On Managing Moods: Evidence for the Role of Homeostatic Cognitive Strategies in Affect Regulation

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On Managing Moods: Evidence for the Role of Homeostatic Cognitive Strategies in Affect Regulation

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What are the cognitive strategies that allow people to manage and maintain their daily mood fluctuations within reasonable limits? Despite intense recent interest in affective phenomena, spontaneous changes over time in mood effects have rarely been studied. Three experiments evaluated the temporal sequence of positivity and negativity in social responses by people who received an initial positive and negative mood induction. Following different mood manipulations, participants performed three kinds of serial social tasks: They generated person descriptions (Experiment 1), completed trait words (Experiment 2), or produced a series of self-descriptions (Experiment 3). Results were consistent with the operation of a spontaneous, homeostatic mood management mechanism. The authors found that initially mood-congruent responses were spontaneously reversed and replaced by mood-incongruent reactions over time. The implications of these results for recent affect-cognition theorizing, and for our understanding of people's everyday mood management strategies, are discussed.

What are the cognitive mechanisms that allow people to automatically manage and regulate their moods? More specifically, is there a self-correcting pattern in the way mood-congruence in social responses changes over time? The past two decades saw a marked increase of empirical research on affect (Forgas, 2001), and considerable evidence now supports the existence of both mood-congruent, and mood-incongruent, influences on social judgments and behaviors (Bower, 1991; Forgas, 1995, 1998, 2001; Sedikides, 1994). Furthermore, individual differences also seem to play an important role in moderating affective reactions to social events (Mayer, 2001; Rusting, 2001; Suls, 2001; Suls, Green, & Hillis, 1998). However, we still know little about how spontaneous mood management is achieved, and few studies looked at temporal changes in affective responses.

Mood congruence and incongruence in social responses have been typically explained in terms of separate, unrelated processes (Clark & Isen, 1982). In contrast, this article will suggest that the cognitive mechanisms involved in affect infusion (producing mood congruence) and affect control (producing mood incongruence) may be intimately linked and operate in a temporal sequence. Specifically, three experiments seek to show that initially mood-congruent responses will be automatically replaced by incongruent reactions over time, consistent with the operation of a spontaneous mood management system. Interestingly, there has been little prior work on temporal changes in mood effects, and the role of individual difference variables in moderating these effects also has received relatively little attention (cf. Mayer, 2001; Rusting, 2001; Smith & Petty, 1995; Suls, 2001).

The mood management hypothesis. There is now clear evidence to suggest that mood has a strong mood-congruent influence on a wide variety of social judgments and behaviors. For example, positive mood typically results in the superior recall of happy memories (Bower, 1991), increased liking for other people (Forgas, 1995), more lenient attributions and judgments (Clore, Schwarz, & Conway, 1994; Forgas, 1994; Sedikides, 1995), and more cooperative and confident behaviors (Forgas, 1998, 1999). Theories such as Bower's (1991) associative network

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model suggest that these mood-congruent effects occur because people preferentially access and use mood-congruent information, spend longer encoding mood-congruent details, and produce more mood-congruent judgments and interpretations (Bower & Forgas, 2001; Sedkides, 1995). However, previous studies only assessed mood congruence immediately after a mood induction; we still know very little about how the passage of time will influence these effects.

The production of mood-congruent responses often serves to maintain and even enhance the preexisting affective state (Bower, 1991; Bower & Forgas, 2001). Clearly, such a self-perpetuating process of affective and cognitive mood congruence cannot be open-ended. There must be automatic cognitive mechanisms that limit affect congruence and thus allow people to control and calibrate their mood states by selectively accessing more affect-incongruent responses over time (Erber & Erber, 2001). In a recent theory of mood management, Forgas, Johnson, and Ciarrochi (1998; see Figure 1) suggested that once a threshold level of affect intensity is reached, a more controlled, motivated processing strategy should be triggered, characterized by targeted access to mood-incongruent ideas and associations (Clark & Isen, 1982).

Thus, people should show a spontaneous pattern of first mood-congruent, then mood-incongruent, responding (Sedikides, 1994). Such temporal changes in affect congruence may be due to an automatic switch from constructive, open-ended processing (producing affect congruence) to more controlled, motivated processing strategies (producing affect incongruence). Theories such as the Affect Infusion Model (Forgas, 1995) specifically suggest that affect infusion should only occur as long as people employ an open, constructive processing strategy that facilitates the use of affectively primed information (Bower, 1991; Fiedler, 1991). In contrast, motivated processing facilitates targeted access to mood-incongruent responses and is the main strategy for reversing mood effects and achieving affect control (Berkowitz, Jaffee, Jo, & Troccoli, 2000; Clark & Isen, 1982; Erber & Erber, 2001; Forgas & Fiedler, 1996). Temporal changes in mood congruence may thus occur as a result of people automatically switching from substantive processing that produces affect infusion to motivated processing that results in affect control.

