

ESSAYS IN COGNITIVE PSYCHOLOGY

**AFFECT  
COGNITION  
AND CHANGE**

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RE-MODELLING DEPRESSIVE THOUGHT

John D. Teasdale and  
Philip J. Barnard

AFFECT, COGNITION, AND  
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Change:  
Re-Modelling Depressive Thought

John D. Teasdale  
*and*  
Philip J. Barnard

*Medical Research Council  
Applied Psychology Unit  
Cambridge, England*

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The publisher has gone to great lengths to ensure the quality of this reprint but points out that some imperfections in the original may be apparent.

*To Jackie and Geraldine*

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# PART I

The Problem; Some Evidence;  
Previous Answers

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# Negative Thinking and Depression

A young woman is walking her dog. It is a beautiful September morning. It is her birthday. She is very aware of her thoughts: “What a flop my life has been all these years—another rotten year gone and lots more to go—how full of failures and miseries my life has been.”

She is depressed. Is this the reason she thinks in this gloomy pessimistic way, or has her life really been so bad? Does thinking this way contribute to keeping her depressed? If we were to change the way she thinks would this change the way she feels? If we were to change the way she feels would this change the way she thinks? Can we, by changing the way she thinks and feels, help reduce the chances that she will continue to be depressed, both now and in the future?

These questions provided the stimulus to the enquiry of which this book is a part. The answers are likely to be of more than theoretical interest. Cognitive models of depression (Beck, 1976) suggest that negative pessimistic thinking is an important factor maintaining depression. Cognitive therapy, a form of psychological treatment based on these ideas, is designed to teach patients to change the way they think and feel. This psychological therapy has already been shown to be at least as effective as tricyclic antidepressant medication in the treatment of outpatients with major depressive disorder. There is also encouraging evidence that cognitive therapy is more effective than pharmacotherapy in preventing future relapse, once initial treatment has been discontinued (Hollon, Shelton, & Loosen, 1991; Williams, 1992). Cognitive therapy is currently

quite complex and time-consuming. Better understanding of the psychological processes involved in the maintenance and modification of depression is likely to be an important factor in the further development of improved methods of psychological treatment. More generally, it is likely that the attempt to understand the processes involved in maintaining and changing depression will cast light on the wider range of mild unpleasant mood states that afflict us all from time to time.

### An Overview: The Applied Science Approach to Understanding Depressive Thinking

Our general strategy is to adopt an applied science approach. This provides a method by which practical problems can be solved while, at the same time, basic psychological understanding is advanced. This strategy takes a concrete “real-world” problem as an initial point of departure, and as a continuing reference point against which the relevance of subsequent experimentation and theorisation can be gauged. It then exploits existing investigative paradigms, or creates new paradigms, to capture in the laboratory essential aspects of the applied problem. Taking advantage of the precision of measurement and the power of experimental methodology offered by these laboratory paradigms, theoretical accounts of experimentally demonstrated phenomena are developed. These theories can then be applied and refined by reference both to the initial “real-world” problem, and to continuing laboratory investigations designed to test key features of the theories. By a continuing iterative interaction between experiment, theory, and attempts to solve the applied problem, more detailed empirical information is accumulated and theoretical accounts are improved. The eventual outcome is that our ability to deal with the practical target problem is improved, and we also have a clearer understanding of related aspects of psychological function, rooted in controlled empirical investigations.

In this book we focus on the problem of the negative thinking shown by depressed patients, its possible role in the production and maintenance of depression, and how, by changing this thinking, or processes associated with it, we can improve psychological treatments for depression. We begin by considering the cognitive model of depression, developed by clinicians from their astute observation of depressed patients. Although not couched in precise scientific terms, these ideas have been invaluable in developing effective psychological treatments for depression. However, these ideas, in their original form, have encountered considerable difficulties as more detailed evidence has accumulated. Further, the effectiveness of treatments based on these ideas, although encouraging, still leaves room

for improvement. Thus, there is reason to look to the applied science strategy to see whether it can provide better understanding of depressive thinking, and guidelines for the development of further improvements in treatment. We describe the application of this strategy, drawing both on our own work and that of others.

