Journal of Personality and Social Psychology
1988, Vol. 55, No. 6, 882-892

0022-3514/88/$00.75

Depression and Mental Control: The Resurgence of Unwanted Negative Thoughts

Richard M. Wenzlaff
University of Texas at San Antonio

Daniel M. Wegner and David W. Roper
Trinity University

In three experiments we examined depressed individuals' mental control abilities and strategies. Experiment 1 revealed that although depressed college students were initially successful in suppressing negative material, they eventually experienced a resurgence of unwanted negative thoughts. Analysis of subjects' stream-of-consciousness reports indicated that this resurgence was associated with the use of negative thoughts as distracters from the unwanted item. In Experiment 2 depressed subjects acknowledged that positive distracters were more effective than negative ones in suppressing negative thoughts. This acknowledgment suggests that depressed subjects in Experiment 1 did not deliberately focus on negative distracters but that those thoughts automatically occurred because they were highly accessible. Experiment 3 demonstrated that depressed subjects' use of positive distracters could be increased somewhat when we provided such distracters and made them easily accessible. Taken together, the findings suggest that depression involves an enhanced accessibility of interconnected negative thoughts that can undermine mental control efforts.

It is distressing when unwanted negative thoughts intrude on one's consciousness. Whether they take the form of doubts about self-worth, concerns about the future, or misgivings about the past, such thoughts can undermine one's sense of well-being and promote a negative mood. Fortunately, most people seem able to supplant unwanted thoughts with more desirable ones. Not everyone, however, appears to be capable of exerting such mental control, as there are certainly more than a few individuals who become depressed for long periods and experience pervasive and persistent negative thoughts. It may be that their depression stems from a specific breakdown in their ability to control negative thoughts.

Thought Control and Depression

There is a tradition in psychology to emphasize the role of mental control in mental health. Freud (e.g., 1915/1957) believed that one of the primary ways individuals preserve a sense of well-being is by excluding negative material from awareness. According to Freud, the suppression of unwanted thoughts can occur both through unconscious processes and deliberate effort. The idea that negative thoughts can be consciously controlled is also the basis of several recent approaches to the treatment of depression. Under the rubric of cognitive therapy a variety of techniques have been developed with the common goal of controlling negative cognitions (e.g., Beck, 1976; Ellis, 1962; Kendall & Hollon, 1979). Theories of affect control proposed by Clark and Isen (1982) and by Klinger (1982) suggest that people can control negative moods directly by willfully changing the focus of their attention away from negative thoughts. Indeed, this basic tactic of self-distraction is the most commonly reported strategy for coping with everyday obsessions and worries (Rachman & de Silva, 1978).

Unfortunately, however, directing awareness away from unwanted thoughts is not always easy. For instance, when laboratory subjects are asked to try not to think of a white bear as they report their thoughts aloud to a tape recorder, they often fail, mentioning a white bear several times in a short period (Wegner, Schneider, Carter, & White, 1987). Only over time, then, does the unwanted thought intrude with decreasing frequency. Although individuals probably do not attempt to suppress such neutral thoughts without the external motivation provided by an experimenter, it does seem that at least one class of thoughts may be generally unwanted. Depressive cognitions would seem to be a prime target for suppression.

The depressed person who is confronted with the frequent intrusion of negative cognitions, however, does not seem to suppress them. Reviews of the research indicate that, compared with nondepressed persons, depressed individuals recall more negative information (Blaney, 1986), take greater responsibility for negative outcomes (Sweeney, Anderson, & Bailey, 1986), and evaluate themselves more negatively (Ruehlman, West, & Pasahow, 1985). Assuming that negative thoughts are typically unwanted, these findings suggest that depressed people are relatively ineffective in controlling such cognitions.

There are several possible explanations for this apparent anomaly. It may be that depressed people are simply less able

We thank Anna Marie Barrón, Sloane Underwood, Margaret Heiss, and Joann Wu for help in conducting the research.

Correspondence concerning this article should be addressed to Richard M. Wenzlaff, Division of Behavioral and Cultural Sciences, University of Texas at San Antonio, San Antonio, Texas 78285.

than nondepressed people to control their mental operations. This possibility is consistent with the general positive association between depression and obsessive–compulsive disorders (e.g., Gittleson, 1966; Rachman & Hodgson, 1980; Turner, Beidel, & Nathan, 1985); because not all depressed individuals are obsessive, however, this generalized deficit seems unlikely. A further possibility, then, is that depression involves a specific deficit in the control of negative cognitions. The nature of such a deficit is suggested by an analysis of the role of associative thinking in the suppression of negative thoughts.

Cognitive Associations in Depression

The idea that thoughts are associated with each other in meaningful ways in memory is one of the fundamental assumptions of cognitive psychology. Theorists have incorporated this notion in an associative network model of cognition (e.g., Anderson, 1976; Anderson & Bower, 1973; Collins & Quillian, 1969). The network analogy holds that thoughts are interconnected and that some thoughts are more closely linked than others. This metaphor is used to explain why the activation of a particular thought by perception or by memory retrieval leads to an increased likelihood of retrieval of semantically related thoughts through a process of spreading activation.

According to associative network theories, thoughts are often linked by meaning. For instance, the concept *bird* may activate associations to *sparrow* before it would to *penguin* because *sparrow* is more closely associated with the semantic properties of the target concept. However, this line of theory also suggests that thoughts can be associated by emotion (Bower, 1981; Isen, 1984). For example, sadness may trigger the thought *life is unfair,* which in turn may lead to the thought *the future is dismal,* and so on. This stream of association can also proceed from cognitions to emotions so that the activation of a particular thought (e.g., "I am loved") can trigger a chain of thoughts that lead to the associated emotion (e.g., happiness). The premise of an associative network model, then, is that thoughts are linked to other thoughts through association and that thoughts are related to moods in the same way. Consequently, emotions tend to trigger mood-related thoughts and cognitions help promote thought-congruent moods. Presumably, then, negative thoughts are more accessible in depression and tend to be automatically activated (cf. Bargh & Tota, 1988).

The idea that negative thoughts are more accessible in depression is supported by research examining the automatic nature of negative thoughts in depression. For instance, Gotlib and McCann (1984, Experiment 1) had depressed and nondepressed subjects participate in a variation of the Stroop task that required them to name the colors of tachistoscopically presented words that were depressed, neutral, or manic in content. Those investigators hypothesized that the depressed-content words constituted a salient construct for depressed subjects and would therefore be particularly distracting. This prediction was confirmed by the finding that depressed subjects had longer response latencies to those words than to the non-depressed-content words.