A schematic outline of this mood management hypothesis is presented in Figure 1. The choice of either a substantive (affect infusion) or motivated (affect control) processing is likely to be determined by a combination of personal, situational, and task variables, as well as the intensity of the prevailing affective state. So far, we know that motivated processing and thus mood incongruence are more likely when (a) the task is of direct personal relevance (Forgas & Fiedler, 1996), (b) people become aware of the cause or consequence of their mood (Berkowitz et al., 2000), (c) they score high on individual difference measures that indicate motivated processing tendencies (Forgas, 1998; Rusting, 2001), and (d) they experience an extreme or aversive affective state (Ciarrochi & Forgas, 1999). Motivated mood reversal can occur both in negative and in positive mood. For example, expecting a demanding encounter leads people to control their euphoric mood by selectively exposing themselves to negative information (Erber & Erber, 2001).

Interestingly, no previous research has demonstrated such an automatic temporal shift from congruence to incongruence, although several studies have produced evidence for mood-incongruence. For example, Erber and Erber (2001) found that when people were motivated to control their mood they tended to recall more mood-incongruent information. In another intriguing series of studies, Berkowitz et al. (2000) found that self-directed attention spontaneously triggered motivated-processing and mood-incongruent responses. Mood-incongruent retrieval also was found in a study by Parrott and Sabini (1990): Sad participants recalled more positive autobiographical memories than did happy persons, and this effect was most pronounced for the early items. However, this study may not provide an unambiguous test of the "first congruent–then incongruent" hypothesis, because participants had a relatively long time to prepare for recalling their memories, so that initial mood congruence could have been supplanted by mood-incongruent thoughts by the time recall was assessed. This possibility also is reinforced by Sedikides (1994), who reports that initially mood-congruent self-descriptions were automatically eliminated over time. To investigate such spontaneous mood management strategies, three experiments assess the effects of mood on temporal changes in social responses in three different tasks.

EXPERIMENT 1

Experiment 1 was designed as an initial exploration of temporal changes in mood congruence using a person description task. We hypothesized that participants in an induced good or bad mood would first produce mood-congruent descriptions followed by a spontaneous shift toward mood-incongruent responses by the end of the task.

Method

Overview, design, and subjects. Following an autobiographical mood manipulation, in an ostensibly separate

