In W.G. Parrott (Ed.) (2001). Emotions in Social Psychology Philadelphia, PA: Psychology Press

READING 11

Mood Effects on Person-Perception Judgments

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How does mood affect the way we learn about, judge, and remember characteristics of other people? This study looked at the effects of mood on impression formation and person memory. Realistic person descriptions containing positive and negative details were presented to subjects experiencing a manipulated happy or sad mood. Next, impression-formation judgments were obtained, and subjects' recall and recognition of details of the characters were assessed. Results showed that subjects spent longer learning about mood-consistent details but were faster in making mood-consistent judgments. Overall, happy subjects formed more favorable impressions and made more positive judgments than did sad subjects. Both cued recall and recognition memory were superior for mood-consistent characteristics. Positive mood had a more pronounced effect on judgments and memory than did negative mood. These findings are discussed in terms of recent theories of mood effects on cognition, and the likely implications of the results for everyday person-perception judgments are considered.

Does mood influence the time we spend examining positive or negative information about others? Does it influence the quality and latency of our person-perception judgments? Impression formation is a complex task largely based on inferences (Heider, 1958) that may be particularly sensitive to mood-induced biases (Forgas & Bower, 1988). Following recent theories of mood effects on cognition (cf. Bower, 1983; Clark & Isen, 1982), in this study we sought to show that people (a) will spend more time to learn about the mood-consistent characteristics of others, (b) will make more mood-consistent rather than inconsistent judgments, (c) will make mood-consistent judgments faster than inconsistent ones, and (d) will recall and recognize mood-consistent details about others better than inconsistent ones.[1] The demonstration of such mood-based distortions in person perception is of considerable practical importance and should provide direct evidence in the form of reaction time data for the kind of processing biases predicted by recent mood-cognition theories (Bower, 1981, 1983; Clark & Isen, 1982).

Researchers have recognized, at least since Asch's (1946) classic studies, that person perception is a constructive process in which expectations, predispositions, and implicit personality theories are sometimes more important than the actual characteristics of the people we judge (Schneider, 1973). In exploring this constructive

[1]The terms *mood consistent* and *mood congruent* are used throughout this article to refer to material whose evaluative valence matches the mood state of a subject. Thus any positive characteristic of a target person is mood consistent with a happy subject. This usage is based on Bower's (1981) semantic network model and represents an extension of earlier work in which mood consistency was primarily used to refer to words or events with an explicit affective loading.

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aspect of person perception, many researchers have concentrated on the enduring cognitive expectations of the perceiver, often ignoring the short-term influence of fluctuating mood states. As Taylor (1981) noted, the perceiver is often thought of as a creature "out of a Camus novel: alone, bereft of language, without emotion, looking backwards" (p. 205). Yet much evidence suggests that the way the perceiver feels at the time is one of the most important influences on social judgments (Forgas & Moylan, 1987). Past studies have shown that people tend to find others more attractive when they feel good (Clark & Waddell, 1983; Gouaux, 1971; Gouaux & Summers, 1973; Griffitt, 1970), to judge others as more aggressive when they feel fearful (Feshbach & Singer, 1957), and to interpret facial expressions (Schiffenbauer, 1974), social events (Clore, 1985), or even interactive behaviors (Forgas, Bower, & Krantz, 1984) in accordance with their prevailing mood state.

Mood-based distortions in person perception have traditionally been interpreted either in terms of classical conditioning principles (Griffitt, 1970) or attributable to various dynamic or motivational factors, such as projection (Feshbach & Singer, 1957) or defensive biases (Freud, 1917/1952). In recent years, cognitively based models emphasizing the information-processing consequences of mood have gained ascendancy (Bower, 1981, 1983; Clark & Isen, 1982; Clore, 1985; Forgas & Bower, 1988). As Bruner (1957) stated some 30 years ago, perceiving an object or a person is essentially an act of categorization. Social judgments, in general, and person-perception judgments, in particular, involve the imposition of our internal cognitive constructs on the complex and often indeterminate characteristics of others (Heider, 1958; Kelly, 1955). Mood states may bias person perception by selectively influencing what people learn about others and by distorting the interpretations and associations they make (Bower, 1981; Clark & Isen, 1982). Indeed, at times it seems that "social behavior is almost a blank canvas onto which perceivers project a picture according to their moods" (Bower & Cohen, 1982, p. 307). Recent cognitive models imply specific mood-dependent biases in selective attention and judgment latencies that have not previously been demonstrated. To explicitly test these theories, we used a reaction-time paradigm to examine three different aspects of the way mood states influence impression-formation judgments: learning and selective attention effects, judgmental biases, and memory biases.