The accessibility of negative cognitions in depression was also shown in a study by Wenzlaff (1988a). Depressed and nondepressed subjects were given a series of scrambled sentences that could each be unscrambled to form either a positive or a depressive thought. Given limited time to unscramble as many sentences as possible, some subjects were asked to form positive statements, some were asked to form negative statements, and others received no valence instruction. The depressed subjects given no valence instructions unscrambled fewer positive sentences and more negative sentences than did their nondepressed counterparts, suggesting that depressive thoughts were more accessible to the depressed subjects. The results also revealed that depressed subjects asked to form positive thoughts had particular difficulty: They completed fewer sentences and made more errors than any other group. The depressed subjects seemed to have had difficulty making positive sentences because the depressive alternatives occurred to them more readily.

The accessibility of negative thoughts in depression may undermine efforts to suppress negative thoughts. Minimally, the intentional suppression of a negative thought requires distracting oneself from the unwanted item by thinking about something else. However, the type of distracter one chooses may determine whether the undesired thought returns to awareness. Associative network theory suggests that the best way to distract oneself from a negative thought is to direct attention to thoughts that are emotionally unrelated to the suppression target. The obvious candidates as distracters for negative thoughts, then, are positive ones. Because they are unlikely to be affectively linked to the negative item, positive distracters should keep awareness at a distance from the unwanted thought, thereby facilitating suppression.

On the other hand, suppression efforts could prove much less effective if the intended distracters are emotionally related to the unwanted thought. For example, distracting oneself from the unwanted thought *I am a failure* by thinking of last night's bridge party could prove ineffective if one were the goat on the losing team. The cognitions evoked by thinking about such a negative experience could quickly lead back, through a chain of associations, to the unwanted thought. Associative network theory however, predicts that this is precisely the type of ineffective distraction depressed people are apt to use. Because of their automatic activation, negative thoughts are likely to be the first to occur to depressed people who are trying to direct their attention away from an unwanted negative item. By virtue of their affective association with the unwanted thought, these negative distracters are likely to lead awareness back to the unwanted thought itself.

There is one other way in which depression may yield a failure in the suppression of negative thoughts. Depression may lead people to ignore or abandon the most effective strategy. Depressed individuals may distract themselves from an unwanted negative thought by directing attention to other negative thoughts simply because they are unaware that positive distracters are more effective. This interpretation suggests that in depression, the failure of mental control could be a matter of a breakdown in strategy choice rather than a problem in strategy enactment. Because people move in and out of depression over time, however, we suspect that the strategy itself is not mysteriously forgotten and later remembered. It seems more likely that the effective self-distraction strategy is known to depressed indi-

viduals but that the extreme accessibility of negative thoughts undermines its use.

Overview of the Experiments

The aim of this research was to examine depressed individuals' mental control abilities and strategies. We designed Experiment 1 to explore the degree to which depressed subjects could suppress unwanted thoughts, either positive or negative. We expected that depressed individuals would have difficulty suppressing negative items because of a tendency to use negative distractive thoughts. This should be a relatively automatic tendency that occurs despite depressed people's recognition of the appropriate distraction strategy. To test this interpretation we designed a second experiment in which we asked depressed and nondepressed subjects to identify the most effective distracters for suppressing positive and negative thoughts. Finally, we wished to discern whether the relative advantage in accessibility of negative over positive thoughts in depression would be defeated, and effective self-distraction thus allowed, when subjects were not required to generate their own distracting thoughts. In Experiment 3, therefore, we provided subjects with positive, neutral, and negative distracters during a suppression task to determine whether depressed individuals could make appropriate use of externally provided, easily accessible, positive distracters.

Experiment 1

The purpose of this study was to determine whether depressed individuals are less effective than nondepressed persons in suppressing negative thoughts. We predicted that depressed people would have difficulty suppressing negative thoughts because of a tendency to use negative thoughts as distracters. To test this we asked depressed and nondepressed college students to imagine themselves in either positive or negative situations. We then asked the subjects to make a written stream-of-consciousness report, half with no special instruction and half following an instruction to try to stop thinking of the imagined situation. Subjects used check marks to indicate occurrences of the unwanted thought as they completed their protocols, and both check marks and written mentions of the unwanted thought served as the key measures.

Method

Subjects. Undergraduate students (mostly from introductory psychology classes) from the University of Texas at San Antonio completed the short form of the Beck Depression Inventory (BDI–SF; Beck & Beck, 1972) during pretesting sessions 4–5 weeks prior to the experiment. The BDI–SF contains 13 items (range 0–39) and has been found to correlate .96 with the total BDI (Beck & Beamesderfer, 1974). Beck and Beamesderfer advised that scores below 4 indicate minimal or no depression and suggested that 8 be used as a cutoff score for moderate depression. On the basis of these recommendations, we recruited individuals with scores below 4 and above 7 for the experiment. We readministered the BDI–SF at the time of the experiment. Only subjects whose scores on the first and second administration fell into the same categories (i.e., below 4 or above 7) qualified for inclusion in the experimental groups. This resulted in 112 subjects (56 depressed and 56 nondepressed individuals). At the time of the experiment the nondepressed group had a mean score of 1.1 on the BDI–SF and the depressed group had a mean of 11.2.

Procedure. Subjects assembled in small groups. The experimenter advised them that the experiment involved imagining themselves in different situations and reporting their thoughts. The experimenter assured the subjects that the information they provided would be kept strictly confidential. Subjects then read a life-event description and were instructed to vividly imagine themselves in the described situation. We designed the descriptions to convey either a highly positive event (e.g., finding a missing child) or a highly negative event. An example of a negative description is as follows:

> You have an important interview for a job. This particular job appears to be ideal in almost all respects. If you are able to get the job you will be receiving a terrific salary and benefits. In addition, you will be doing exactly the kind of work you most enjoy. Naturally, you are excited and find it difficult to fall asleep the night before the interview which is scheduled for 9:00 AM. Finally, you doze off at about 3:00 in the morning.
>
> When you next open your eyes you slowly turn over in bed and glance at the clock. It's 8:30 AM! You forgot to set the alarm and now the interview is in 30 minutes! After hurriedly dressing you race to the car and speed off to your appointment. While driving you are aware that you are speeding but decide it's the only way you can get to the appointment on time. You look toward the upcoming intersection and see the light turn yellow. Although you are still a considerable distance from the intersection, you accelerate. As you approach the intersection the light turns red and you see a car beginning to cross. You hit the brakes but it's too late. You slam into the side of the car to the sound of screeching tires and smashing glass. The next thing you are aware of is a group of people standing over you. One of them tells you not to move, that help is on the way. As you turn your gaze away you see the driver of the other car with a small infant in her arms. You hear her cry out, "She's dead! She's dead! My baby is dead!"

We used two versions of each type of positive and negative description, all of which were approximately 250 words in length. Half of the subjects read the positive description first, and the other half read the negative description first. After reading the descriptions subjects used 10-point scales to indicate how well they could imagine themselves in the story (1 = *could not imagine at all,* 10 = *could imagine very well*) and to rate the positivity of the story (1 = *not at all positive,* 10 = *very positive*).