We describe the development of the applied science approach to depressive thinking in approximate chronological order. The first stage involved empirical investigation of aspects of information-processing in depressed patients, and in normal subjects in whom depressed mood had been induced experimentally. The findings of these studies provided the challenge to develop explanatory theoretical accounts. Gordon Bower's associative network theory of mood and memory offered an initially attractive and useful way of understanding the results of these and many related studies. We describe and evaluate this approach. Application of Bower's theory to the problem of depression overcomes many of the difficulties encountered by the original, clinically derived, accounts and provides valuable new insights into the clinical problem.

A virtue of experimentally derived theories is that their precision enables their weaknesses to be identified. As more and more experimental evidence of the effects of moods on cognitive processes has accumulated, it has become increasingly clear that Bower's associative network theory is inadequate. Interestingly, some of the difficulties of this theory, recognised by cognitive psychologists, parallel difficulties with the clinically derived cognitive model recognised by cognitive therapists.

Problems at both the experimental and clinical levels are resolved in an alternative conceptual framework, Interacting Cognitive Subsystems (ICS). As this is a relatively novel approach it is presented in some detail. Unlike both the clinical cognitive model and Bower's associative network theory, which recognise only one specific level of meaning, ICS recognises both a specific and a more holistic, generic, level of meaning. ICS suggests that affect is directly related only to the more generic level of meaning. ICS enables us to capture, within an explicit information-processing framework, the distinction between "knowing with the head" and "knowing with the heart".

The application of ICS to understanding mood-related biases in memory and judgement is described. The proposal that such biases arise from the effects of affect-related schematic models allows ICS to provide an integrative account of existing empirical evidence in these areas. In the course of accounting for the variability of experimental results in laboratory studies of mood and memory, the ICS analysis offers new insights into the nature of moods themselves.

The analysis of mood-related biases in memory and judgement provides the basis for an account of negative depressive thinking and its role in the

maintenance of depression. The suggestion that information-processing can become “interlocked” in vicious cycles, processing only a limited range of depressive themes, is central to this account. The account is wholly consistent with the empirical evidence available in this area. The motivational bases of “interlocked” patterns of cognitive processing are explored in relation to self-regulatory theories of depression. The analysis that emerges suggests that such processing reflects attempts to resolve discrepancies in situations where centrally important goals can neither be attained nor relinquished.

The ICS account of negative thinking and depression is compared with that offered by Beck’s clinical cognitive model. In contrast to the initial formulations of the clinical model, ICS emphasises the importance of higher-level meanings, associated with the processing of affect-related schematic models. These models integrate sensory contributions, particularly those derived from bodily experience, with patterns of lower-level meanings. The processing of schematic models is marked by the subjective experience of “felt senses” with implicit meaning content.

Interacting Cognitive Subsystems provides a comprehensive framework within which we can understand the effectiveness not only of existing, standard, forms of cognitive therapy for depression but also of more recent developments in cognitive therapy, and of a range of other psychological treatments. ICS provides an explicit account within which the strengths of earlier statements of the clinical cognitive model, and of conventional forms of cognitive therapy, can be retained while at the same time acknowledging the contribution of more recent developments. In this way, ICS can provide a theoretical foundation for achieving further progress in improving psychological treatments. In particular, ICS provides an information-processing framework within which accounts of experientially oriented treatments can be developed.

The book concludes with a discussion of ways of improving our understanding of complex phenomena such as the inter-relationship between cognitive and affective processes. A virtue of the Interacting Cognitive Subsystems approach presented is that it is, potentially, a conceptual framework that we can use to understand not only experimental and clinical phenomena, but also ourselves.

### Negative Thinking and Depression: Beck’s Original View

Systematic studies demonstrate that patterns of negative thinking are a very common characteristic of depressed people in general, not just of our young lady walking her dog. On the basis of clinical observation, Beck (1967; 1976) identified a pattern of reportable depressive thoughts, which

he termed the negative cognitive triad. This consists of a negative view of the *self* (perceived as deficient, inadequate, or unworthy), of the *world* (interactions with the environment are perceived as representing defeat or deprivation), and of the *future* (current difficulties or suffering will continue indefinitely). Studies employing quantitative measures have generally confirmed the existence of these patterns of thinking in depressed samples (e.g. Haaga, Dyck, & Ernst, 1991).