In the first instance, we expected people to take longer to examine and encode mood-consistent information. There are three convergent reasons for these expected encoding biases. At the time of learning, "by spreading activation, a dominant emotion will enhance the availability of emotion-congruent interpretations and the salience of congruent stimulus materials for learning" (Bower, Gilligan, & Monteiro, 1981, p. 451). Because of the richer availability of mood-related categories and the larger number of potential associations and interpretations for such details, people should take longer to deal with and encode mood-consistent information into this enhanced associative base. Secondly, selective exposure effects may also contribute to the longer processing of mood-consistent information. The affective tone of observed characteristics enhances the intensity of congruent moods and reduces the intensity of incongruent feelings. Increased mood intensity may in turn motivate judges to give mood-consistent materials greater attention and to process them in greater detail and to a greater depth. Finally, mood-consistent materials are also more likely to selectively remind subjects of relevant episodes from their past, leading to the slower and deeper processing and superior recall of such details. Accordingly, we expected people to pay preferential attention to mood-consistent information and to take significantly longer to learn about and encode such characteristics about others.

Our predictions were quite different for actual judgments. We expected mood to bias the quality of subjects' impression-formation judgments (Forgas et al., 1984; Gouaux, 1971; Griffitt, 1970) and mood-consistent judgments to take less time to make than inconsistent judgments. As Craik and Tulving (1975) suggested, the richer the conceptual schema an event is related to at encoding, the more elaborate the memory trace and the faster the retrieval. At the time of judgment, we expected that mood-consistent information about the target person would be retrieved faster and in greater numbers than inconsistent information. Accordingly, happy subjects should make more positive judgments, sad judges should make more negative judgments, and such judgments should be

made faster than mood-inconsistent judgments. Some evidence also suggests, however, that positive moods may be more effective than negative moods in influencing social judgments (Forgas & Bower, 1988; Forgas et al., 1984). Some models (cf. Clark & Isen, 1982) explicitly allow for the different influence of good as opposed to bad moods. In addition to the usual *automatic* processing strategy, *controlled* processing may be used to focus preferentially on positive materials to achieve a more positive mood state. This may limit the impact of negative mood effects on selective attention and memory. Our data will also be relevant to examining whether mood-induced biases in person perception are similar across good and bad moods.

Finally, the superior learning of mood-congruent materials should also influence our later memories about the people we encounter. Although mood may not have a robust effect on some retrieval processes (Blaney, 1986; Bower, 1985; Bower & Mayer, 1985), the richer associations and greater attention to mood-consistent characteristics at the time of encoding should result in better memory for such details (Craik & Tulving, 1975). There is some evidence that people tend to pay more attention to information consistent with their own mood and remember such details better (Blaney, 1986; Bower et al., 1981). In this study, we sought to expand these findings by directly measuring the time taken by happy or sad subjects to process each new item of positive or negative information about a person and to evaluate their later recall and recognition of such details.

Thus our first hypothesis is that judges should pay preferential attention to mood-consistent details of the targets. We expected happy people to take longer to deal with positive information and sad people to take longer to deal with negative information about others. Mood was also expected to influence both the quality and latency of impression-formation judgments. We expected happy subjects to make more positive and fewer negative judgments, and to make positive judgments faster. Exactly the opposite was expected for unhappy subjects. This pattern is consistent with the predicted better learning and greater availability of mood-consistent evidence and interpretational categories for use in judgments (cf. Bower, 1981, 1983; Clark & Isen, 1982; Forgas et al., 1984). Finally, we also expected recall and recognition to be superior for the mood-congruent characteristics of the target persons.

Method

OVERVIEW

A positive or negative mood state was induced in subjects through manipulated feedback about their performance on a bogus test. Next, in an allegedly separate experiment, four realistic person descriptions were presented, each containing an equal number of positive and negative details. Impression-formation judgments of each character were also obtained. The exact time taken to read each descriptive sentence and to make each judgment was recorded. Finally, subjects' cued recall and recognition memory for details of the target persons were tested.

SUBJECTS

Fifty-two undergraduates (24 men and 28 women) participated in the study either for course credit or for money. Three additional subjects (2 women and 1 man) had to be eliminated from the analysis because of missing data owing to computer malfunction.

STIMULUS MATERIALS

We constructed four stimulus character descriptions, each consisting of 12 brief sentences. Each sentence communicated positive or negative information about the target character (e.g., "In grade school Bob was always very good at sports," "Cindy is short and very plain looking," "Steven is a generous and extraverted person"). The first and last sentences for each character were affectively neutral, describing common and banal features (e.g., catches the bus to work, lives in an apartment). The other 10 sentences were further subdivided, with 5 statements communicating information about the targets' socioemotional characteristics (e.g., friendliness, popularity) and 5 statements communicating information about his or her task competence (e.g., skill, intelligence). Thus each character description included relevant information about the two most common dimensions found in person perception research, namely, likability and competence (cf. Forgas, 1985).