The experimenter then instructed subjects to write down their thoughts, conveying whatever information was present in their awareness from moment to moment. The experimental manipulation was then delivered. The experimenter gave half of the subjects the following instructions comprising the suppression manipulation: "Please try *not* to think about the story you just read. Make an effort to keep the story out of your mind." The other half of the subjects received no such instructions. The experimenter told all subjects to make a check mark in a column at the right-hand side of the page at any time if they happened to think of the story. Every 3 min the experimenter instructed subjects to turn the page and continue writing their thoughts on the next page. This was done for 9 min. Thus, each of the three pages that subjects used to report their thoughts represented a 3-min interval.

The procedure associated with the first life-event description was then repeated for another life-event description designed to convey a valence opposite the first. Afterward, the experimenter debriefed the subjects in person and in writing. This concluded the experimental procedure; the experimenter thanked the subjects for their participation and dismissed them.

Results and Discussion

For each of the following measures we first conducted analyses of variance (ANOVAs), including order of description presentation (positive vs. negative description first) as a variable. There were no reliable effects associated with order. Therefore, we omitted this variable from the following analyses.

Ratings of life-event descriptions. To assure that the perceived valence of the life-event descriptions was consonant with the intended design, we analyzed subjects' judgments of the positivity of the descriptions. An ANOVA with depression (depressed and nondepressed) as a between-subjects variable and valence (positive and negative) as a within-subjects variable indicated that subjects' positivity judgments varied as a function of valence, $F(1, 110) = 469.75$, $p < .001$. Descriptions experimentally designated as positive were rated as being more positive ($M = 9.1$) than were descriptions labeled as negative ($M = 2.6$). Thus, the success of the valence manipulation was confirmed. Furthermore, the positivity judgments did not reliably vary as a function of depression.

We similarly analyzed subjects' ratings regarding how well they could imagine themselves in the described situations. There were no statistically reliable results associated with this analysis (all $ps > .10$). Taken together, the positivity and imagination ratings indicated that any depression-related differences obtained on other measures could not be attributed to differences in either the perceived positivity of the life-event descriptions or the ability to imagine being in the described situation.

Description-related thoughts. The experimenter instructed subjects to make a check mark each time they thought about the described event during the stream-of-consciousness report. We analyzed the number of marks subjects made using depression (depressed and nondepressed) and suppression (suppress and control) as between-subjects variables and description valence (positive and negative) and time interval (first, second, and third) as repeated measures variables. This resulted in a 2 (depression) × 2 (suppression) × 2 (description valence) × 3 (time interval) orthogonal ANOVA. This analysis revealed a reliable four-way Linear × Quadratic interaction, $F(1, 108) = 5.76$, $p = .02$. Figure 1 depicts this interaction.

In general, most subjects tended to think about the descriptions less over time, and most subjects in the suppression condition reported fewer description-related thoughts than did those in the control condition. This pattern, however, did not hold for depressed subjects who had read negative descriptions. Depressed subjects in the control condition did not continue to show a decrease in thoughts about the negative descriptions during the third time period; the number of description-related thoughts from the second to the third time period increased slightly (Ms = 1.70 and 2.10, respectively), $t(27) = 2.09$, $p = .05$, two-tailed. This type of increase in intrusive thoughts during the third time period, however, was especially pronounced for depressed subjects who had been instructed not to think of the negative description. Although these individuals were successful in inhibiting thoughts about the negative description over the first 2 time periods (i.e., the number of reported thoughts did not differ from that of nondepressed individuals), from the second to the third time period they showed an abrupt and substantial increase in intrusive thoughts (Ms = 0.60 and 1.80, respectively), $t(27) = 4.88$, $p < .001$.

Depressed subjects' difficulty suppressing negative thoughts should also be reflected in the frequency with which they mentioned the event descriptions in their stream-of-consciousness reports. Judges blind to depression condition coded each 3-min interval of reports in terms of the number of times the subjects mentioned the life-event description; the codings of two judges correlated .96. We analyzed the number of times subjects mentioned the descriptions using a 2 (depression) × 2 (suppression) × 2 (description valence) × 3 (time interval) orthogonal ANOVA. As in the previous analysis, this analysis indicated a reliable four-way Linear × Quadratic interaction, $F(1, 108) = 5.41$, $p = .02$. These results are displayed in Figure 2.

The results of this analysis generally paralleled those of the number-of-marks analysis. In this instance, however, depressed subjects in the control condition showed a steady decrease in the number of times they mentioned the negative descriptions. In the previous analysis these subjects showed a slight increase in the number of times they thought about the description during the last time period. Nevertheless, depressed subjects in the suppression condition displayed a pattern identical to the previous analysis. These individuals mentioned the negative descriptions less at the second time period ($M = 0.50$) than at the first ($M = 1.50$), $t(27) = 5.11$, $p < .001$. However, there was a sharp increase in the frequency with which they mentioned the negative description from the second time period to the third (Ms = 0.50 and 1.10, respectively), $t(27) = 3.81$, $p = .001$. In fact, by the last time period depressed subjects in the suppression condition mentioned the negative story as often as did their counterparts in the control condition.

Distraction sequence. We hypothesized that depressed subjects' difficulty suppressing negative thoughts would be associated with a tendency to use negative distractive thoughts. To test this prediction we examined subjects' stream-of-consciousness reports immediately preceding and immediately following reports of the negative suppression target. Two judges, blind to the depression condition, rated the positivity of the reported thought immediately preceding and immediately following each mention of the negative target thought. Using a 7-point scale (1 = *negative*, 7 = *positive*), the judges' ratings correlated .86. Twelve subjects did not report anything prior to or after mentioning the description. The omission of these subjects from the analysis resulted in a total of 47 nondepressed and 53 depressed subjects. We analyzed the judges' ratings using an ANOVA with depression (depressed and nondepressed) and suppression (suppress and control) as between-subjects variables and sequence (preceding target mention and following target mention) as a within-subjects variable. Because of unequal cell sizes, we used a simultaneous regression approach in the ANOVA (see Overall, Spiegel, & Cohen, 1975). This analysis indicated a significant three-way interaction, $F(1, 96) = 6.51$, $p < .001$.