Beck (1967; 1976; 1983) and his colleagues (Beck, Rush, Shaw, & Emery, 1979; Beck, Epstein, & Harrison, 1983; Kovacs & Beck, 1978) have outlined a theoretical account of the origins and role of negative thinking in the aetiology of depression. These ideas have had enormous influence in shaping treatment and research in depression. Before presenting and evaluating this account it should be pointed out that it is, avowedly, a clinical rather than a scientific theory. By this, its proponents mean that the main purpose of the theory is to guide the clinician in understanding and treating patients, rather than to provide a detailed exposition articulated in precise theoretical terms. It has, nonetheless, generated a considerable body of research and controversy (e.g. Coyne & Gotlib, 1983).

A major difficulty in evaluating Beck's cognitive model stems from the fact that it is a clinical theory. Consequently, presentations of the model have tended to be relatively imprecise, to have varied from one statement to another, and to have shifted in their emphasis over time. We present and evaluate what is generally regarded as the "original" version of the cognitive model, citing original sources wherever possible. In doing so, it is important to acknowledge that there have been subsequent developments in the corpus of ideas subsumed within the clinical cognitive model. Some of these developments have, indeed, been in response to criticisms similar to those which we shall describe. Nonetheless, the "original" version of the model is still widely used, and, historically, was the form of the model prevailing at the time that our "narrative of applied science" begins.

"The cognitive model views the other signs and symptoms of the depressive syndrome as consequences of the activation of the negative cognitive patterns. For example, if the patient incorrectly *thinks* he is being rejected, he will react with the same negative affect (for example, sadness, anger) that occurs with *actual* rejection. If he erroneously believes he is a social outcast, he will feel lonely" (Beck et al., 1979, p. 11). This view suggests that negative cognitions produce depressed affect. Beck et al. (1979, pp. 12–13) define cognitions "as any ideation with verbal or pictorial content". Similarly (Beck et al., 1983, p.2): "Cognitions are stream-of-consciousness or automatic thoughts that tend to be in an individual's awareness ... Examples of negative cognitions are 'I'm a failure', 'No one will ever love me', and 'I've made a mess of my life.'" The



use of the term “cognitions” in this way to refer solely to consciously experienced thoughts and images clearly diverges from the much wider use of the term in cognitive psychology, where it is assumed that the majority of cognitive processing is not experienced as consciously accessible thoughts or images. This difference in the use of terms has been the basis of a number of misunderstandings (e.g. see discussions by Lang, 1988; Leventhal & Scherer, 1987).

Where do the negative cognitions that produce depression come from?

In Beck's cognitive model, distorted *cognitions* are produced when a stressful event (e.g. divorce, loss of a job) activates an individual's unrealistic *schemata* ... Schemata are ... stable, general underlying beliefs and assumptions about the nature of the world and how one relates to it. These assumptions are based on past experience and serve to direct the individual's attention to, and interpretation of, current experiences. Examples of schemata are 'If I am not loved by others, I am not a worthwhile person' and 'I must achieve great things or I will be a failure in life'. ... The person's underlying assumptions constitute a vulnerability to events. (Beck et al., 1983, p. 2.)

It is suggested that, in vulnerable individuals, negative cognitions arise from the application of dysfunctional assumptions to “matching” events, much as in the derivation of conclusions from premises in an argument (Kovacs & Beck, 1978, p. 528). So, for example, given the premise “If I am not loved by others, I am not a worthwhile person”, evidence of indifference by someone leads to the conclusion, expressed in a negative cognition, “I'm a failure”. This negative cognition in turn, it is proposed, leads to depressed affect. Figure 1.1 summarises the key features of the cognitive model of depression.

### Problems with Beck's Cognitive Model

As it has been investigated more closely, Beck's cognitive model has encountered a number of difficulties. Some of these are summarised here.

1. Purely “cognitive” accounts of depression, and depressive thinking, are embarrassed by evidence suggesting that negative thinking may be a *consequence* of depression rather than an *antecedent* to depressed feelings. For example, most measures of negative thinking recover towards normal levels with remission of the episode of depression even when, as in treatment with antidepressant drugs, no attempt is made to deal with environmental events, negative cognitions, or dysfunctional beliefs or assumptions (Simons, Garfield, & Murphy, 1984). Similarly, when