Learning information about people depends not only on affective quality but also on many other characteristics, such as personal relevance, associations, information content, complexity, length, and so on. To control for such extraneous variables, we used two parallel stimulus lists within each mood condition, each incorporating lexically matched statements differing in affective quality only. This was achieved by switching only the evaluative descriptors between the two alternate sets. For example, if John was described in Set A as "always getting good marks at school," in Set B he was presented as "always getting bad marks school." Because the change of affective meaning was achieved by the substitution of single words (e.g., *good* for *bad*, *clever* for *stupid*), the two alternative versions of each character were as similar as possible in terms of length, semantic clarity, and syntactic complexity, and both occurred with the same frequency within each mood condition.

MOOD MANIPULATION TECHNIQUE

Mood was manipulated by giving subjects bogus feedback about their "good" or "bad" performance on a psychological test that allegedly measured social adjustment and personality. This technique, although it requires particularly careful debriefing (see Debriefing), had several advantages when compared with other mood manipulation procedures such as hypnosis (Bower, 1981), self-statements (Velten, 1968), or giving small presents (Clark & Isen, 1982). The false-feedback procedure can be used with any population, not just those who are highly hypnotizable. The resulting mood state is more personally relevant and enduring than commonly obtained by most nonhypnotic procedures. The procedure can induce both positive and negative moods, and the situational context is realistic and contains few demand characteristics.

A 50-item questionnaire assessing social adjustment and personality was used as the basis of the false-feedback manipulation. We selected items from published scales dealing with constructs such as social skills, loneliness, shyness, and self-monitoring. After completing the questionnaire, subjects were given detailed positive or negative feedback about their performance by trained confederates (see Procedure for details). Previous researchers have found this technique to result in a strong and enduring mood state that shows only a moderate decline even after 25 min of unrelated activity (cf. Forgas & Hepperlin, 1982). The present findings also confirm the technique's effectiveness (see Results).

PROCEDURE

Subjects were recruited to participate in two short, unrelated studies conducted by two different experimenters during a 1-hr session described as "a questionnaire study of personality and social adjustment" and an "experiment in person perception." On arrival, subjects were greeted by the first experimenter, a woman, who led them to a room equipped with chairs and tables and piles of blank or completed questionnaires. She reiterated that in order to save subjects' time, they would he asked to participate in two separate studies during the next hour. The first study involved the administration of a questionnaire that was described as measuring

> general social adjustment and personality in a student population that was found to be an extremely reliable and valid measure of these constructs in the past. Most people find it very useful in gaining a more objective and balanced view of themselves.

The questionnaire was then administered. Most subjects completed it in 8 to 10 min. The experimenter then informed subjects that she would score their answers immediately and give some feedback about their performance. She then proceeded to "score" the questionnaire using a prepared scoring template, jotting down several subscores and periodically consulting an impressive-looking bound "scoring manual." As the first scores became available, the experimenter would make increasingly strong signals indicating approval (head nods, smiles, mumbled comments such as "yes, yes," "good," "very good," "excellent") or disappointment (head shakes, frowns, mumbled comments such as "no," "bad," "pity," or "this is terrible"), depending on the mood condition to which the subject was assigned.

Once the scoring was completed, the experimenter would turn to the subject and say,

> This is very good (very bad). You have done much better (much worse) than the average score for students in your age group. You obviously have an excellent (problematic) personality, and you find most social situations very easy (quite diffi-

> cult) to handle. If you have any more questions about this study, I will discuss it with you later but right now our time is up, and you will have to go to another room to participate in the second study you have to do today.

In addition to this verbal information, the interpersonal behavior of the experimenter was also carefully manipulated to communicate liking and admiration or dislike and condescension in the two mood conditions.

PROCEDURE IN THE PERSON-PERCEPTION EXPERIMENT

Following the mood manipulation, subjects were sent to an adjacent room where a second female experimenter introduced the person perception task. Subjects were told,

> Information about different people will be presented sentence by sentence on a computer screen. Your task is to read each sentence carefully, trying to form as clear an impression about that person as possible. When you are finished with one sentence, press the space bar and the next sentence will appear. You will also be asked some questions about each of the characters, which you can also answer on the computer keyboard.

All necessary information, together with practice trials, was repeated on the computer screen. Subjects were left alone in an experimental cubicle until they had completed the task.

Subjects rated each character on eight 9-point rating scales. The scales were selected from the person-perception literature so as to tap the most common dimensions relevant to this task. These dimensions consisted of the following items: self-confident/shy, likable/dislikable, competent/incompetent, happy/unhappy, intelligent/unintelligent, good/hard to work with, likely/unlikely to have a good marriage, and likely/unlikely to do well in his or her job. In addition, to validate the effectiveness of the mood manipulation, at three different times during the procedure, covert questions (inserted among distracter items such as "Are you sitting comfortably?" Are you ready for the next sentence?) were used to ask subjects to rate their own mood state on 9-point happy–sad scales on the screen.

