the object level to the contours, shapes,

Table 1 The discrepancy-based (doing) mode of mind, and its alternative ('being') mode that is cultivated in mindfulness practice

1. Striving versus Non-striving
Doing mode focuses on
(a) Monitoring and striving to close the gap between ideas of where we are *now* and where we *want* to be; or
(b) Monitoring and striving to keep as wide as possible the gap between ideas of where are now and where *we fear we might end up* if we do nothing.
Mindfulness focuses on letting go of such striving towards or away from such ideas.
2. Avoidance versus Approach
Doing mode causes particular problems when it is motivated by avoidance of subjective experience.
Mindfulness encourages remaining open, 'turning towards' the difficult and the unpleasant.
3. Thoughts as 'real' versus Thoughts as mental events
Doing mode uses ideas (thoughts and images) as its 'currency', taking such thoughts literally.
Mindfulness views thoughts as merely thoughts, as 'products' of the mind that arise, stay around for a while, and disperse.
4. Living in the past and future versus Living in the present moment
Doing mode solves problems by switching between memories of the past and anticipation of the future.
Mindfulness focuses on present-moment experience. Memories are recognized as memories that are arising now; future images are seen for what they are, images arising here and now.
5. Indirect (conceptual) experience versus Direct (non-conceptual) experience
Doing mind is concerned with manipulating ideas, so the subjective experience is thinking *about* things. It is conceptual, language-based, verbal and analytic.
In the mindful mode, the focus is on direct, sensory, experience. It is non-conceptual, intuitive, and experiential.
6. Automatic versus Intentional
Doing mind relies on habitual, over-learned routines that run off automatically.
Mindfulness involves intentionally paying attention to aspects of the self and the world.

colors, and movement of the visual field or the loudness, pitch, timbre and rhythms of the auditory field.[2] When focusing on the body, the instructions are to notice with precision the particular physical bundles of sensations and their sub-components, some of which change and flux, while others stay the same from moment to moment.

Notice how, in all these different domains of experience, the emphasis is on cultivating a different level of processing of experience than is usually called for in daily life. This enables the meditator to see more clearly the difference between the direct perception of sensations themselves (exteroceptive, interoceptive and proprioceptive), and the *reactions* we have to those sensations in the very next moment (labelling as objects, thinking *about*, analysing, liking or disliking, pursuing or rejecting, and so on).

Bringing awareness to the *elements* of events gives more degrees of freedom than is offered by those same events once they have assembled into habitual patterns. In particular, people who are vulnerable to depression discover, often to their great surprise, that bringing an open and friendly curiosity to how unpleasant experiences can be 'felt' experientially in patterns of ever-changing physical sensations in the body creates a sense of greater freedom and choice than they had ever experienced when they had been ruminating about or trying to avoid the experience.

Concluding Remarks

We have seen that definitions of mindfulness focus rightly on attention to moment-to-moment experience, and on the acceptant attitude to this experience. This article has explored how attention can also be directed towards the mode of mind that we are in at any time.

We have seen how interest in mindfulness has grown, and its application extended to specific factors involved in vulnerability to and maintenance of depression. Learning to recognise the difference between representational thinking and direct (non-conceptual) processing is important because it can signify to us what mode of mind we are in at any time. In the doing mode, both our current state and our goals to be achieved (and anti-goals to be avoided) are expressed as representations—ideas, most often language based. Once the doing mode has been activated, and we are 'using the currency of ideas', then the mode itself will bring on-line all the processes that are available to this mode: analyzing, remembering, anticipating, comparing, judging. If the thoughts and emotions are negative, then if they are taken as 'the truth', experiential avoidance follows. Mindfulness training involves cultivating awareness of these habitual tendencies, not to try to eradicate them, for they are not an enemy to be destroyed, but to see clearly when they are useful and when not.

We can see more clearly now why, in the studies included in this special section, rumination and avoidance often shift together; for they are different aspects of the *same* mode of processing. Similarly, as Frewen et al. and Kumar et al. showed, these variables also shift along with increased acceptance and non-judgment, two other aspects of the shift from doing mode to being mode. The perfectionism explored by Argus and Thompson is a wonderful description of a trait in which a discrepancy-based processing mode is so easily activated; and Crane et al.'s study is the first to explore the effects of mindfulness training in preventing re-activation of such a mode. I am grateful to all these authors for their investigations and for the opportunity to reflect on what, taken together, the data imply for this exciting and growing field, and its family of theories.

[2] Note that this is closely analogous to the rapid word repetition task in ACT—bringing about a weakening of the usual hold that the verbal label of an object has on us. Just as the word 'milk' repeated rapidly for a minute can end up as a neutral sound that has temporarily lost its association with a white cool creamy drink, so deconstructing objects in the auditory or visual field helps give more degrees of freedom when confronted by the object, its label and reactions based on the labelling.

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