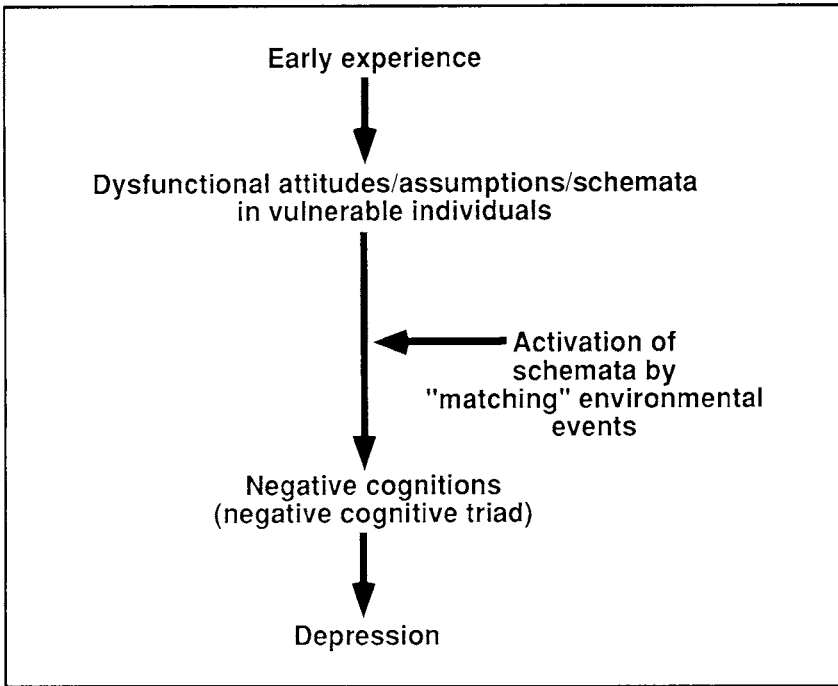


FIG. 1.1. Beck's cognitive model of depression.

psychological treatments directed at changing behaviours or interpersonal processes, rather than cognition, are successful in reducing depression, they reduce negative thinking to an extent comparable to that achieved by equally effective treatments targeted on cognition (e.g. Imber et al., 1990; Rehm, Kaslow, & Rabin, 1987). It is difficult to reconcile such evidence with the view that negative thinking is solely an antecedent to depression. Rather, these findings suggest that negative thinking is, either as well or instead, a consequence of depression.

2. Beck's model suggests that vulnerability to depression depends on possessing, as a relatively enduring characteristic, dysfunctional assumptions, attitudes, and beliefs. This view has been interpreted to predict that groups of depressed patients, after they have recovered from their episode of depression, should still show higher scores than normal controls on measures of dysfunctional attitudes. Most of the studies that have examined this issue have found, counter to the prediction from Beck's model, that although scores on measures of dysfunctional attitudes are elevated in episode they return to normal levels with recovery (see, e.g., Teasdale, 1988).

3. Beck's cognitive model has been interpreted to suggest that environmental events may only be important to the extent that they "trigger" dysfunctional cognitive structures; thereafter, the development of depression is primarily a function of these structures "activated" by matching events. This essentially "intrapsychic" view has been criticised for its neglect of the demonstrated importance of social and environmental factors in the aetiology of depression (Barnett & Gotlib, 1988; Brown & Harris, 1978; Coyne & Gotlib, 1983).

4. Beck's cognitive model recognises only one level of meaning, and for that reason has considerable difficulties with the distinction between "intellectual" and "emotional" belief, or, more generally, between "cold" and "hot" cognition. So, when a depressed patient says something like "I know I'm not worthless but I don't believe it emotionally", the Beck approach suggests that this simply reflects *quantitative* variations in a single level of meaning: "The therapist can tell the patient that a person cannot believe anything 'emotionally' ... when the patient says he believes or does not believe something emotionally, he is talking about *degree of belief*" (Beck et al., 1979, p. 302, original italics). Many clinicians have found this analysis unconvincing, regarding "emotional" belief as qualitatively distinct from "intellectual" belief, and functionally more important.

The original form of Beck's cognitive model, although it has been of enormous heuristic value in generating both an effective psychological treatment for depression (Beck et al., 1979; Williams, 1992) and a considerable body of research, clearly has its problems.

An important source of difficulty is the possibility that negative thinking is a *consequence* of depression rather than *antecedent* to it. It is therefore appropriate that the starting point for our "narrative of applied science" should be a series of empirical studies examining possible biasing effects of depression on aspects of memory assumed to be related to negative thinking.

# Effects of Depressed Mood on the Accessibility of Autobiographical Memories

## Autobiographical Memory in Depressed Patients

Unlike Beck, most psychiatrists have regarded the negative thinking reported by depressed patients as an effect of the depressed state, depression in some way biasing cognitive processing in a negative direction.

In a seminal study, Lloyd and Lishman (1975) translated this rather vague notion into a more precise hypothesis that could be investigated experimentally: In depression, the relative ease of recall of unpleasant experiences is increased; in contrast, the relative ease of recall of pleasant experiences is decreased. Ease of recall was measured by the time taken to retrieve memories, faster retrieval indicating easier recall. Depressed patients were presented with neutral cue words, such as “window”, and asked to recall to each word a personal experience that was in some way associated with the word. For half the words, the patients were asked to retrieve a pleasant experience; for the remainder they were asked to recall an unpleasant experience. The ratio of the time taken to recall unpleasant memories to the time taken to recall pleasant memories (U/P) was calculated for each patient, and used as a measure of the relative ease of recall of the two types of memory. The relationship of U/P to patients’ scores on a measure of severity of depression, the Beck Depression Inventory, is shown in Fig. 2.1.

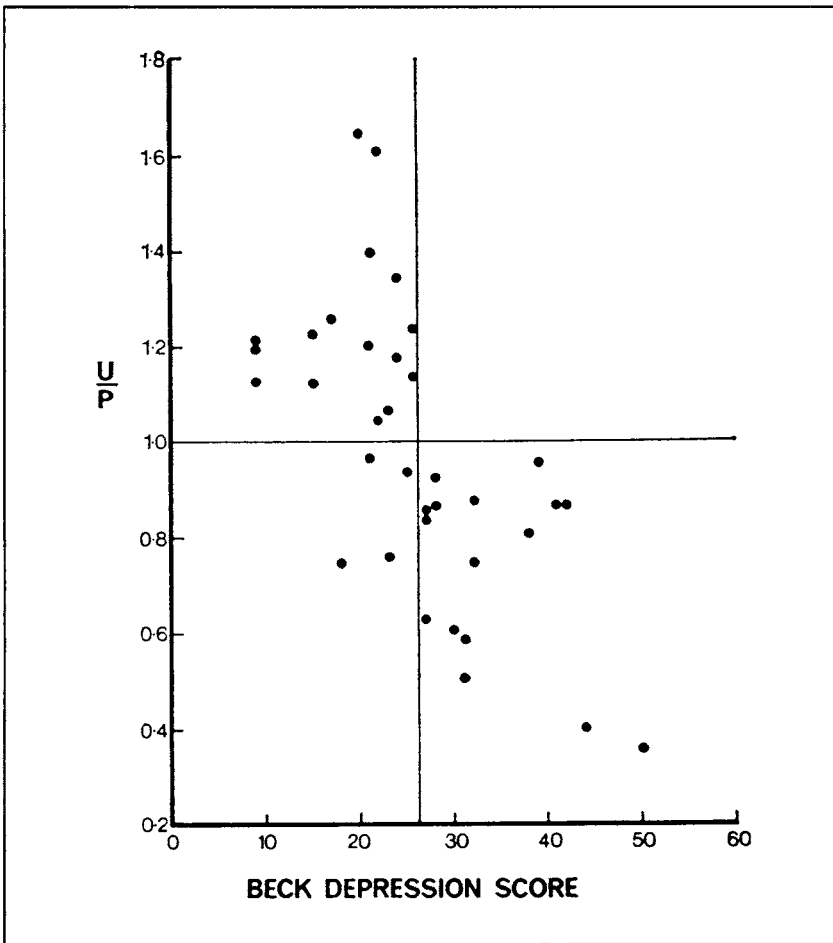


FIG. 2.1. Relationship between U/P ratios and Beck Depression Inventory scores. U/P > 1 means that unhappy memories are retrieved more slowly than happy memories, U/P < 1 means the converse (vertical line indicates mean depression score for the group). Reproduced from from Lloyd & Lishman (1975) with permission.

U/P progressively diminished with increasing depression, the correlation being substantial and significant (-0.64). Mildly depressed subjects, like most normal subjects, showed U/P ratios greater than unity, whereas most of the more severely depressed patients showed ratios less than one, unpleasant experiences being recalled more quickly than pleasant experiences.