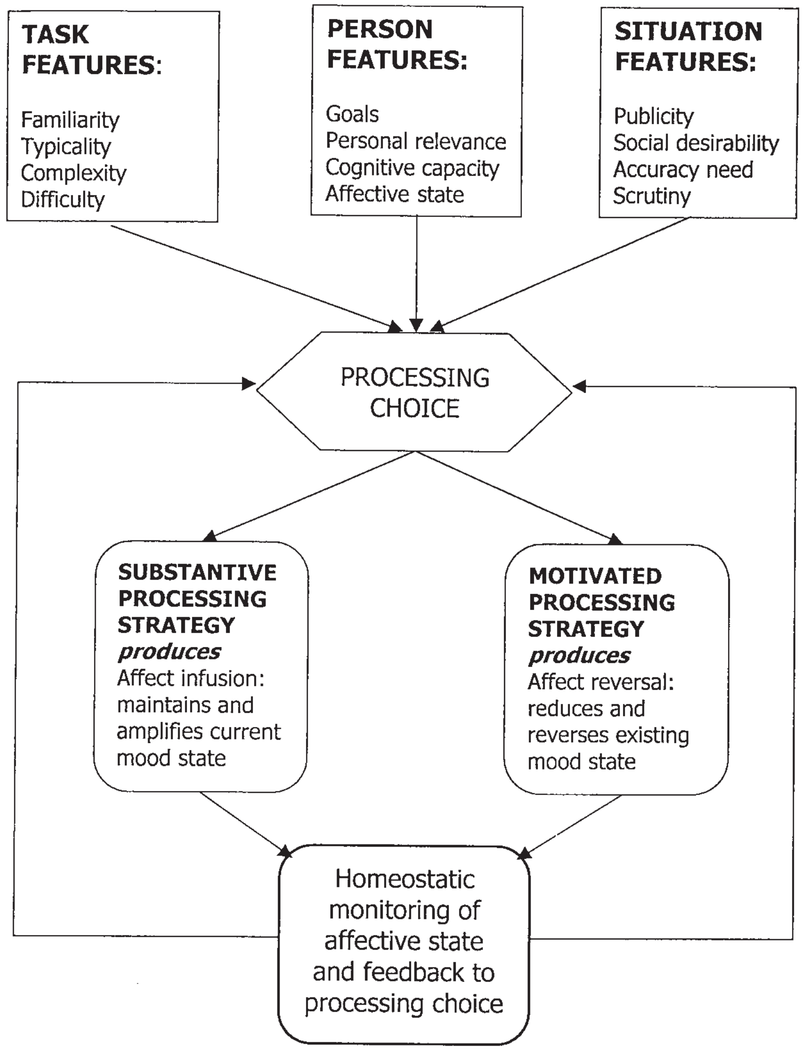

Figure 1 The mood management hypothesis.
NOTE: After initial substantive processing, once affect intensity reaches a threshold level, a complementary, motivated processing strategy is triggered, producing mood-incongruent outcomes.

study, 60 volunteers were asked to generate a series of person descriptions by completing sentences that began with names, such as "John is . . . " and "Lisa is . . . ." The experiment was a 3 × 2 design, with mood (positive, neutral, and negative) and time of response (first half, second half of the task) as the independent variables and the valence of descriptions produced over time as the dependent variable.

Pilot study. It was important first to establish that "running out" of positive and negative descriptions could not be responsible for changes in responding. In a pilot study, 40 participants were asked to generate as many positive or negative descriptions as they could. Results confirmed that participants had no difficulty generating a very large number of descriptions and that the average number of positive and negative traits generated was not significantly different, $t(38) = .51$, *ns*, *M*s = 83 and 78, *SD*s = 16.7 and 15.4. It seems that even though negative social events may be less frequent and more unusual than positive events (Taylor, 1991), people can access and use large and comparable numbers of positive and negative person descriptions (Anderson, 1968).

Mood manipulation and procedure. Participants were tested individually and told that two brief but unrelated experiments would be conducted during the session. The first experiment (in fact, the mood manipulation) was introduced as a memory task. Participants were told to recall an episode that made them feel either sad, happy, or neutral and to describe in detail the event and their reactions to it. Previous research has demonstrated the effectiveness of this mood induction (Forgas, 1995). A second experimenter then introduced the person description task. Participants were asked to complete a long series of 120 incomplete sentences consisting of common names followed by the word *is* and a space (e.g., "Dan is . . . "). Participants were instructed not to spend too much time thinking about any one item. They were asked to continue performing this task until they could no longer easily think of appropriate descriptions. In fact, all participants continued with the task for more than 15 minutes and produced an average of 72 responses. The valence of the descriptions so generated was subsequently rated on a 10-point positive-negative scale by two independent judges who achieved an interrater reliability of $r = .86$. Their ratings were averaged for further analysis.

A postexperimental questionnaire (in fact, a mood validation measure) was administered next. Participants rated their mood on four 6-point bipolar scales (happy-sad, tense-relaxed, good-bad, and calm-anxious) to check the effectiveness of the mood induction (Forgas, 1995, 1999). A thorough debriefing, which was designed to eliminate any residual mood effects, concluded the procedure. Questioning of the participants revealed no evidence of any awareness of the manipulations.

Results and Discussion

Manipulation check. Because responses on the four mood self-rating scales were highly correlated ($r > .72$), the scales were combined to form a single mood quality measure (Cronbach's alpha = .88). An analysis of variance of this measure confirmed that the mood induction significantly influenced mood quality, $F(2, 57) = 35.31$, $p < .01$, confirming the effectiveness of the mood manipulation. Self-rated mood was significantly more positive in the "happy" group and more negative in the "sad" group than in the control group, $t(33) = 1.9$, $p = .05$, $t(43) = 5.64$, $p < .01$ (*M*s = 5.5, 4.8, 2.9; *SD*s = .56, .63, .71).

Main analyses. An analysis of variance evaluated the influence of mood (positive, neutral, negative) and generation period (first or second half) on the changing valence of responses by participants. There was a clear and significant interaction between mood state and generation period, $F(2, 54) = 8.6$, $p < .01$. As illustrated in Figure 2, those induced into a positive mood generated more positive descriptions in the first half of the task, but their responses became significantly less positive over time, $t(16) = 1.96$, $p < .05$. The neutral group showed no change from the first to the second half of the word generation task, $t(19) = -.74$, $p > .05$. The most dramatic results occurred in negative mood: Participants in this condition produced more negative descriptions initially; however, by the second half of the task, their responses spontaneously became more positive, as suggested by the mood management hypothesis, $t(26) = 3.61$, $p < .001$.