To determine the source of this interaction we performed separate ANOVAs for the suppression and control groups using depression as a between-subjects variable and sequence as a within-subjects variable. For the control group there was a reliable main effect for depression indicating that depressed subjects'

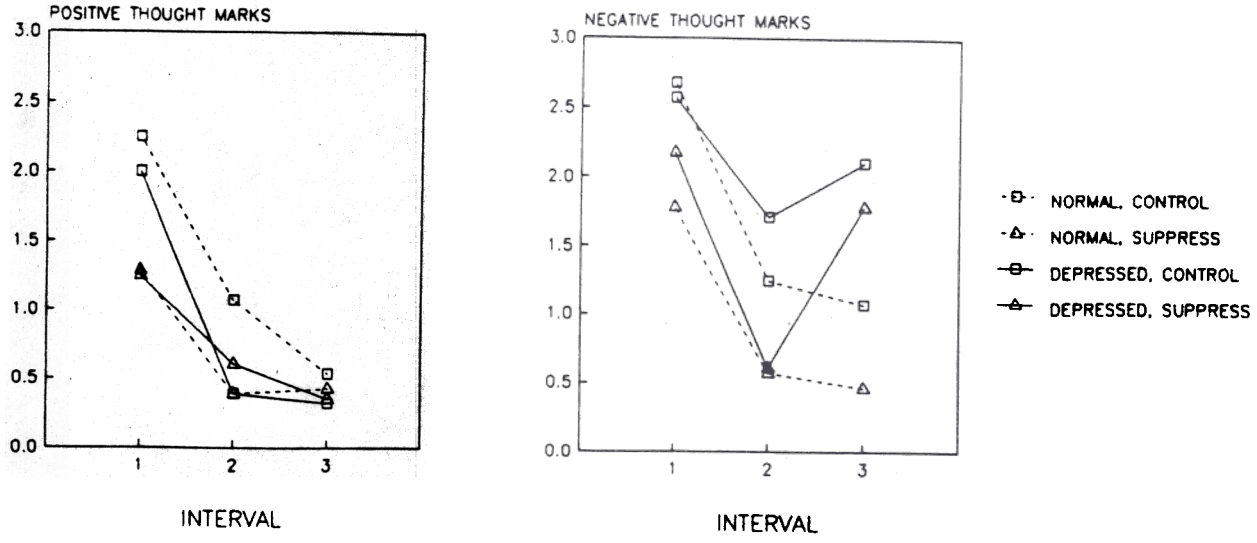

Figure 1. Marks subjects made to indicate the occurrence of the target thought in each of three 3-min intervals in Experiment 1. (Subjects were depressed or nondepressed and had been given a positive or negative target thought with no special instruction [control] or with the instruction to suppress it.)

thoughts were generally more negative ($M = 3.09$) than those of nondepressed subjects ($M = 3.89$), $F(1, 52) = 75.77$, $p < .001$. However, there were no reliable effects associated with the sequence of subjects' thoughts. In general, the positivity of control subjects' thoughts did not change after they mentioned the story.

In contrast to the results for the control group, the ANOVA for the suppression group revealed a significant interaction between depression and sequence, $F(1, 44) = 13.16$, $p < .001$ (see Figure 3). Further analysis indicated that the thoughts of nondepressed subjects were significantly more positive following a negative intrusive thought than they were preceding the intrusion, $t(20) = 5.08$, $p < .001$, whereas depressed subjects' thoughts did not reliably change, $t(24) = 1.13$, $p = .27$. These results suggest that the nondepressed subjects distracted themselves from the unwanted negative thought with positive thoughts, whereas depressed subjects turned attention away from the unwanted negative item by focusing on other negative thoughts.

Although depressed subjects failed in suppressing negative thoughts, they were relatively successful in suppressing positive thoughts. From our perspective, their success was probably the

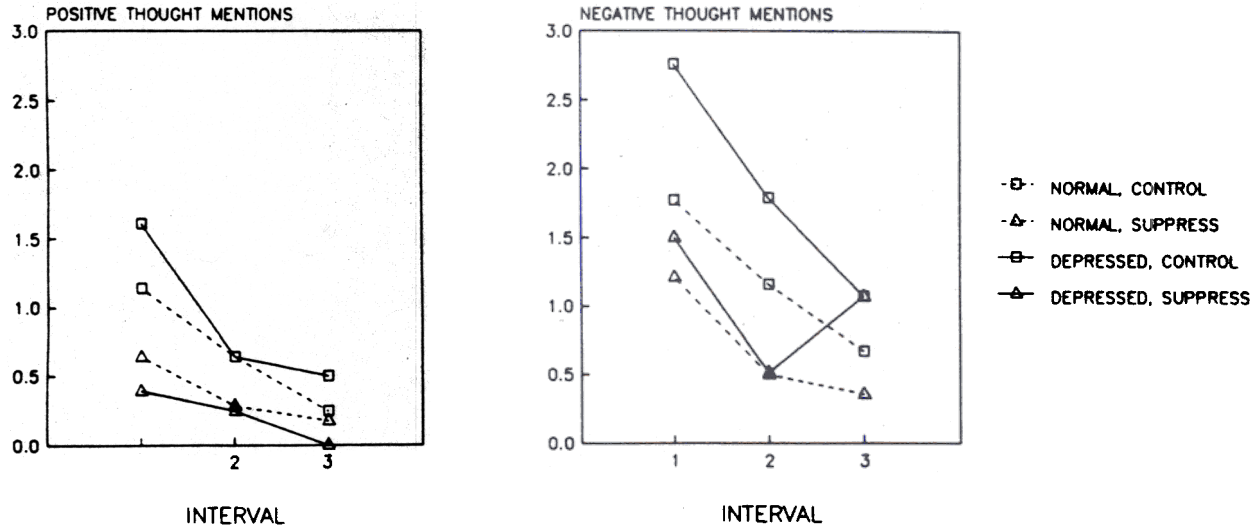

Figure 2. Mentions of the target thought in written stream-of-consciousness protocols in each of three 3-min intervals in Experiment 1. (Subjects were depressed or nondepressed and had been given a positive or negative target thought with no special instruction [control] or with the instruction to suppress it.)

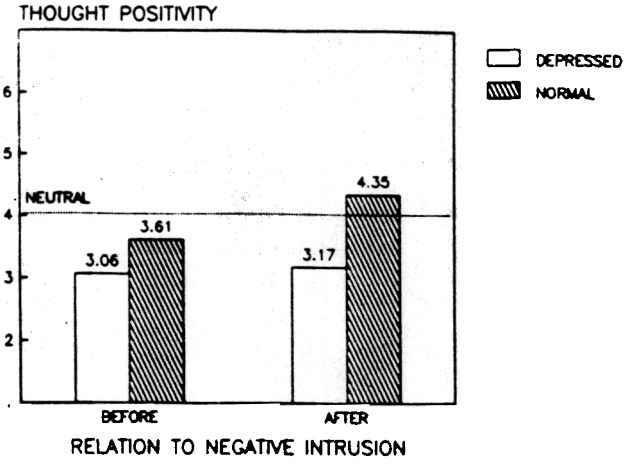

Figure 3. Positivity of thoughts occurring before and after the intrusion of negative unwanted thought during suppression in Experiment 1.

result of using distracters that were emotionally unrelated to the positive suppression target. To examine this possibility, we analyzed subjects' thoughts preceding and following positive-thought intrusions. A total of 44 subjects did not report anything before or after mentioning the positive description. The omission of these subjects resulted in a total of 33 depressed subjects (11 in the suppression and 22 in the control conditions) and 35 nondepressed subjects (11 in the suppression and 24 in the control conditions). The ANOVA paralleled the previous one with depression and suppression as between-subjects variables and sequence as a within-subjects variable.