Lloyd and Lishman's results were certainly consistent with the idea that depression in some way affected the relative ease of recall of pleasant and

unpleasant experiences. However, they were correlational findings and thus open to a number of alternative interpretations:

1. the life experience of patients who get more severely depressed, compared to those who get less severely depressed, contains more unpleasant experiences and fewer pleasant experiences, and it is this which produces the correlations between depression and recall times;
2. people who possess, as an enduring trait-like characteristic, a tendency to recall unpleasant experiences more quickly and pleasant experiences more slowly will, when they get depressed, get more severely depressed, and this produces the observed pattern of correlations;
3. depression affects not so much the accessibility of pleasant and unpleasant experiences as the tendency to categorise the experiences that are recalled as pleasant or unpleasant, and it is this factor that accounts for the observed correlations.

With respect to the second possibility, Lloyd and Lishman included in their study a measure intended to assess relatively enduring personality characteristics, the Eysenck Personality Inventory (Eysenck & Eysenck, 1964). Neuroticism scores from this measure showed a significant negative correlation with U/P (-0.56). Neuroticism and depression were themselves highly intercorrelated. However, partial correlations showed that the relationship for each of these with U/P remained significant when the effect of the other was held constant. Lloyd and Lishman concluded that the disturbance of hedonic selectivity of memory they had observed was a reflection both of the effects of the depressive process and an enduring characteristic of those individuals who are prone to depression.

#### Induced Mood and Accessibility of Autobiographical Memories

If Lloyd and Lishman's findings were at least partly attributable to effects of the depressed state on the relative accessibility of pleasant and unpleasant experiences, then experimentally manipulating depressed mood should affect the relative times to retrieve pleasant and unpleasant experiences. Teasdale and Fogarty (1979) tested this prediction in a study in which they manipulated the mood of students using a procedure similar to that developed by Velten (1968). After preliminary instructions that they should try to feel the mood suggested by each statement, subjects studied 30 cards bearing self-referent mood-inducing statements. For the depressed mood induction, statements progressed from mild to more depressing content: "Things aren't quite like I would like them to be"; "Looking back on my life I wonder if I have accomplished anything really

worthwhile"; "I feel downhearted and miserable". For the happy mood induction, statements were increasingly positive: "All in all I am pretty pleased with the way things are going"; "Life is so full and interesting it's great to be alive!"; "I feel so good I almost feel like laughing". The Velten procedure has now been used in many experiments. It appears to produce happy and unhappy mood states that differ reliably on a range of measures, for example, writing speed and speech rate, in addition to self-reports of subjective state (Clark, 1983a).

In the Teasdale and Fogarty study, each subject retrieved memories to cue words in both happy and depressed moods. As predicted, U/P ratios were significantly smaller in the depressed mood than in the happy mood. The effects of depressed mood appeared to be restricted to increasing the time to retrieve pleasant memories, the time to retrieve unpleasant memories being very similar in the two conditions (Fig. 2.2). This might suggest an asymmetry in the effects of mild induced depression. Alternatively, it might be the result of a general slowing effect of depressed mood on memory retrieval counteracting a facilitative effect on retrieval specific to unpleasant experiences. In any case, the results of this experiment certainly suggested differential effects of mood on the *relative* accessibility of pleasant and unpleasant experiences. There were significant correlations between the extent to which subjects differed on measures of self-reported mood between the two occasions on which they retrieved memories, and the extent to which their retrieval times for pleasant experiences differed between the two occasions. These correlations strengthened the suggestion that mood state was indeed an important determinant of relative accessibility. Further evidence from this study suggested that these effects could not be explained in terms of effects of mood on the categorisation of experiences retrieved.

The basic findings of this study, that the Velten happy and depressed mood induction procedures produce differential effects on the times to retrieve pleasant and unpleasant experiences, have subsequently been replicated in a study by Riskind, Rholes, and Eggers (1982, extended version).

The results of the Teasdale and Fogarty study suggested that mood state could indeed bias aspects of the cognitive processing of hedonically toned material. However, effects on retrieval time lacked a direct relevance to the problem that was of most interest: Depressed patients do not complain of the relative times it takes them to retrieve pleasant and unpleasant experiences! Their problem is that, in depressed mood, there is a shift in a negative direction in the relative probability of thoughts with pleasant and unpleasant content "coming to mind". The general notion that mood affects the accessibility of memories, which had been measured by retrieval latencies, obviously implies effects of mood on probability of retrieval as well.