Consistent with our main prediction, these results show that mood led first to congruent, then to incongruent, responses in a serial task. These changes in response valence were not due to participants running out of mood-congruent words—the pilot study showed that people can access a far greater number of such words if required. This study thus provides clear supportive evidence for the spontaneous reversal of mood congruence over time in social responses, a pattern that seems consistent with the automatic mood management hypothesis described above.

EXPERIMENT 2

Although the results of Experiment 1 were consistent with our predictions, several important issues remain. Names are not entirely neutral stimuli but may have clear connotative and evaluative associations (Harari & McDavid, 1973). To control for the possible evaluative cueing provided by different names, in Experiment 2, we asked respondents to perform a word-completion task rather than a person-description task. Experiment 2 also relied on a more sensitive method to track and analyze continuous changes in response valence for each participant over time.

Method

Participants and procedure. Participants were 55 student volunteers. The mood manipulation procedure was the same as described in Experiment 1; however, only positive and negative mood was induced without a neutral control condition. The main experimental task was modified in three important respects. First, participants performed a word-completion rather than a person-description task, generating adjectives given the first letter of a word (e.g., *t* . . .), leading to either positively or negatively valenced words (e.g., *t*errible or *t*errific). The words produced were subsequently rated by two judges on a 7-point positive-negative valence scale, ranging from +3 (*most positive*) to –3 (*most negative*). The two judges achieved an interrater reliability of .84, and their ratings were averaged for further analysis. Changes in response valence were measured using a regression analysis of each participant's data, with the rated positivity of each of the adjectives regressed on the generation position. In effect, this method identifies a best-fitting line for each participant that tracks the increasing positivity or negativity of their consecutive word associations.

To control for the possible differential availability of positive and negative words in this task, a pilot group of 44 participants was asked to generate all positive, or all negative, word lists using the task described above. Results again showed that there were no significant differences in the total number of positive and negative words produced, $t(42) = .03$, *ns*, *M*s = 107 and 99, *SD*s =

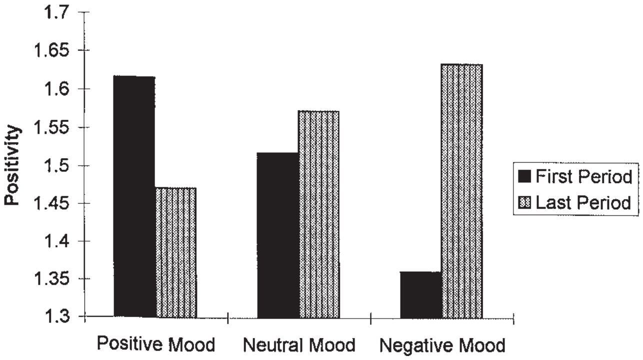

Figure 2 The effects of mood (positive, control, negative) and the passage of time on the positivity and negativity of personality trait adjectives generated.

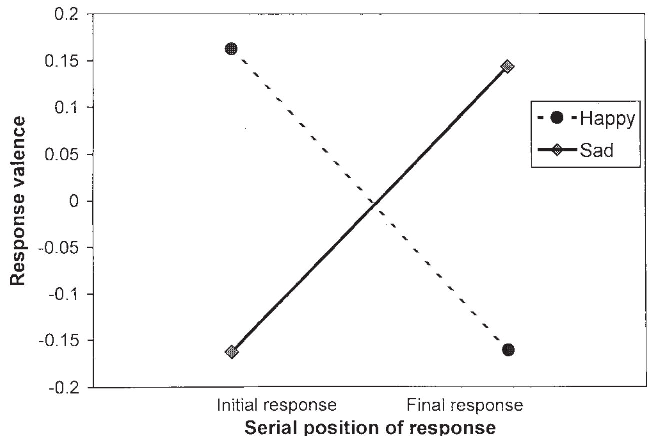

Figure 3 Summary of the hierarchical linear modeling (HLM) analysis of changes in the average valence of responses over time for respondents who received positive and negative mood induction.

NOTE: Initially, mood-congruent responses were reversed and became mood incongruent by the end of the task for both groups.

14.2 and 13.4, or the time taken to complete the task. This confirms that running out of words is not a plausible reason for changes in response valence, because people can access and use a very large number of positive and negative adjectives (Anderson, 1968).