This analysis indicated that depressed subjects' thoughts were generally more negative (M = 3.77) than were those of nondepressed subjects (M = 4.29), $F(1, 64) = 24.93$, $p < .001$. The results also indicated that the positivity of subjects' thoughts jointly varied as a function of whether the thought occurred before or after the intrusion and whether they were attempting suppression, $F(1, 64) = 61.30$, $p < .001$. Among both depressed and nondepressed subjects, then, the attempt to suppress a positive thought involved a change from a relatively positive prior thought (M = 4.29) to a more negative one following the intrusion (M = 3.45), $t(21) = 5.57$, $p < .001$. In contrast, the thoughts of subjects given no suppression instructions became more positive after mentioning the positive story (M = 4.25) than they were beforehand (M = 3.99), $t(45) = 3.70$, $p = .001$. This interaction suggests that thoughts about the positive description prompted distraction efforts for suppression subjects—the move to a negative distracter—whereas description-related thoughts helped cue other positive thoughts for control subjects. It appears, then, that when trying to suppress a positive thought, depressed and nondepressed subjects use the same strategy of distracting themselves with relatively negative thoughts. Also, in light of the diminishing number of positive intrusions during the stream-of-consciousness time period for both depressed and nondepressed subjects, it does appear that negative distracters aid in the suppression of positive thoughts.

Experiment 2

According to associative network theory, depressed subjects used negative distracters in Experiment 1 because those thoughts were more accessible and tended to occur automatically. An alternative interpretation is that depressed subjects used negative distracters because they were unaware that positive distracters are more effective in suppressing negative thoughts. This suggests that depressed subjects' difficulty in suppressing negative thoughts reflects a strategic error and not an automatic process. If this is true, depressed subjects should be unable to identify the proper strategy for suppressing negative thoughts. However, if depressed subjects can identify the proper strategy, it suggests that their failure to use it in Experiment 1 occurred because negative distracters were more readily accessible.

To determine whether depressed and nondepressed people agree on the most effective distraction strategies, we asked subjects divided in this way to read either a positive or a negative life-event description. They then indicated which of nine distraction topics would be most effective for suppressing thoughts about the description. The distracters were equally divided among positive, neutral, and negative topics. With distracter topic choice serving as the dependent measure, we predicted that both depressed and nondepressed subjects would choose negative distracters to suppress positive thoughts and positive distracters to suppress negative thoughts.

Method

Subjects. We selected students from introductory psychology classes at the University of Texas at San Antonio as subjects by the same criteria used in Experiment 1. This resulted in a total of 80 subjects (40 depressed and 40 nondepressed individuals). At the time of the experiment the nondepressed group had a mean score of 1.2 on the BDI–SF and the depressed group had a mean of 11.0.

Procedure. Subjects read life-event descriptions that were either positive or negative, as in Experiment 1. Afterward, the experimenter gave the following instructions: "Imagine that it is important that you *not* think about the description you just read. Which of the following topics do you believe would be most helpful in distracting you from thoughts about the description?" Subjects then received nine topics. We used pilot testing to divide the topics equally among distracters that were positive (e.g., winning a sweepstakes), neutral (e.g., tying shoes), and negative (e.g., drowning). The experimenter instructed subjects to place a check mark next to each topic they believed would be a helpful distracter. The order of the nine distraction topics was counterbalanced.

Results and Discussion

We calculated the total number of check marks subjects made for each type of distraction topic (i.e., positive, neutral, and negative). We then analyzed these scores using a 2 × 2 × 3 ANOVA. Depression (depressed and nondepressed) and the valence of the suppression target (positive and negative) were between-subjects variables, and the valence of the distraction (positive, neutral, and negative) was a within-subjects variable. Results of this analysis indicated that subjects' choice of distracters reliably varied jointly as a function of the valence of the suppression target and the valence of the distraction topic, $F(2, 152) = 42.92$, $p < .001$. Figure 4 illustrates this interaction.

Further analysis indicated that subjects who read negative descriptions chose more positive distracters (M = 2.00) than did subjects who had seen the positive descriptions (M = 1.03), $F(1,$

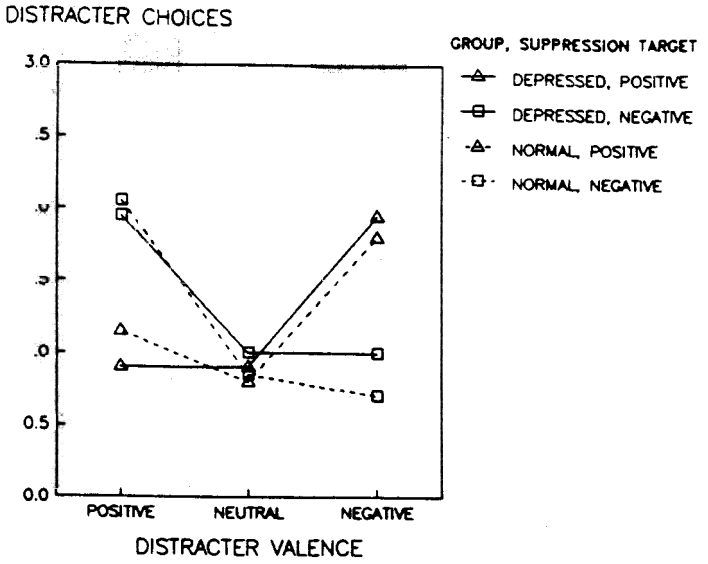

Figure 4. Preference for positive, neutral, and negative distracters in the hypothetical suppression of positive and negative thoughts in Experiment 2.

78) = 44.97, $p < .001$. Conversely, subjects who had read the positive descriptions chose more negative distraction topics ($M = 1.88$) than did subjects who read the negative descriptions ($M = 0.85$), $F(1, 78) = 48.96$, $p < .001$. Subjects' choice of neutral distracters did not vary as a function of whether the descriptions were positive ($M = 0.85$) or negative ($M = 0.92$), $F(1, 78) = 0.19$. Of particular relevance to this discussion is the observation that depressed and nondepressed subjects' endorsement of the distraction topics did not reliably differ (all $ps < .10$). Thus, there was agreement among both depressed and nondepressed subjects that positive distracters are better for suppressing negative thoughts, whereas negative distracters are preferred when suppressing positive thoughts.

Experiment 3

Taken together, Experiments 1 and 2 show that although depressed subjects recognize the appropriate suppression strategy for depressive thoughts, they fail to implement it. It seems that depressed subjects' focus on negative distracters in Experiment 1 occurred because those thoughts were most accessible and thus tended to occur automatically. What remains to be explained, however, is how most depressed individuals do eventually succeed in suppressing negative thoughts. Usually, depression and the negative thinking that accompanies it tend to improve over time with or without treatment (Goodwin, 1977). This spontaneous recovery suggests the occurrence of a process that eventually facilitates the suppression of negative thoughts.

Associative network theory suggests that the remission of depressive thinking may occur as the result of a slow, automatic change process. The process would be slow because it would necessarily occur in a series of steps. Spreading activation may keep the likely associates of a thought nearby any starting point on a single occasion, but more distancing could occur if there were enough time for several associative links to form a chain. The most frequently accessed domain of the associative network could shift gradually away from negative thoughts as items retrieved from memory walk from one area of the network to another. It is in this way that, over time, positive thoughts should become more accessible to the depressed person and could more readily be drawn into awareness.

The enhanced accessibility of positive thoughts, however, may not be solely the result of internal automatic processes. Instead, environmental changes could make positive distracters more salient, thereby facilitating the suppression of unwanted negative thoughts. Indeed, the depressed person is commonly advised to change his or her thinking by participating in activities that are rich in positive distracters (e.g., Burns, 1980). The first 2 experiments suggest that this approach may meet with mixed results. Experiment 2 indicates that depressed individuals recognized the appropriate strategy for suppressing negative thoughts and therefore may understand the importance of directing their attention to positive items when such distracters are externally provided. Experiment 1, however, shows that depressed individuals' preference for positive distracters may be opposed by an automatic tendency to focus on negative thoughts. These findings raise questions concerning the extent to which depressed individuals can successfully use externally provided positive distracters.

In Experiment 3, we examined whether depressed individuals fail to use positive distracters to avoid negative thoughts because of the difficulty of generating these distracters. We provided depressed and nondepressed subjects with a list of topics that could be used as distracters to aid in the suppression of positive and negative thoughts. The variable of interest was the extent to which subjects used positive, neutral, or negative items from the list of distracters. We expected that although depressed subjects would show a preference for positive dis-

tracters for the suppression of negative thoughts, this preference may be relatively weak because of an automatic tendency to access the negative.

Method

Subjects. A total of 91 introductory psychology students from Trinity University participated in the study. At the time of the experiment subjects completed the BDI–SF. We classified 67 subjects as nondepressed (scores less than 8) and 21 subjects as depressed (scores of 8 or above). The nondepressed group had a mean score on the BDI–SF of 1.8, and the depressed group had a mean of 10.7.

Procedure. Subjects assembled in small groups of 8–12. The experimenter asked them to imagine themselves in either a positive situation (e.g., getting straight *A*s in college) or a negative situation (e.g., attending the funeral of a friend). Afterward, the experimenter asked the subjects to try not to think about the situation. Subjects received nine topics and were advised that they could use any of those topics to help distract themselves from the previously imagined situation. The nine topics were the same as those used in Experiment 2 and were equally divided between positive, neutral, and negative material. While subjects were using these topics to help suppress thoughts of the previously imagined situation, they made written stream-of-consciousness reports. After 10 min subjects stopped writing. This concluded the experimental procedure. The experimenter debriefed the subjects and thanked them for their participation.

Results and Discussion

We analyzed subjects' stream-of-consciousness reports to determine the number of times each type of distracter topic was used. Because we were interested in subjects' use of externally provided distracters, we limited our analyses to mentions of the nine topics. We analyzed the number of times subjects mentioned these topics in their stream-of-consciousness reports in a 2 × 2 × 3 ANOVA. Depression (depressed and nondepressed) and the valence of the suppression target (positive and negative) were between-subjects variables, and the valence of the distracter (positive, neutral, and negative) was a within-subjects variable. Because of unequal cell sizes, we used a simultaneous regression approach in the ANOVA (Overall et al., 1975).

Subjects' use of the distracter topics varied jointly as a function of the valence of the topic and whether the subject was depressed, $F(2, 174) = 3.91$, $p = .02$. Nondepressed subjects used positive distracters more often ($M = 1.21$) than they used negative distracters ($M = 0.51$), $t(66) = 4.86$, $p < .001$, whereas depressed subjects did not reliably differ in the extent to which they used negative and positive distracters (*M*s = 0.83 and 0.96, respectively), $t(24) = 0.62$, $p = .54$.

To provide a direct test of our experimental predictions, we conducted an ANOVA only for those subjects who were trying to suppress negative thoughts, one that included depression (depressed and nondepressed) as a between-subjects variable and distracter valence (positive, neutral, and negative) as a within-subjects variable. This analysis resulted in two noteworthy effects. First, there was a significant overall tendency for subjects to use more positive than negative distracters, linear $F(1, 45) = 29.88$, $p < .001$. There was thus a degree of wisdom in all subjects' distracter choices, in that everyone tended to find positive distracters more useful than negative ones (see Figure 5). The analysis also revealed, however, a reliable Depression × Distraction Valence interaction, linear $F(1, 45) = 6.45$, $p < .01$. Consistent with our prediction, when trying to suppress negative thoughts, depressed subjects used fewer positive distracters ($M = 0.87$) than did nondepressed subjects ($M = 1.25$), $t(45) = 1.62$, $p = .05$, and more negative distracters than did nondepressed subjects (*M*s = 0.47 and 0.16, respectively), $t(45) = 1.78$, $p = .04$. So, although all subjects found positive distracters preferable to negative distracters in the enterprise of suppressing an unwanted negative thought, the depressed subjects were reliably less capable of distracting themselves in this way than were nondepressed subjects.

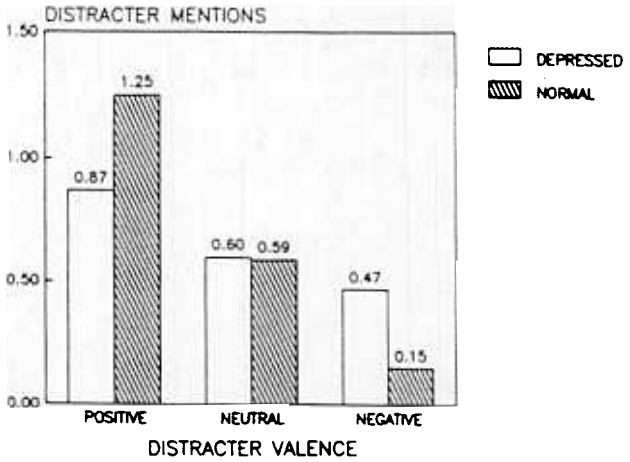

Figure 5. Mentions of positive, neutral, and negative distracters during suppression of negative thought in Experiment 3.

General Discussion

Depressed people in our studies suffered a specific failure in mental control: a deficit in the ability to suppress unwanted negative thoughts. Experiment 1 showed that the success of depressed subjects' suppression efforts was short-lived, in that even while they tried to suppress they experienced a resurgence of unwanted thoughts about a negative item. This renewed awareness was associated with a tendency to use negative distracters. Ironically, then, depressed subjects used distracters that might have helped to redirect their attention to negative unwanted thoughts.

Experiment 2 suggested that depressed subjects may know the proper strategy, but they nonetheless use negative distracters merely because these are more accessible. The results indicated that these subjects, like nondepressed subjects, recognized the superior value of positive distracters in suppressing negative thoughts. Experiment 3 showed that depressed individuals' tendency to use negative distracters was reduced when positive distracters were made available externally. Indeed, depressed individuals resembled the nondepressed in their tendency to use distracters that were of opposing valence to the thoughts they were trying to suppress. Still, compared with their nondepressed counterparts, depressed subjects were inclined to use

negative distracters even when more positive alternatives were provided.

Because the thought processes underlying these observations are not themselves directly observable, the experimental study of mental control poses special methodological challenges and concerns. Therefore, before considering the implications of our results we examine some of these relevant issues. One potential methodological problem involves the validity of introspective reports of mental control processes. For example, Sutherland, Newman, and Rachman (1982) asked subjects to try to remove either a positive or a negative thought from their minds and signal when it had been removed by raising their fingers. There is a logical dilemma involved in this type of thought-removal measure: Signalling the removal of a thought seems to require a concomitant awareness of the thought itself. Moreover, it is unclear whether subjects are capable of accurately reflecting and reporting on such a potentially complex mental process as suppression. We designed this research to minimize these possible problems by asking subjects to report the products of their thought processes instead of evaluating the mental process itself. Thus, in Experiments 1 and 3 subjects simply reported their thoughts in writing, thereby eliminating the paradoxical task of reporting the absence of a thought (cf. Wegner, 1988).

Another potential methodological problem concerns the possibility that depressed and nondepressed subjects' stream-of-consciousness reports may be differentially influenced by experimental demand. For example, nondepressed subjects in Experiment 1 might not have reported the occurrence of intrusive thoughts in an effort to appear competent or to please the experimenter, whereas depressed subjects might not have shared those concerns. By this logic, the relatively few negative-thought intrusions reported by nondepressed subjects may be the result of censorship, not suppression. This interpretation appears untenable, however, in view of the methodological controls and the experimental results. First, depressed and nondepressed subjects did not differ in positive-thought intrusions, thereby suggesting the absence of differential demand characteristics. Second, the temporal pattern of the stream-of-consciousness reports belies a censorship interpretation by showing that all subjects' intrusive thought reports changed over time. In short, an experimental demand interpretation cannot explain the resurgence of negative thoughts shown by depressed subjects during the final stream-of-consciousness time period.

Our findings do appear to reflect real differences in depressed and nondepressed individuals' abilities to suppress negative thoughts. Depressed individuals have particular difficulty keeping unwanted negative thoughts from awareness. This difficulty seems to stem from their focusing awareness away from unwanted thoughts by directing attention to other negative material. With this odd maneuver, an affectively linked chain of associations is created that eventually redirects attention to the unwanted thought. Apparently, however, depressed individuals know better than to use negative distracters to suppress negative thoughts. They acknowledge, as do nondepressed individuals, that negative distracters are best reserved for suppressing positive thoughts, whereas positive distracters are most effective for suppressing negative material. There exists, therefore, a discrepancy between depressed individuals' espoused principle and their actual practice of thought suppression. This contradiction may be best understood as the result of automatic mental processes.

Theoretically, depressed people automatically tend to focus on negative thoughts because these thoughts are most accessible. Associative network theory explains this enhanced accessibility as the result of a strong association between moods and thoughts. This view would hold that depressed individuals' tendency to focus on the negative often overrides their better judgment by causing them to use negative distracters when trying to suppress negative thoughts. Not surprisingly, this proclivity for negative thinking appears most pronounced when depressed individuals have to generate their own distracters, as demonstrated by the results of Experiment 1.

We believe, then, that depressed individuals in this research used negative distracters because those thoughts were the most accessible and tended to occur automatically. However, it is also possible that depressed individuals' tendency to focus on negative distracters may be the result of motivational factors. One possibility is that depressed individuals are motivated to pursue negative thoughts. People with unfavorable self-views, for example, often are found to prefer self-verifying, negative feedback (e.g., Swann, 1983; Swann, Griffin, Predmore, & Gaines, 1987). Individuals may also use a strategy of defensive pessimism whereby they focus on negative-outcome possibilities in preparation for upcoming self-relevant events (e.g., Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Norem & Cantor, 1986). Some commentators even hold that the depressed person's overrecall of negative material may be a deliberate confrontation undertaken in an effort at self-improvement (Blaney, 1986).

These perspectives raise the possibility that depressed subjects in Experiment 1 might have deliberately focused on negative distracters when attempting to suppress a negative thought, despite their knowledge that this was an ineffective strategy (see Experiment 2). The idea that depressed subjects intentionally used an ineffective distraction strategy because of a preference for negative thoughts cannot account for the finding, however, that depressed subjects in Experiment 3 used positive distracters when these were made available. This result renders the accessibility explanation of depressed individuals' use of negative distracters more reasonable than a simple motivational account.

There remains the possibility that the observed failure in mental control is attributable to a general motivational deficit in depression. After all, because positive thoughts are relatively inaccessible in depression, a special degree of effort may be required to generate positive distracters to suppress an unwanted negative thought. By this reasoning, the depressed individual may lack the energy required to divert attention to positive thoughts rather than lack the ability to access them at all. In either case, however, results from Experiment 3 suggest that depressed individuals are able to avail themselves of positive thoughts when such distracters are externally provided and made easily accessible. Under those conditions depressed subjects made more use of positive distracters and less use of negative distracters to avoid negative unwanted thoughts, although still to a lesser degree than did nondepressed subjects.

Our findings suggest, then, that depressed individuals could benefit from situations in which positive distracters are readily available. Unfortunately, depressed individuals rarely take the initiative to change their environments and tend to remain in situations that are negative (e.g., Beck, 1976; Seligman, 1975). Moreover, research has indicated that depressed individuals prefer the company of unhappy others (e.g., Gibbons, 1986; Wenzlaff & Prohaska, in press) and in some cases choose others who are disapproving of them (e.g., Wenzlaff, 1988b). Obviously, these negative social preferences are unlikely to provide the depressed individual with positive distracters. Just such externally available distracters are precisely what is needed, however, if the depressed individual is to make use of a mental control strategy for suppressing negative affect.

Our studies inevitably raise questions concerning the causal role of mental control processes in depression. There has been a recurring debate (Blaney, 1986; Coyne & Gotlib, 1983) on whether dysfunctional cognitions cause depression or are secondary symptoms of the disorder. Our current framework incorporates both views by delineating a reciprocal causal relationship between mental control dysfunction and depression. This sequence can be described as follows: (a) The use of ineffective mental control strategies (e.g., using negative distracters to suppress negative thoughts) may bring on (b) a lessened ability to suppress negative thoughts, which can promote (c) depressive affect and the relative inaccessibility of positive distracters. This eventuality returns the person to (a) and begins the cycle anew.