After reading about and making judgments of all four characters, a short (about 4 min) intervening period followed in which subjects were asked to perform some simple arithmetic calculations. At the end of this period, the experimenter, who was blind to the mood condition prior to this point, briefly inquired about the subject's performance on the personality questionnaire and indicated her belief in the reliability and validity of the instrument. This was done to reactivate the manipulated mood state. Next, subjects were given a cued recall test that asked them to "recall and write down everything you can remember about each of the characters you read about whose names appear on the top of each page."

Finally, a three-alternative forced-choice recognition test was administered. Each cluster consisted of one original and two distracter items. The first distracter was an evaluatively similar paraphrase of the original sentence. The second distracter was lexically identical to the original except for the evaluative term, which was replaced by its antonym.

DEBRIEFING

Because of the deceptive nature of the mood manipulation, an extensive and carefully designed debriefing session concluded the procedure. Care was taken to create a friendly and informal atmosphere in which the aims and rationale for the study were fully explained. The possible perseverance of the effects of the false feedback was described (cf. Ross, Lepper, & Hubbard, 1975), and subjects were invited to inspect all the materials used. All subjects understood and accepted the rationale of the procedure, and we found no evidence of any residual negative effects. The debriefing also revealed that the mood-manipulation procedure was accepted at face value by all subjects, and none of the subjects suspected a link between the mood manipulation and the person-perception task.

Results and Discussion

The results will be discussed in terms of the five main dependent variables we studied: (a) selective attention (reading times), (b) impression formation, (c) judgmental latencies, and (d) recall and (e) recognition memory for persons. As no significant differences owing to the subjects' sex or the two alternative lists of person descriptions were found, we will not consider these variables further.

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EFFECTIVENESS OF THE MOOD MANIPULATION

To establish the effectiveness of our mood-manipulation procedure, we had subjects rate their own current mood state on 9-point happy–sad scales on three occasions during the procedure. An analysis of the average of these self-ratings showed a significant overall difference in mood between subjects in the happy and sad conditions, $F(1, 50) = 6.54$, $p < .025$, with only a moderate decline over time. We concluded that our mood manipulation procedure was effective in generating strong and enduring mood states. Our own observations, as well as comments by subjects during the debriefing, confirmed that all subjects took the false feedback they received seriously and reacted with the expected elated or depressed mood state.

READING TIMES: MOOD EFFECTS ON SELECTIVE ATTENTION

We next looked at the influence of mood on the way subjects attended to the various details of the target people. The time taken by subjects to read about the person stimuli was significantly affected by their mood state, $F(1, 50) = 8.21$, $p < .01$. Overall, subjects in a happy mood were almost 1 s faster in dealing with one unit of stimulus information than were subjects in a bad mood (6,074 ms vs. 7,056 ms). These results are consistent with the notion that a happy, elated mood is often associated with faster and more decisive information-processing strategies. Isen and Means (1983) also found that in dealing with complex and multidimensional information, "good-mood" subjects make faster decisions.

In accordance with our major hypothesis, we also found a significant interaction effect between the subjects' mood state and the evaluative valence of the material they read, $F(1, 50) = 12.30$, $p < .01$ (see Figure 11.1). Subjects in a good mood took longer to read positive than negative information (6,330 ms vs. 5,818 ms), $F(1, 50) = 6.01$, $p < .025$, and subjects who experienced a depressed mood spent longer reading about the negative than the positive characteristics of people (7,385 ms vs. 6,727 ms), $F(1, 50) = 5.58$, $p < .025$. This finding supported our expectation that mood-consistent information would receive more detailed attention and processing.

Mood activates richer and more elaborate background schemas relevant to the encoding of mood-congruent person descriptions, accounting for the longer processing of such details. Several models (Bower, 1983; Clark & Isen, 1982) specifically predict that mood increases the availability of mood-related thoughts or information. Because of the preactivation of an enriched associative base,

> pleasant events will receive more processing when people are in a pleasant mood, and unpleasant events will receive more processing when they are in an unpleasant mood. As a result, subjects should learn to a greater degree events that are congruent with their current emotion. (Bower et al., 1981, p. 453)

Selective attention to mood-consistent information can also be enhanced by motivational factors. Mood-consistent material may be focused on because it can serve to intensify existing feelings or to selectively remind us of relevant episodes from the past (Bower et al., 1981). The present results are the first empirically to demonstrate mood-based differences in selective attention and processing times in a realistic person-perception task, a finding of considerable theoretical and applied importance. The pattern of our results suggests that such attention and learning biases may occur both in good- and in bad-mood states (see Figure 11.1).

IMPRESSION FORMATION: MOOD AND THE QUALITY OF PERSON-PERCEPTION JUDGMENTS

We also predicted that overall, impression-formation judgments should be biased in the direction of the prevailing mood. An analysis of variance of mean impression-formation judgments (with low numbers corresponding to more positive impressions on a 9-point scale) indeed showed that happy subjects formed significantly more favorable impressions of the targets than did sad subjects (3.87 vs. 6.19), $F(1, 50) = 14.25$, $p < .01$.

Recent research has shown that many other everyday judgments (Forgas & Moylan, 1987), including interpretations of ongoing social behaviors (Forgas et al., 1984), can be influenced by transient mood. However, positive and negative mood had somewhat different effects on judgments in this as well as in several other studies (for a review, see Forgas & Bower, 1988). To gain further insight into such differences, we decided to analyze the actual number of positive and nega-

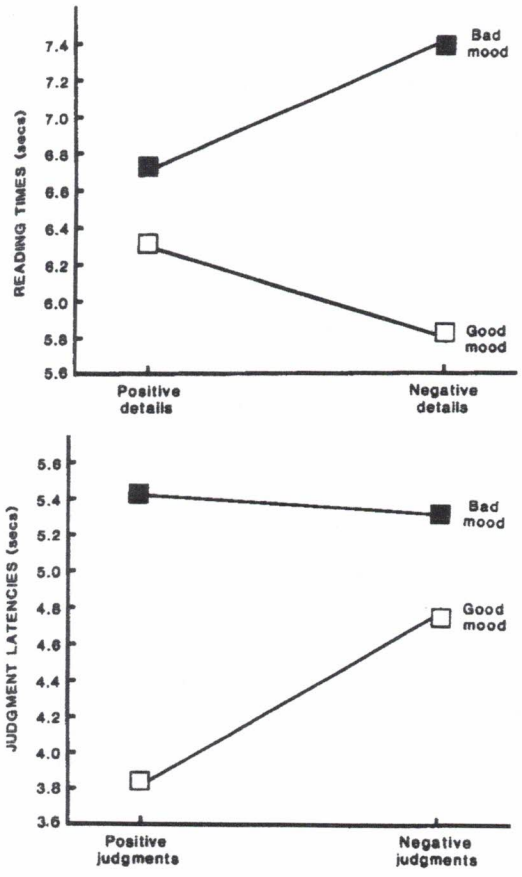

FIGURE 11.1 ■ The effects of happy or sad mood on the time taken by subjects to learn about the positive or negative characteristics of people (top graph) and to make positive or negative impression-formation judgments (bottom graph).

tive judgments (defined as falling on either side of the neutral point on a scale) made by happy and sad subjects. The maximum number of person-perception judgments made by each subject was 32 (8 judgments of each of four stimulus persons). As expected, subjects in a good mood made considerably more favorable than unfavorable judgments (17.35 vs. 12.61). We found a similar but less pronounced pattern with subjects experiencing a bad mood (15.24 vs. 14.61). A statistical comparison of the judgmental patterns of good-mood as opposed to bad-mood subjects (based on the balance of positive over negative judgments for each group) again revealed a significant mood effect, $F(1, 50) = 7.69$, $p < .01$ (see Figure 11.2). This result confirms our hypothesis that temporary mood states indeed influence the quality of impression-formation judgments (cf. Forgas et al., 1984; Gouaux, 1971; Gouaux & Summers, 1973), although this effect seems far more pronounced in positive than in negative moods in this as well as in other studies (cf. Forgas et al., 1984).

JUDGMENT LATENCIES

How did mood affect the time subjects took to make positive or negative person-perception judgments? For each judgmental dimension (e.g., happy–sad, likable–dislikable), we measured the average time taken by each subject in a happy or sad mood to make each judgment falling on the positive or the negative side of a scale. We found a mood main effect indicating that both kinds of judgments took longer to make in a bad mood than in a good mood (5,391 ms vs. 4,259 ms), $F(1, 50) = 13.97$, $p < .01$. A second main effect revealed that irrespective of mood, negative judgments took somewhat longer to make than did positive judgments (5,027 ms vs. 4,624 ms), $F(1, 50) = 4.99$, $p < .05$. This difference probably reflects the fact that the majority of our interpersonal judgments tend to be positive (Matlin & Stang, 1978) and to be made with a high degree of automaticity. Negative judgments, in contrast, are more uncommon and probably require more controlled and elaborate information processing than is the case with positive judgments.

In addition to these main effects, the expected significant Mood × Judgment Type interaction was also found, $F(1, 50) = 8.\ 13$, $p < .01$ (see Figure 11.1). When in a good mood, subjects made positive judgments considerably faster than they made negative judgments (3,8 13 ms vs. 4,706 ms), $F(1, 50) = 12.71$, $p < .01$. In a negative mood, negative judgments took marginally less time than did positive judgments (5,349 ms vs. 5,434 ms), although this difference was not significant. As hypothesized, these results show that mood-consistent judgments take less time to make than inconsistent judgments. These reaction-time differences may be partly related to the previous finding that mood-consistent judgments are also more frequently made, as quick response latency is often a characteristic of more frequent and dominant responses. The present study, however, is the first in which this frequency–latency relation has been demonstrated with respect to mood-primed materials.

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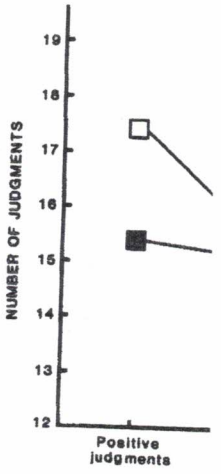

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sistent judgments are theoretically consistent with the better learning and availability of mood-associated constructs (Bower, 1983; Clark & Isen, 1982). In the present case, the slower and more detailed encoding of mood-consistent details found earlier is likely to have resulted in the superior availability of evidence for mood-consistent judgments. In other words, selective attention and encoding biases probably account for a large part of the greater frequency and speed of mood-consistent impression-formation judgments found here. Interpretive biases may have played an additional, although smaller, role. As judgments of people are largely a matter of interpretation and inference (Forgas, 1983; Heider, 1958; Kelly, 1955), mood may function as "a 'cognitive set' to bias the way perceivers interpret social messages" (Bower et al., 1981, p. 453).

It is an interesting implication of cognitive-priming models that it is the slower and more thorough encoding of mood-consistent information that allows later mood-consistent judgments to be faster and more frequent. By directly demonstrating such a pattern in impression formation, our findings add significant new evidence to the growing number of studies that illustrate the importance of mood states in a variety of social judgments (Forgas & Bower, 1988). An interesting question is whether the same judgmental biases would also occur when encoding and judgmental moods are different, or when there is a greater temporal separation between the two events. We hope to explore this in the future.

It is noteworthy that mood-based distortions in judgmental latencies seem more pronounced in a good mood than in a bad mood. Although in the absence of a neutral condition we cannot be certain that this was caused by a genuine mood asymmetry, other evidence also suggests that the effects of negative mood states on social judgments are often subject to constraints. For example, bad mood is less likely to distort judgments of others than judgments of the self, both by depressed subjects (Hoehn-Hyde, Schlottmann, & Rush, 1982; Garber & Hollon, 1980) and by otherwise normal judges (Forgas et al., 1984; Pietromonaco & Markus, 1985). Several factors may contribute to the weakness or absence of negative mood biases when judging others. Perhaps as a result of internalized cultural norms, people learn to constrain the effects of their bad moods on social judgments. Ceiling effects may also have limited the impact of negative moods on judgmental latencies here, as judgments took far longer to make in a bad mood than in a good mood. Increasingly, evidence suggests that the basic and symmetrical mood effects predicted by cognitive theories such as the network model may be further modulated by a variety of social, cultural, and contextual factors that have received little attention to date (Forgas, 1981, 1983).

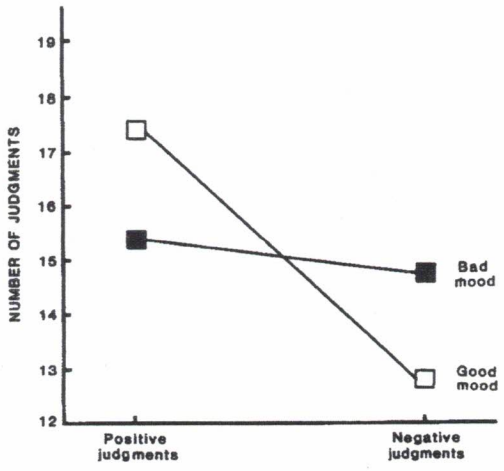

FIGURE 11.2 ■ The effects of happy or sad mood on the number of positive and negative person-perception judgments made by subjects.

MOOD EFFECTS ON RECALL ABOUT PEOPLE

How did subjects' mood and the affective quality of the information influence memory for the stimulus characters? An analysis of the recall data indicated that good-mood subjects remembered slightly more of the 40 descriptive statements they read than did bad-mood subjects (16.75 vs. 15.31), but the difference was not significant, $F(1, 50) < 1.0$. The affective loading of the information had a significant influence on memory, $F(1, 50) = 4.33$, $p < .05$): Overall, more positive than negative details were remembered (8.80/20 vs. 7.23/20). The bias toward recalling more positive information exemplifies the positivity bias commonly found in many social judgments: All things being equal, people tend to see and remember others in a positive rather than a negative light, in accordance with the cultural expectations that regulate expected and desirable standards of conduct (Forgas, 1985).

Our major hypothesis predicted an interaction

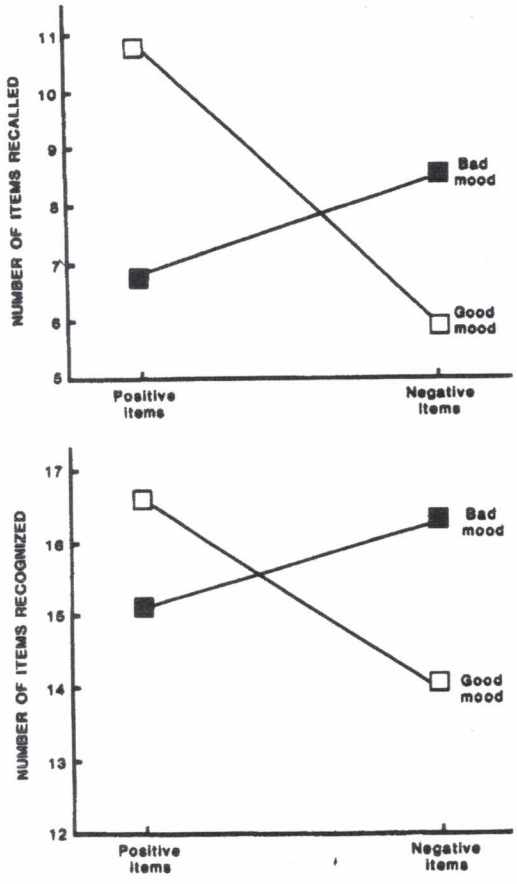

FIGURE 11.3 ■ The effects of happy or sad learning mood on subjects' ability to recall (top graph) and to recognize (bottom graph) the positive and negative details of the target characters.

between mood and the affective quality of the information leading to the superior learning and recall of mood-congruent items. Indeed, mood-congruent details were better remembered than mood-incongruent information, $F(1, 50) = 22.18$, $p < .01$. Of a total of 20 positive and 20 negative characteristics shown to each subject, those in the good-mood condition remembered 10.83 positive and 5.92 negative items. $F(1, 50) = 9.09)$, $p < .01$. In turn, subjects in a bad mood remembered somewhat more negative (8.54) than positive (6.77) details about the target persons, again a significant difference, $F(1, 50) = 4.27$, $p < .05$ (see Figure 11.3). Having already found a significantly longer processing time for mood-congruent descriptions of people, the superior recall of such information clearly reflects an encoding bias. This finding extends the mood-congruity effect reported by Bower et al. (1981) and others to the domain of person-perception judgments. Interestingly, although retrieval mood effects on memory were not particularly robust (Blaney, 1986; Bower, 1985; Bower & Mayer, 1985), the present results suggest that encoding mood biases may play an important role in the kind of information that is later remembered about a person.

MOOD AND RECOGNITION MEMORY FOR PERSONS

In our recognition test, subjects were provided with three alternative choices for each of the person-description items they read: (a) the original statement, (b) an evaluatively similar distractor, and (c) a lexically similar distracter. The correct recognition data indicated similar but weaker mood effects than those found with the recall task. Neither the mood nor the evaluative valence of the information resulted in a significant main effect, $F(1, 50) < 1.0$. However, there was a small but significant Mood × Description Type interaction, $F(1, 50) = 9.09$, $p < .05$. This indicated that subjects in a good mood correctly recognized more positive than negative information about the targets (16.62 vs. 14.01), $F(1, 50) = 5.11$, $p < .01$, and subjects in a bad mood recognized somewhat more negative than positive details (16.27 vs. 15.13), $F(1, 50) < 1.0$ (see Figure 11.3). Such mood biases in recognition memory are of considerable interest because it is often assumed that the strong retrieval cues provided by recognition tasks generally mask the weaker mood effects (cf. Bower, 1981). Our findings suggest that recognition biases may in fact occur in person perception as a result of strong encoding (but probably not retrieval) of mood effects.

Of particular interest here is subjects' further analysis of incorrect recognition judgments ("false alarms"). We expected that evaluatively consistent distracters would be erroneously recognized as correct more frequently than would lexically consistent distracters (same words but different evaluative tone). We found some evidence to support this hypothesis. Overall, more mood-consistent distracters were recognized as correct than lexically consistent distractors (2.89 vs. 1.61), $F(1, 50) = 5.64$, $p < .025$. This tendency was equally characteristic of subjects irrespective of the happy or sad mood inductions they received. The most

obvious explanation for such mood-consistent recognition errors is that subjects used their overall evaluative impressions about the target as a directive cue in identifying what they thought to be familiar information about others. What is remarkable is that evaluatively consistent but otherwise completely novel statements seemed to be more likely to trigger such false recognition judgments than statements that were lexically almost identical to the originals but different in evaluative tone.

Summary and Conclusions

We argued in this study that the congruence between the emotional state of a perceiver and the emotional character of information received about others may play a significant role in how person-perception judgments are commonly made. We found a wide range of evidence to support such a view. Subjects took longer to deal with mood-consistent information about others. Their later recall and recognition of such details was superior to their memory for incongruent characteristics. Their recognition errors also tended to be biased toward mood-consistent information. The quality and latency of person-perception judgments were also significantly influenced by mood. Mood-consistent judgments were made both more frequently and more quickly than mood-inconsistent judgments, probably as a result of the better encoding and availability of mood-consistent evidence. These findings are of considerable theoretical importance. They provide robust and unambiguous evidence for the kind of mood-contingent processing biases implied by the models put forward by Bower (1981, 1983), Clark and Isen (1982) and others. The different consequences of mood for encoding and judgmental latencies are consistent with these cognitive-priming theories.

Person perception is a highly complex process, involving a great deal of inference and reconstruction in the way observed details of a person are selectively encoded, stored, retrieved, and integrated (Asch, 1946; Heider, 1958; Kelly, 1955; Schneider, 1973). Apart from a few studies (cf. Feshbach & Singer, 1957; Forgas et al., 1984; Gouaux, 1971; Griffitt, 1970), the role of affect in this process has been relatively neglected (Forgas & Bower, 1988). Considering the widespread use of person-perception skills in the legal system, the helping professions, personnel selection, politics, and the like, evidence of affective biases in this process is clearly of considerable practical importance. Evaluating the conditions under which such mood-dependent biases can be controlled or eliminated is an obvious task for future research.

Theoretically, our findings are largely consistent with the semantic network–spreading activation model of Bower (1981, 1983) and similar formulations by Clark and Isen (1982) and others. When it comes to very complex kinds of social judgments, as in the present ease, however, we are also likely to find various motivational, cultural, and normative influences superimposed on the purely cognitive processes assumed by such models. Cognitive-priming theories have difficulty accounting for the context sensitivity of mood effects found in several studies (Forgas et al., 1984). Clearly the incorporation of additional sociocultural variables in basic cognitive-priming models is an important theoretical task if the complex processes underlying everyday social judgments are to be fully understood (Clore, 1985; Forgas, 1981, 1983).

Other theoretical models are also relevant to certain aspects of our data. The long tradition of research in social psychology concerned with social comparison processes (Festinger, 1954; Wills, 1981) and the effects of self-esteem on person-perception judgments may account for some of the qualitative biases found here. Clore's (1985) interesting misattribution theory of mood effects on social judgments is also consistent with some of the impression-formation biases we demonstrated. Despite their obvious relevance, however, none of these models offers a parsimonious alternative explanation for all of our findings. In particular, predictions about reading and judgmental latencies and memory performance are not an integral part of these theories. Cognitive-priming models continue to offer the best overall explanation of our data at the present time (Bower, 1981, 1983; Clark & Isen, 1982).

Although a comparison of positive and negative mood effects is difficult without a neutral condition, it is interesting that positive mood effects appeared more robust than negative mood biases in our judgmental and memory (but not the reading times) data. Earlier research also showed that negative mood effects on social judgments are on the whole less pronounced and may depend on a variety of contextual factors (Forgas & Bower, 1988; Forgas et al., 1984). Clinical studies also suggest that mood-dependent biases in depression

can be target and context specific (Garber & Hollon, 1980; Hoehn-Hyde et al., 1982; Pietromonaco & Markus, 1985). Clark and Isen's (1982) notion of controlled processing may indeed account for some of the less robust negative mood effects apparent here and elsewhere. A further exploration of the conditions under which controlled processing occurs may well indicate that cultural and normative factors play an important role in triggering such a processing strategy (Forgas, 1981, 1983). Given that person-perception judgments play a crucial role in many everyday decisions, and that such judgments in real life are probably even more fraught with emotional reactions than is the case in laboratory experiments, the investigation of mood-induced biases in impression formation in various social contexts should remain one of the major concerns of social cognition research.

REFERENCES

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41,* 258–290.

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.

Bower, G. H. (1983). Affect and cognition. *Philosophical Transactions of the Royal Society, 302*(B), 387–403.

Bower, G. H. (1985, May). *Review of research on mood and memory.* Paper presented at the meeting of the British Psychological Society, Oxford, England.

Bower, G. H., & Cohen, P. R. (1982). Emotional influences in memory and thinking: Data and theory. In M. S. Clark & S. T. Fiske (Eds.), *Affect and cognition* (pp. 291–331). Hillsdale, NJ: Erlbaum.

Bower, G. H., Gilligan, S. G., & Monteiro, K. P. (1981). