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Research on cognitive biases in depression suggests that deficient control of attention underlies impairments in memory for emotionally neutral events. Such impairments might result from general difficulties in focusing and sustaining attention, specific and habitual priorities to attend to matters of personal concern, or both. This paper considers these alternative means of impairment in the context of a review of selected theories and findings; a test of the framework is illustrated; and related considerations are discussed.

INTRODUCTION

The research domain of depression and memory has been defined by two almost independent lines of inquiry. The more active line has focused on findings of particularly good memory for emotionally negative events, whereas the other has pursued issues of impaired memory for emotionally neutral events. When the question about the relationship between these lines arises, it is generally assumed that the propensity for negative or self-focused thinking in depression provides a rich context for elaborating mood-related material but intrudes during the processing of neutral material to produce interference (e.g. Ellis & Ashbrook, 1988; Gotlib, Roberts, & Gilboa, 1996; Ingram, 1990). Compared to the bias assumption, however, the intrusion assumption is less well developed theoretically and more neglected empirically, in spite of the importance of understanding

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memory impairment in depression. The point of this paper is to examine the means by which intrusive thoughts might impair memory for emotionally neutral events.

The effects of thought intrusions on memory for neutral events can occur, roughly, at two general stages and for two different reasons. First, such thoughts might redirect attention during the initial processing episode and thereby detract from processes that enhance deliberate retrieval later on. Second, even when the events are well attended initially, intrusions during the retention interval and at the time of the test might impair deliberate retrieval. These and other effects of thought intrusions, moreover, might occur primarily because a depressed person's self-concerns are more compelling or attention-demanding than are those of a nondepressed person. In other words, the effect might be related specifically to the attentional priorities and current concerns associated with depression (see Klinger, 1982). Alternatively or in addition, the effects might reflect a more pervasive problem. Reduced synaptic activity in the prefrontal cortex is associated both with difficulties in sustaining attention and self-initiation (e.g. Posner, 1992; Duncan, Emslie, & Williams, 1996) and with depressed states (e.g. Henriques & Davidson, 1991; Resnick, 1992). Therefore, a reasonable hypothesis is that frontal hypoactivation in depression makes it difficult to sustain attention, regardless of one's motivation to focus on the task. Perhaps *any* off-task thoughts would engender more-memorial difficulties for depressed people than for others. Self-focused ruminations typify off-task thoughts in depression (Ingram, 1990) and perhaps produce a higher frequency of intrusive thoughts, but the consequence might be more profound for depressed people than for others, due to fundamental difficulties in redirecting attention to the task at hand.

BACKGROUND

Depression-related Deficits in Memory for Neutral Events

Burt, Zembar, and Niederehe's (1995) meta-analysis across 147 studies of recall and recognition in clinically depressed and nondepressed samples revealed clear evidence of depression-related deficits in remembering neutral material. Other, less formal reviews have concluded that the deficits can be predicted by reference to the continuum of controlled to automatic processing (e.g. Hartlage, Alloy, Vazquez, & Dykman, 1993; Williams, Watts, MacLeod, & Mathews, 1988). Cognitive processes are categorised broadly according to the degree of attention they require

(e.g. Hasher & Zacks, 1979). Those processes that require little or no attention or awareness are said to be automatic, and those that require more attention are called controlled processes. Controlled processes compete with each other in a limited capacity system. That is, we cannot think about very many things at the same time. Controlled procedures, however, become more automatic through practice and thereby require less attention for their enactment.

The continuum of controlled to automatic processes is relevant to memory at two primary stages: initial exposure to the material and later testing. At initial exposure, materials are processed with varying degrees of attentional control; merely reading words is relatively automatic, for ' example, whereas making deliberate judgements about their meaning is more controlled. In general, initial procedures that promote later recall, such as elaboration or distinction, tend to be more attention-demanding (e.g. Tyler, Hertel, McCallum, & Ellis, 1979). A number of published experiments have shown depression-related impairments in deliberate memory for neutral materials that had been presented in attention-demanding tasks (for recent reviews see Gotlib et al., 1996; Hartlage et al., 1993). Such deficits occur typically in tests of free recall and are less frequently found in recognition. In this regard, the continuum of controlled to automatic processes is also relevant to retrieval conditions.

Performance on memory tests is influenced both by controlled, deliberate reflection on the past episode and by automatic effects of prior exposure (e.g. target words pop into mind or feel familiar; see Jacoby, Toth, & Yonelinas, 1993). Controlled retrieval processes are thought to dominate tests of free recall, where deficits are most typically found. Recognition tests less frequently show deficits because they are good examples of the joint operation of automatic and controlled retrieval processes (i.e. a word feels familiar because it is fluently processed, the source of familiarity is remembered, or both; see Jacoby, 1991). By using Jacoby's (1991) procedures for separating the controlled and automatic components of retrieval on recognition tests, Hertel and Milan (1994) showed that only the controlled component was disrupted in a sample of dysphoric students. Similarly, tests of implicit memory, which are designed to side-step controlled reflection and to reflect primarily automatic influences of past experience, rarely reveal impairments associated with depression or dysphoria (e.g. Danion et al., 1991; Hertel & Hardin, 1990; Watkins, Mathews, Williamson, & Fuller, 1992). In summary, attention-demanding cognitive procedures, performed during initial exposure or testing, lie at the heart of depression-related impairments in memory. Theoretical issues now pertain to the nature of their role.

The review by Hartlage et al. (1993) emphasised two theoretical perspectives· and referred to them as the capacity-reduction hypothesis and the attention-narrowing hypothesis. In brief, the capacity-reduction hypothesis, as exemplified by Weingartner and colleagues (e.g. Weingartner, Cohen, Murphy, Martello, & Gerdt, 1981), claims that depression reduces the amount of processing capacity available for allocation to cognitive tasks, whereas the attention-narrowing hypothesis claims that memory deficits occur because attention is focused on personal concerns, · rather than on the task at hand. (The resource-allocation hypothesis—Ellis & Ashbrook, 1988—was described as a combination of these two hypotheses.) At this point, the available evidence suggests that the capacity-reduction hypothesis is inadequate. First, depressed people have sufficient capacity to perform well when experimental materials are self-relevant and congruent with their current mood (see Bower, 1992). Similarly, the social judgement literature contains evidence that, compared to others, dysphoric students engage *more* effortful procedures in situations that threaten their sense of social control (see Weary, Marsh, Gleicher, & Edwards, 1993, for review). Third, several studies have shown depression-related impairments under easier processing conditions with relatively lax external control (e.g. Hertel, 1994b, on implicit memory; Smith, Tracy, & Murray, 1993, on categorisation), but not under more difficult but better controlled conditions (e.g. Hertel & Rude, 1991a; Smith et al., 1993). More generally, capacity accounts of memory difficulties have been criticised on theoretical grounds (see Hasher & Zacks, 1988, who emphasise impaired inhibitory processes ᵛ instead).

Although the capacity account is an insufficient account of memory impairments in depression, the notion that there are limits on how much can be attended to at any one time, regardless of mood or psychopathology, is important. This notion, moreover, is essential to the attention-narrowing account of depressive memory and to yet another account, briefly mentioned by Hartlage et al. (1993) as the motivation account. Motivation accounts of *depression* (such as the hopelessness theory of Abramson, Metalsky, & Alloy, 1989; also see Kuhl & Helle, 1986) do not address cognitive control in the present sense, but by emphasising perceived lack of control in general, they suggest that depressed people often do not voluntarily initiate controlled procedures. It is this impairment in cognitive control that serves as the central feature of the cognitive initiative account of depressive deficits in memory (Hertel & Hardin, 1990).

Cited by Hartlage et al. (1993) as exemplifying motivation accounts, the cognitive initiative framework is perhaps better viewed as a blend of attention and motivation accounts. It claims that depression-related impairments in remembering occur when attention during the initial task or

during the test is not well controlled by external means. Under these lax or unconstrained conditions, depressed people are less likely than others to employ controlled, attention-demanding procedures on their own initiative. Depression-related deficits in recall of word lists, for example, occur under conditions of medium structure, where the initiative to organise can pay off, rather than on completely unstructured lists, where it does not (Channon, Baker, & Robertson, 1993; Watts, Dalgleish, Bourke, & Healy, 1990). Other support for the initiative framework has come from experiments showing that depression-related impairments can be eliminated when depressed participants are instructed to do what others seem to do on their own initiative—in other words, when attention is under better environmental control (see Hertel, 1994a).

Consider an experiment in which participants were either required or not required to sustain attention to words in sentence contexts during an incidental learning task (Hertel & Rude, 1991a). Compared to the non-depressed participants, the depressed participants who were not required to sustain attention showed impaired subsequent recall of words from more difficult or distinctive trials, whereas those who were required to sustain attention showed *no* impairment in remembering words from those trials. Based on such evidence, we have argued that the deficiencies are understood better in terms of impaired attentional control than in terms of resource limitations; depressed participants clearly were capable of allocating *sufficient* resources on the more effortful processing trials. We had also speculated that unconstrained conditions produce deficits because they offer windows of opportunity for attending to matters other than the task at hand. The main difficulty with the initiative account is that, although studies have shown that depressed people are capable of attending in beneficial ways when appropriately guided, we do not yet understand why they fail to do so voluntarily. Does the failure reflect a general impairment in cognitive control (regardless of motivation), or a more specific set of priorities for attention that are motivated by personal concerns?

Priorities for Attention, Automatic Thoughts, and Rumination

Evidence for mood-congruent recall suggests that depressed people are indeed motivated to attend to matters related to their concerns and to initiate processes that help them to remember (e.g. Bradley & Mathews, 1983). In this case, off-task thoughts that are mood-related presumably provide routes useful in controlled retrieval. To explain such evidence of mood-congruent recall, investigators often refer to Bower's (1981) network model, in which emotion nodes are linked to concept nodes when

concurrently activated. The model has been adopted by cognitively oriented depression theorists (e.g. Ingram, 1984) to describe how negative self views influence performance on cognitive tasks and *adapted* to incorporate features of Beck's schema theory of depression (Beck, Rush, Shaw, & Emery, 1979), with its emphasis on negatively toned, automatic thoughts. Although the model has organised and inspired a great deal of research on mood and memory, the default assumption—that moods ⌄ *automatically* activate associated information—has been challenged (see Mathews & MacLeod, 1994; Williams et al., 1988). The challenges include several failures to show depression-congruent effects on implicit tests of memory (e.g. Watkins et al., 1992) and mixed evidence for emotional Stroop effects in depression (see Gotlib et al., 1996; Mathews & MacLeod, 1994). In general, a simple version of the network model cannot easily accommodate evidence that controlled elaborative processes are biased in depression (but not in anxiety disorders) and that automatic pre-attentive processes are biased in anxiety disorders (but not so clearly in depression, except when highly correlated symptoms of anxiety may mediate). Still, the depression researcher is left with the problem of explaining the clinical phenomenon of automatic thoughts that earlier seemed to be well described by network theory. Perhaps the issues related to automaticity have been oversimplified and we should therefore reconsider the nature of automatic thoughts and rumination in depression (see Haaga, Dyck, & Ernst, 1991).

The occurrence of automatic thoughts has been simulated in a series of experiments on thought suppression in which dysphoric participants are less successful than others in suppressing thoughts of neutral or depressive content (e.g. Conway, Howell, & Giannopoulus, 1991; Wenzlaff, Wegner, & Roper, 1988). Note that the thought-suppression paradigm captures an important aspect of automaticity: The process occurs even when one is trying to do the opposite (see Jacoby, 1991; Wegner, 1994). Furthermore, although such thoughts might spring to mind automatically, they provide cues for more sustained ruminations that characterise depressive episodes (Ingram, 1990). Therefore, there is good reason to retain Beck's notions of both automatic thoughts and ruminations in current cognitive formulations of depression. However, to say that negative thoughts come to mind automatically is not to demand evidence of negative biases in well-constrained tests like the emotional Stroop task or stem-completion tests of implicit memory. Such thoughts more likely arise in unconstrained situations that allow mind-wandering. Intrusive thoughts arise automatically because they have been practised well under similarly unconstrained conditions. Their initiation is automatically cued by unfilled intervals, but further ruminations spurred by these thoughts clearly occupy attention. In this way, automatic thoughts during unconstrained conditions can

invite rumination and provide sources of interference in ongoing tasks that require attention.

Rumination and Memory

Are depressive ruminations associated with memory difficulties? Seibert and Ellis (1991) experimentally induced dysphoric states in college students and found that recall was negatively correlated with the number of irrelevant thoughts voiced aloud during exposure to task materials or reported later. A similar relationship had earlier been found in clinically depressed people who were instructed to report losses of concentration (Watts & Sharrock, 1985). However, in the first case the induction proce-. dure itself included instructions to free associate to any thoughts that came to mind as the participants attempted to place themselves in negative mood states, and in the second case participants were alerted to concentration difficulties by the procedures. Therefore, these findings are difficult to generalise to uninstructed situations, but they do strongly suggest that if ruminations occur in the absence of instruction to focus on them, they would likely impair controlled retrieval of task materials.