Results and Discussion

Given that the effectiveness of the mood manipulation was convincingly established in Experiment 1, no separate mood validation data were collected here. On average, participants produced 90 responses. Our data structure involved two levels on analysis. Level 1 involved looking at the relationship between response order and response valence within individuals, and Level 2 involved the effect of mood between individuals. To model the random error at both levels of analysis simultaneously, we analyzed our data using Multilevel Random Coefficient Modeling (MRCM) (Bryk, Raudenbush, & Congdon, 1996; Nezlek, 2001). This method essentially involves estimating a regression equation (both slope (β_0) and intercept (β_1)) for each individual at Level 1 and then using these coefficients as dependent variables in the regression equations at Level 2 (Nezlek, 2001). The Level 1 statistical model was as follows: $Yij = \beta_{0j} + \beta_{1j}$ (recall position) + r_{ij}. For each individual J, a coefficient (β_{1j}) representing the relationship between response position and valence is estimated (along with error, r_{ij}). The statistical significance of the relationship between the effect of response position and mood is examined at Level 2, with the following models: $\beta_{0j} = \gamma_{00} + \gamma_{01}$ (mood) + U_{0j} and $\beta_1 = \gamma_{10} + \gamma_{11}$ (mood) + U_{1j}. The relationship between β_0 and β_1 and mood is tested by the significance of the γ_{01} and γ_{11} coefficients, respectively.

The mood variable was dummy coded, and we performed MRCM using hierarchical linear modeling (HLM) (Bryk et al., 1996). We found a significant effect of mood on both the Level 1 intercept, $\gamma_{01} = -.33$, $SE = .13$, $t(53) = -2.6$, $p < .05$, and slope, $\gamma_{11} = .088$, $SE = .003$, $t(53) = -2.63$, $p < .05$. Using the HLM procedures, an analysis of the simple slopes revealed that the slopes of both the positive and negative lines were significantly different from 0, $\gamma_{positive} = -.0041$, $SE = .002$, $t(53) = -2.14$, $p < .05$, $\gamma_{negative} = .004$, $SE = .002$, $t(53) = -1.66$, $p < .05$ (one-tailed), respectively. As can be seen in Figure 3, happy mood initially led to significantly more positive responses than sad mood. However, with the passage of time, responses spontaneously became more mood incongruent. By the end of the task, initially happy participants produced more negative responses and initially sad participants produced positive responses.

In other words, consistent with our predictions, responses showed a spontaneous and significant reversal of mood congruence with the passage of time. This pattern is consistent with the mood management hypothesis (Forgas et al., 1998) and confirms that initially mood-congruent effects can be automatically reversed. By the end of the task, those in the sad mood condition produced significantly more positive responses than those induced to feel good. Given that the pilot study established that people can produce an average of 107 positive and 99 negative consecutive responses in such a task, running out of positive or negative items (the "dry well" explanation) cannot explain this change in response valence over time. These results extend earlier work by Sedikides (1994) and others. We found not only a gradual decay in mood congruity over time but a significant and apparently motivated temporal shift toward mood incongruence, as if participants tried to control their affective state by changing processing strategies and accessing mood-incongruent responses.

EXPERIMENT 3

The results of Experiment 2 were generally consistent with Experiment 1 and demonstrated the predicted temporal changes in mood congruency over time. Experiment 3 was designed to confirm and to further extend these findings. Both Experiments 1 and 2 asked participants to produce responses that were of low personal relevance. Do temporal shifts in valence also occur when participants deal with more relevant and involving issues? To evaluate this possibility, Experiment 3 asked participants to produce a series of self-referent statements by completing a number of sentences beginning with the phrase "I am . . . ." We also employed a different mood induction procedure in Experiment 3 than in Experiment 2. All mood induction methods may produce secondary, confounding effects, influencing not only mood but also affecting people's thoughts or motivations. To control for such confounds, it is desirable to use a variety of mood induction methods in related experiments to establish that the effects can be generalized across procedures. Such a strategy to "triangulate" underlying mood effects has been successfully used in earlier studies (cf. Forgas, 1994, 1995, 1999) and was also adopted here. Instead of the autobiographical mood induction, manipulated feedback about performance was used to induce mood in Experiment 3.

Method

Participants and pilot study. Participants were 48 volunteer students, with equal numbers of men and women in each of the three mood conditions (happy, neutral, sad). Individuals participated in what they believed to be two unrelated experiments: (a) a study of "spatial-numerical skills" (in fact, the mood induction) and (b) a study of "verbal descriptions" (in fact, the associative task). A pilot group of 24 participants was first asked to generate all-positive and all-negative self-statements to establish that running out of items does not confound the results. Once again, we found no significant differences in the total number of positive and negative descriptions produced, $t(22) = .31$, *ns*, *M*s = 45 and 39, *SD*s = 8.6 and 9.3, or the time taken to produce them.