From this perspective, depression can lead to breakdowns in mental control and ineffective mental control can lead to depression. Although this may well be a cyclic relation that promotes progressive deterioration in both mood and mental control, it is noteworthy that research in clinical populations suggests that the cycle more often starts with mental control problems. Turner et al. (1985) reported that in cases of the cooccurrence of obsessional disorders and depression, the obsession typically comes first. Obsessional thinking indicates that mental control processes are at low ebb, of course, which suggests that mental control failures can play a role in the etiology of some forms of depression.

In sum, our research supports the idea that depression involves an enhanced accessibility of interconnected negative thoughts. The increased salience of these associated thoughts sometimes undermines the depressed person's efforts to suppress negative material by promoting a dysfunctional mental control technique, in which thoughts intended as distracters are chosen with an inappropriately negative affective tone and so eventually serve as reminders of the unwanted item. This sequence of events may be interrupted to some degree when externally provided positive distracters are made available. Although depressed individuals demonstrate a preference for using positive distracters to suppress negative thoughts, it appears that they can only rarely generate such effective thought distracters on their own. In trying to eliminate the negative they fail because they can find so little positive to accentuate.

References

Anderson, J. R. (1976). *Language, memory, and thought.* Hillsdale, NJ: Erlbaum.

Anderson, J. R., & Bower, G. H. (1973). *Human associative memory.* Washington, DC: V. H. Winston.

Bargh, J. A., & Tota, M. E. (1988). Context-dependent automatic processing in depression: Accessibility of negative constructs with regard to self but not others. *Journal of Personality and Social Psychology, 54,* 925–939.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* New York: International Universities Press.

Beck, A. T., & Beamesderfer, A. (1974). Assessment of depression: The depression inventory. In P. Pichot (Ed.), *Psychological measurements in psycho-pharmacology: Modern problems in pharmacopsychiatry* (Vol. 7). Basel, Switzerland: Darger.

Beck, A. T., & Beck, R. (1972). Screening depressed patients in family practice: A rapid technique. *Postgraduate Medicine, 52,* 81–85.

Blaney, P. H. (1986). Affect and memory: A review. *Psychological Bulletin, 99,* 229–246.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36,* 129–148.

Burns, D. D. (1980). *Feeling good: The new mood therapy.* New York: Morrow.

Cantor, N., Norem, J. K., Niedenthal, P. M., Langston, C. A., & Brower, A. M. (1987). Life tasks, self-concept ideals, and cognitive strategies in a life transition. *Journal of Personality and Social Psychology, 53,* 1178–1191.

Clark, M. S., & Isen, A. M. (1982). Toward understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 73–108). New York: American Elsevier.

Collins, A. M., & Quillian, M. R. (1969). Retrieval time from semantic memory. *Journal of Verbal Learning and Verbal Behavior, 8,* 240–247.

Coyne, J. C., & Gotlib, I. H. (1983). The role of cognition in depression: A critical appraisal. *Psychological Bulletin, 94,* 472–505.

Ellis, A. (1962). *Reason and emotion in psychotherapy.* New York: Stuart.

Freud, S. (1957). Repression. In J. Strachey (Ed. and Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 14, pp. 146–158). London: Hogarth. (Original work published 1915)

Gibbons, F. X. (1986). Social comparison and depression: Company's effect on misery. *Journal of Personality and Social Psychology, 51,* 140–148.

Gittleson, N. L. (1966). The fate of obsessions in depressive psychosis. *British Journal of Psychiatry, 112,* 705–708.

Gotlib, I. H., & McCann, C. D. (1984). Construct accessibility and depression: An examination of cognitive and affective factors. *Journal of Personality and Social Psychology, 47,* 427–439.

Goodwin, F. K. (1977). Diagnosis of affective disorders. In M. E. Jarvik (Ed.), *Psychopharmocology in the practice of medicine* (pp. 219–228). New York: Appleton-Century-Crofts.

Isen, A. M. (1984). Toward understanding the role of affect in cognition. In R. S. Wyer & T. K. Srull (Eds), *Handbook of social cognition* (Vol. 3, pp. 179–236). Hillsdale, NJ: Erlbaum.

Kendall, P. C., & Hollon, S. D. (1979). *Cognitive-behavioral interventions.* New York: Academic Press.

Klinger, E. (1982). On the self-management of mood, affect, and attention. In P. Karoly & F. H. Kanfer (Eds.), *Self-management and behavior change* (pp. 129–164). New York: Pergamon Press.

Norem, J. K., & Cantor, N. (1986). Defensive pessimism: Harnessing anxiety as motivation. *Journal of Personality and Social Psychology, 51,* 1208–1217.

Overall, J. E., Spiegel, D. K., & Cohen, J. (1975). Equivalence of orthog-

onal and nonorthogonal analysis of variance. *Psychological Bulletin, 82,* 182–186.

Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behavioural Research and Therapy, 16,* 233–248.

Rachman, S., & Hodgson, R. (1980). *Obsessions and compulsions.* Englewood Cliffs, NJ: Prentice-Hall.

Ruehlman, L. S., West, S. G., & Pasahow, R. J. (1985). Depression and evaluative schemata. *Journal of Personality, 53,* 46–92.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death.* San Francisco: Freeman.

Sutherland, G., Newman, B., & Rachman, S. (1982). Experimental investigations of the relations between mood and intrusive unwanted cognitions. *British Journal of Medical Psychology, 55,* 127–138.

Swann, W. B., Jr. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls & A. G. Greenwald (Eds.), *Social psychological perspectives on the self* (Vol. 2). Hillsdale, NJ: Erlbaum.

Swann, W. B., Jr., Griffin, J. J., Predmore, S. C., & Gaines, B. (1987). The cognitive–affective crossfire: When self-consistency confronts self-enhancement. *Journal of Personality and Social Psychology, 52,* 881–889.

Sweeney, P. D., Anderson, K., & Bailey, S. (1986). Attributional style in depression: A meta-analytic review. *Journal of Personality and Social Psychology, 50,* 974–991.

Turner, S. M., Beidel, D. C., & Nathan, R. S. (1985). Biological factors in obsessive–compulsive disorders. *Psychological Bulletin, 97,* 430–450.

Wegner, D. M. (1988). Stress and mental control. In S. Fisher & J. Reason (Eds.), *Handbook of life stress, cognition, and health* (pp. 685–699). New York: Wiley.

Wegner, D. M., Schneider, D. J., Carter, S., III, & White, L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology, 53,* 5–13.

Wenzlaff, R. M. (1988a). *Automatic negative thinking in depression.* Manuscript submitted for publication.

Wenzlaff, R. M. (1988b). *Depth of depression and interpersonal choices: When disapproval from others is desirable.* Manuscript submitted for publication.

Wenzlaff, R. M., & Prohaska, M. L. (in press). When misery prefers company: Depression, attributions, and responses to others' moods. *Journal of Experimental Social Psychology.*

Received January 15, 1988
Revision received May 4, 1988
Accepted May 4, 1988 ■