Summary

The phenomena of automatic thoughts and subsequent rumination play potentially important roles in blending the two lines of research on depression and memory. Negative thoughts act as uninvited visitors during conditions of lax attention (see Bower, 1992). Due to practice, they know the way in. Now, we should concentrate on the consequences of the visit for ongoing and upcoming procedures. Are such thoughts detrimental because they are particularly interesting visitors or because depressed people have trouble showing anyone the door? This metaphor illustrates a central question yet to be addressed empirically by those of us who wish to understand the relationship between thought intrusions and impaired memory for neutral events: Is personal relevance necessary or merely sufficient to disrupt memory for neutral events? A set of experiments in progress is aimed to address this question. Next, I offer some aspects of their design as an illustration of ways in which the present framework can guide investigations.

EXAMPLE OF AN EXPERIMENTAL TEST

Depression-related difficulties in controlling attention and avoiding intrusive thoughts are likely to occur during attempts to remember. Do these

difficulties derive primarily from the particularly compelling nature of depressive concerns, or might they also reflect more pervasive deficits? To address this question, an experiment nearing completion consists of three phases, the first and last being initial exposure and the memory test. Phase 2 contains the variation that is critical to the issues at hand and so it is described first.

The unconstrained or "free" condition of Phase 2 is designed to mimic ideal conditions for rumination; subjects sit quietly and do nothing. Any current concerns could easily come to mind and occupy attention, but in the absence of such concerns or worries, the participants might take a break (or a nap!), or think about the previous task and rehearse for the upcoming test, about which they are forewarned. Depressed participants are more likely to ruminate (see Fennell & Teasdale, 1984). They should also remember fewer words on the subsequent test, because the act of ruminating should introduce general interference during the test phase. The point of the design, however, is to link these two phenomena— rumination and poor memory—and for this purpose two additional conditions are included.

These conditions, derived from procedures used by Nolen-Hoeksema and colleagues, instruct separate groups of both depressed and nonde-pressed participants to think either about their current feelings and perso-nal characteristics (in the self-focused task) or about geographical locations and objects (in the neutral task). In a number of experiments, the self-focused task has increased ratings of negative moods made by depressed or dysphoric participants only, whereas the neutral task has decreased them (e.g. Lyubomirsky & Nolen-Hoeksema, 1995; Nolen-Hoeksema & Mor-row, 1993). The point of the manipulation for the purpose at hand, how-ever, is to determine if the self-focused task also impairs controlled components of retrieval, to a greater degree in a depressed sample than in a nondepressed sample, by establishing a ruminative cycle. The point is also to determine if the neutral task affects controlled retrieval in both samples, due to its distracting nature, or whether the depressed sample might still suffer a relative impairment, due to general difficulties in switching attention to the task at hand. The outcomes from each of these tasks should inform us about the processes that occur freely in the uncon-strained condition.

Phases 1 and 3 are modelled closely on an experiment by Jacoby (1996). For the present purposes, one important feature of the method is the quick presentation of Phase-1 materials under instructions merely to read aloud. Little "room" is allowed for mind-wandering or rumination during this phase. Another important feature is the use of process-dissociation proce-dures for separating controlled and automatic components of memory. Estimates of these components—from performance on inclusion and ex-

clusion tests of fragment completion[1]—serve as the dependent variables in separate analyses of the effects of the Phase-2 manipulation. The procedure itself is called "process dissociation" because a number of independent or grouping variables have been shown to affect estimates of one component while leaving the other component invariant. For example, only the controlled component of retrieval is reduced by experimentally dividing attention during the study phase or the test phase (Jacoby et al., 1993) and by using an older sample of participants (Jennings & Jacoby, 1993). More to the present point, dysphoric college students have shown deficits in the controlled (but not the automatic) component of recognition memory (Hertel & Milan, 1994).

The process dissociation procedure is an important feature of the design, due to its greater sensitivity when compared to explicit tests of memory, such as cued recall or recognition. For example, Hertel and Milan's (1994) experiment did not show evidence of an overall recognition deficit. Moreover, only the controlled, attention-demanding aspect of remembering should be affected by distractions, regardless of whether the deficiency is caused by attentional priorities or is more pervasive. Automatic uses of the past come into play regardless of one's cognitive control (as is evident in automatic thoughts more generally).

The separation of controlled and automatic retrieval processes first permits a test of whether automatic uses of the past (A) remain unaffected by depression or distraction. Showing no depression-related differences in estimates of A would corroborate our findings in the recognition paradigm (Hertel & Milan, 1994). Showing no effect of distraction on the automatic component would parallel evidence from research on directed forgetting (e.g. Russo & Andrade, 1995). The advantage is to show such null findings

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[1]On each inclusion test trial, participants are instructed to complete the fragment in a word/fragment pair (e.g. *building s_o_e*) with a word from Phase 1 that is associatively related to the first word of the pair (e.g. *stone*). If they cannot recollect such a word, they should complete with the first word that comes to mind that fits the fragment and is related. The probability of completing with a Phase-1 word on inclusion trials is assumed to be equal to the probability that the word is consciously recollected (C) or, in the absence of recollection, the probability that it comes to mind automatically (A): Inclusion = C + (1 − C)A. On exclusion trials, participants are instructed to avoid using a word from Phase 1 to complete the fragment. They are encouraged to remember such a word but to use a different word that is also associatively related to the first word in the pair (e.g. *store* instead of *stone*). The probability of *erroneously* completing the fragment with a Phase-1 word on exclusion trials is assumed to be equal to the probability that the word comes to mind automatically in the absence of conscious recollection: Exclusion = (1 − C)A. An estimate of C is obtained for each participant by subtracting the proportion of Phase-1 words used on exclusion trials from the proportion used on inclusion trials; then an estimate of A is calculated by substitution in one of the equations. See Jacoby (1996) for a fuller explanation.

on the same task that reveals differences in controlled retrieval associated with depression and the experimental manipulations.

The predictions of greater interest pertain to estimates of controlled retrieval (C). To the extent that nondepressed participants entertain few task-irrelevant thoughts in the unconstrained condition, their performance should be best in that condition[2]; otherwise we would not expect differences across the three Phase-2 conditions for nondepressed participants.

How should depressed participants perform? The unconstrained condition is the point of reference; that condition should produce lower estimates of C, relative to the nondepressed participants. Even though all participants are forewarned about the memory test, the unconstrained interval, nevertheless, should invite mind-wandering in the depressed sample. Second, estimates should be as low or lower in the self-focused condition, because any tendency toward off-task thoughts would be exacerbated by the self-focused task. The interesting condition is the. neutral one. Similar to the distracting condition in Nolen-Hoeksema and colleagues' research, it contains materials that improve mood-ratings in depressed samples. Will estimates of controlled retrieval similarly benefit by distraction from potentially intrusive thoughts, or will more general difficulties in redirecting attention to the Phase-1 words keep performance depressed? Preliminary evidence gathered from dysphoric and non-dysphoric college students supports the priorities account; estimates of controlled retrieval produced by dysphoric participants in the neutral condition are reliably higher than in the other Phase-2 conditions, and comparable to those produced by nondysphoric participants in the neutral condition.[3] Evidence for general difficulties in cognitive control, however, may very well depend on issues yet to be considered.

OTHER CONSIDERATIONS

The extent to which either source of difficulty in control characterises performance by depressed people should vary with the severity of the depressive episode. Severity exaggerates deficits in standard recall tasks (Johnson & Magaro, 1987) in which performance clearly depends on controlled procedures for both initial processing and retrieval. Furthermore, there is some evidence that severity is associated with mind-wandering (e.g. Watts & Sharrock, 1985), but whether increased mind-wandering is caused by

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[2] This prediction relies on the classic finding by Jenkins and Dallenbach (1924) of retroactive interference when participants were occupied with task irrelevant matters.

[3] If the pattern of means would show improvement in the neutral depressed group relative to the unconstrained depressed group but not to the level of the neutral nondepressed group, it would suggest joint effects of general and specific (prioritised) difficulties.

attentional priorities, frontal dysfunction, or both is yet to be determined. A safe bet is that frontal hypoactivation would be evidenced more clearly in severely depressed people (see Henriques & Davidson, 1991) and would be atypical in a sample of dysphoric college students.

Even less is known about the relationship between the duration of depressive episodes and memory performance. The present framework suggests that practice in entertaining negative thoughts, perhaps as a function of duration of the episode, should increase the extent to which they occur automatically in unfilled intervals. Duration of the present episode, however, might not be as important a consideration as past history of depression. In this regard, Miranda, Persons, and Byers (1990) found that variations in reports of dysfunctional beliefs were direct functions of negative mood states in asymptomatic individuals who had previously been depressed. Although reports of dysfunctional beliefs do not directly index how automatically such thoughts spring to mind, the finding helps raise the question of whether prior *practice* in negative thinking contributes to impaired control in negative mood states.

These considerations of severity and duration might invite the reader to wonder whether mood induction techniques, shown to cause impaired memory following unconstrained tasks (e.g. Ellis, Thomas, & Rodriguez, 1984; Hertel & Rude, 1991b), do so by establishing task-irrelevant priorities for attention. Induction techniques are used for the purpose of making causal statements about depressed mood and memory, so researchers are motivated to assume that inductions provide adequate models of depression for the purpose of studying memory. Induction techniques sometimes, however, produce different patterns of results from those obtained with depressed or ✓ dysphoric samples. In an experiment similar to one reported by Ellis et al. (1984), for example, Hertel and Rude (1991b) found different patterns of recall deficits, depending on whether negative mood states were induced or measured. Moreover, similar patterns of impairment (from inductions vs. natural mood states) can, on logical grounds, have different causes. For example, although some induction procedures used to establish memory deficits instruct subjects to ruminate and encourage them to feel lethargic, they probably do not mimic general impairments in cognitive control.

On the other hand, induction procedures can open the door to previously well-practised thoughts, as seen in the recent use of mood inductions to inform issues related to cognitive vulnerability for relapse in remitted samples (see Gotlib et al., 1996; Segal & Ingram, in press). Along the same lines, if remitted groups were asked to participate in the experiment on self-focused versus neutral distraction just described, we could investigate differential effects of that manipulation on controlled retrieval (in comparison to never-depressed control groups). In other words, induction techniques can serve us better if we focus on the processes by which they

should affect performance than if we merely assume that their effects mimic processes associated with depression more generally.

Finally, it is also important to consider whether this proposed account of depressive memory impairment extends to other affective disorders and to thought disorders. Impairments on memory tasks requiring controlled procedures are common in schizophrenia, for example, but not in anxiety disorders (see Burt et al., 1995; Williams et al., 1988). Moreover, anxiety-disordered samples show some skill in directing attention away from sources of threat (see Mathews & MacLeod, 1994) and increased attention to the task at hand (although reduced efficiency; Eysenck & Calvo, 1992), whereas such control seems fundamentally impaired in schizophrenia. Clearly, these possible differences deserve further investigation as we attempt to distinguish among diagnoses of psychopathology in cognitive terms (see Ingram, 1984).

IMPLICATIONS FOR INTERVENTION

Investigations of impaired cognitive control in depression also suggest guidelines for intervention. Several lines of research converge in this direction. Teasdale et al. (1995a) have shown evidence of disruptions in depressive ruminations caused by well-constrained cognitive tasks, and thinking about neutral events improves the mood of depressed participants (Fennell, Teasdale, Jones, & Damle, 1987; Nolen-Hoeksema & Morrow, 1993). What seems to be missing is an examination of possible therapeutic advantages in understanding associated effects on memory for neutral events and in seeking to overcome deficient performance in neutral tasks (see Williams, 1992). In everyday cognitive activities requiring controlled use of memory for neutral events, depressed people complain about poor performance. Success on these nonemotional tasks therefore should improve mood by short-circuiting cycles of hopelessness (Abramson et al., 1989). And in the context of cognitive-behavioural therapy, recollection of neutral events is crucial in order to establish new interpretations (Teasdale, Segal, & Williams, 1995b). In this regard, the type of control difficulty experienced by depressed people carries important implications. If the control of attention is generally impaired, improved performance during depressive episodes should depend on the degree of external control built into the intervention, but otherwise meaningful levels of improvement might await recovery. On the other hand, if the difficulties are at least partially responsive to priorities established by prior practice, interventions should motivate and train thought control (while avoiding the pitfalls of simple thought suppression; see Wegner, 1994). Practice in redirecting attention offers hope by establishing new habits for reacting to intrusive thoughts in the typically unconstrained tasks of everyday life (Teasdale et al., 1995b).

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