Procedure and mood induction. Mood was induced using a previously validated false-feedback technique (Forgas, 1995). The task was described as a test of cognitive abilities. Participants were asked to rapidly estimate the size, circumference, surface area, and number of dot patterns contained within a number of complex geometric figures. There were no obviously correct answers to these questions and participants had to provide what were rough guesses at best. They were informed that even though these judgments may appear difficult, the test was found to be a reliable measure of a wide range of "spatial-numerical skills and related cognitive abilities" in the past. On completion, experimenters consulted a test manual. For the positive group, participants were told that based on the test norms, their scores indicated "excellent spatial/perceptual ability . . . well above the average on this sort of task . . . indicating superior cognitive skills in dealing with complex information." The control group was told that the test was under development and their performance will be useful in developing test norms. The negative group was told that "compared to the test norms your scores indicate that your spatial/perceptual ability is considerably below average . . . suggesting poor cognitive skills. It appears from your scores that you have some degree of difficulty in accurately processing complex spatial-numerical information."

After the mood induction, participants immediately proceeded to perform an "unrelated" self-description task. They were asked to complete a series of self-statements in the form of "I am . . . " as rapidly as possible, recording the first description that came to their mind for each question. The valence of their responses was subsequently rated for positivity-negativity on a 7-point –3 to +3 scale by two independent raters who achieved an interrater reliability of .90. Ratings were averaged for further analysis. On average, 36 responses were produced—a smaller number than in Experiment 2, clearly reflecting the fact that generating self-descriptions is a more constraining task than generating word completions. Because the pilot study established that people have no difficulty in coming up with an average of 43 all-positive and 39 all-negative responses, running out of positive or negative items (the "dry well" explanation) could not account for changes in responses.

Once the self-description task was completed, a post-experimental questionnaire (in fact, the mood validation) asked participants to rate their current mood as well as their mood immediately after they received feedback on the spatial/numerical test on a series of four 7-point bipolar scales (good-bad, happy-sad, tense-relaxed, aroused-not aroused). A careful debriefing concluded the procedure. Care was taken to eliminate residual mood effects. We found no evidence of any awareness of the hypotheses or manipulations.

Results and Discussion

Validation of the mood induction. Because mood self-ratings on the four scales were significantly correlated ($r >$ .68), the four judgments were combined into a single mood quality measure (Cronbach's alpha = 81). An analysis of variance showed that mood quality was significantly influenced by the mood induction, $F(2, 46) = 31.9$, $p < .001$. Self-rated mood was significantly more positive in the positive group and more negative in the negative group than in the control group, $t(32) = 6.07$, $p < .01$, $t(1, 32) = 8.3$, $p < .001$, *M*s = 5.7, 4.3, 2.5, *SD*s = .55, .63, .68.

Mood effects on the changing valence of self-descriptions over time. The statistical model for Experiment 3 was similar to that used in Experiment 2. Any categorical variable (e.g., mood) with *N* levels can be represented by $N - 1$ orthogonal dummy codes. Mood has three levels (positive, neutral, negative) and was thus represented by two dummy codes, D1 (1, 0, 0) and D2 (0, 0, 1). The effect of mood is represented by entering D1 and D2 into the model simultaneously. χ^2_{change} then represents the difference between the model with D1 and D2 included and the model without D1 and D2; that is, we tested for the difference between the model when mood was included or excluded. If χ^2_{change} is significant, then mood had a significant effect (i.e., significantly improves the fit of the model). The MRCM analysis revealed that there was a significant effect of mood on both the intercepts and slopes, $\chi^2_{change} = 30.43$, $df = 2$, $p < .05$, $\chi^2_{change} = 6.1$, $df = 2$, $p < .05$, respectively (see Figure 4).

Further analyses within the HLM framework revealed that both the positive and negative slopes in Figure 4 differed significantly from 0, $\gamma_{positive} = -.031$, $SE = .014$, $t(45) = -2.30$, $p < .05$, $p < .05$, $\gamma_{negative} = .020$, $SE = .009$, $t(45) = 2.33$, $p < .05$, but the neutral slope did not differ from 0, $\gamma_{neutral} = -.012$, $SE = .008$, $t(45) = -1.65$, $p > .05$.

Thus, positive mood led first to positive responses that became significantly more negative over time. In the neutral group, slightly positive responses remained relatively static over time. Participants in the negative mood group initially produced negative responses, but with the passage of time, their reactions became significantly more positive. These results mirror the findings in Experiments 1 and 2 and once again confirm that an initially significant pattern of mood congruency was spontaneously reversed toward markedly mood-incongruent responses by the end of the task. It is particularly interesting that this pattern could be obtained even with such a realistic and personally involving task as producing self-descriptions.

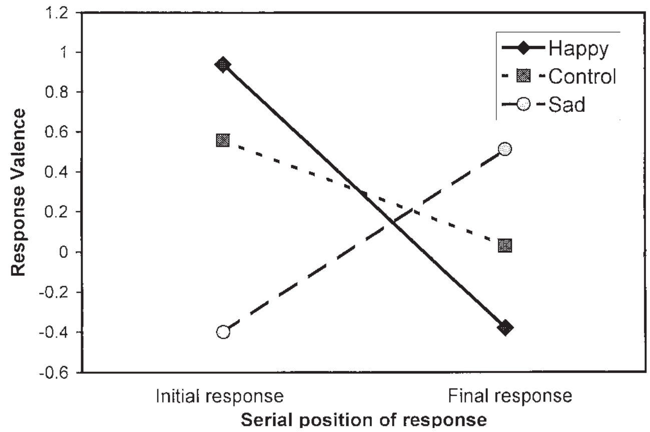

Figure 4 Summary of the hierarchical linear modeling (HLM) analyses of changes in the valence of responses over time for respondents who received positive, neutral and negative mood induction.

NOTE: Initially, mood-congruent responses were reversed and became mood incongruent by the end of the task for both experimental groups.

GENERAL DISCUSSION AND CONCLUSIONS

Using different mood induction procedures and different dependent measures, these three experiments provide convergent evidence that initially mood-congruent responses are spontaneously reversed over time. Early mood congruence is consistent with the affect-priming hypothesis, showing that affectively primed ideas initially produce more mood-congruent reactions (Bower & Forgas, 2001). However, the results also show that over time, people will automatically correct for this bias (as if seeking to manage their mood) by gradually retrieving increasingly mood-incongruent information. The evidence shows not simply the decay of mood over time but an active reversal toward mood-incongruent responses. It is remarkable that despite the long-standing interest in the complex relationship between affect and cognition (Bower, 1991; Bower & Forgas, 2001), such spontaneous temporal changes in mood congruence and incongruence have received limited attention so far. These results have several important theoretical and practical implications.

Theoretical implications. The present findings may help to resolve a major apparent inconsistency in the recent affect-cognition literature. Numerous studies have found that mood frequently leads to mood-congruent recall, judgments, and associations (Bower, 1991; Forgas, 1994, 1995; Sedikides, 1995). Other experiments, however, indicated that mood also can produce incongruent recall and judgments (Berkowitz et al., 2000; Erber & Erber, 2001; Forgas, 1995; Forgas & Fiedler, 1996; Parrott & Sabini, 1990). The present experiments suggest that whether congruency or incongruency is observed may at least partly depend on the time elapsed since the mood was first induced. All things being equal, mood congruency is more likely when responses are assessed shortly after the mood induction. If, however, there is a time lag between mood induction and response, and this can be as short as a few minutes, results may well indicate spontaneous mood incongruence, because the experimenter "catches" subjects at a time when they may already be trying to control their moods (Sedikides, 1994).

These results also are consistent with the hypothesis that mood-congruent and mood-incongruent processing may well be linked in a single, homeostatic mood management system (Forgas et al., 1998). According to this model, affect-priming mechanisms (e.g., Bower, 1991; Forgas, 1995; Sedikides, 1995) initially serve to maintain or enhance current mood until a threshold level of mood intensity is reached. At that point, motivated processing is triggered, leading to incongruent associations, eventually reducing or reversing the original mood state. Just such a pattern was found here: With the passage of time, people seemed to automatically switch their processing strategy to motivated and mood-incongruent thinking, selectively producing mood-incongruent thoughts and associations.

Although the present results deviate from earlier findings by Parrott and Sabini (1990), a direct comparison between our two studies may be difficult, because it is not clear how much time may have elapsed between the mood induction and responses in the Parrott and Sabini (1990) study. Thus, the possibility of an early (and undetected) mood-congruent effect cannot be excluded. Research by Sedikides (1994) suggests that latent initial mood congruence is at least a possibility. Ultimately, additional work is needed to establish the boundary conditions for the first congruent, then incongruent pattern demonstrated here.

The "dry well" account. Could it be that mood congruency is reversed because people simply run out of congruent responses (the dry well explanation)? Our data do not support this account. The pilot studies found that participants could easily produce both positive and negative responses well in excess of the spontaneous switchover point observed in all three experiments. Another question concerns the symmetricity of these effects. Work by Taylor (1991) suggests that negative events may be less common than positive events; however, this asymmetry is unlikely to apply to the responses we studied. Previous work (e.g., Anderson, 1968), as well as our pilot studies, showed that people are familiar with and can access an equally large number of positive and negative words, well in excess of the requirements of these experiments.

Mood decay versus mood management? Could simple mood decay also play a role in these effects? Although this possibility cannot be entirely excluded, mood decay clearly cannot account for the overall pattern. Our data show not just a gradual return to neutral responses, as mood decay would imply, but rather indicate an active reversal of mood congruence over time (Figures 3 and 4). The analyses confirm that toward the end of the task, responses were significantly biased in a mood-incongruent direction in all three studies. Such a pattern seems more consistent with a motivated mood management explanation than the mood decay account.

There are also likely to be significant individual differences between people in how they manage their affective states, an issue that deserves further attention (Suls, 2001). For example, several lines of evidence suggest that low-self-esteem individuals are less effective in managing aversive moods than are high-self-esteem individuals (Smith & Petty, 1995) and also have fewer "affirmational resources" when their self-concepts are threatened (Trope, Ferguson, & Raghunanthan, 2001). Similarly, traits such as anxiety and neuroticism often play an important role in affect control and affect management (Ciarrochi & Forgas, 1999; Rusting, 2001; Suls, 2001; Suls et al., 1998). Indeed, terms such as the "neurotic cascade" (Suls, 2001) denote serious breakdowns in affect management efficacy, an issue that is highly relevant to clinical as well as social psychology.

The kind of self-correcting mood management model proposed here offers a promising and flexible explanation of these results. The idea that social actors employ a variety of processing strategies is becoming well accepted (Brewer, 1988; Kruglanski, 1989). Theories such as the Affect Infusion Model (AIM) (Forgas, 1995) imply that substantive processing (producing affect infusion and mood congruence) and motivated processing (producing affect control and mood incongruence) could jointly constitute an automatic mood management system (Figure 1). Evidence for motivated processing in the service of mood repair has been obtained in several prior studies (Berkowitz et al., 2000; Erber & Erber, 2001; Forgas & Fiedler, 1996; Parrott & Sabini, 1990; Sedikides, 1994). The current results extend these findings and indicate that the passage of time alone may produce motivated processing and mood incongruence.

Practical implications. The presence or absence of spontaneous mood management strategies can have important practical consequences in many areas of everyday life. Recent studies by Suls et al. (1998) showed the existence of a pattern of affective inertia, the carryover of negative mood elicited by everyday problems to subsequent tasks. Traits such as neuroticism and agreeableness also appear to be directly implicated in how people cope with real-life affective reactions (Rusting, 2001; Suls, 2001). Effective affect management is also an essential prerequisite for forming and maintaining rewarding interpersonal relationships (Fletcher & Fitness, 1996). Partners can be easily engulfed in an escalating cycle of negative affectivity if one or both of them are unable to contain and spontaneously regulate their emotions (Gottman, 1979). Our results suggest that subtle changes in information-processing strategies may play a critical role in how everyday affective states are managed. Perhaps such mood management skills could eventually be trained, with important implications for clinical and counseling psychology.

Limitations and future prospects. There are also some limitations to these results. The realism and external validity of the tasks used here could be further extended in future work. Evaluating temporal changes in mood effects on realistic judgments such as person perception judgments and interpersonal behaviors would deserve serious attention (Forgas, 1999). These findings also would benefit from further replication using a wider variety of mood induction procedures. Fortunately, to the extent that our results were highly consistent across the three experiments and the two mood induction tasks, we can be reasonably confident that mood manipulation confounds were unlikely here (Forgas, 1995).

Future studies also might investigate affect management in response to specific emotions, such as anger, fear, or disgust (Berkowitz et al., 2000). Furthermore, measuring processing latencies at the congruent and incongruent stages of responding should provide more direct information about the particular information-processing strategies used. We also expect that additional features of the person, the task, and the context will play a critical role in influencing processing strategies, as implied by the mood management model (Figure 1) and also found in our prior research (Ciarrochi & Forgas, 1999; Forgas, 1994, 1999).

Conclusions. Dealing with everyday mood fluctuations is likely to involve complex cognitive processes with major implications for our sense of adjustment and well-being. Much has been discovered about the role of affect in our thinking and judgments in recent years (Bower, 1991; Fiedler, 1991; Forgas, 1995; Mayer, 2001; Rusting, 2001; Sedikides, 1995; Suls, 2001). However, we still know little about how people go about regulating their daily moods. These three experiments provided convergent evidence consistent with a mood management hypothesis and indicate that initially mood-congruent responses tend to be automatically corrected and reversed over time. A multiprocess framework (Forgas, 1995, in press) appears particularly suitable for understanding these subtle and self-correcting mood effects. Further research on the delicate interplay between affect and cognition should be of considerable theoretical, as well as applied, interest to our understanding of everyday mood fluctuations as well as the dynamics of affective disorders.

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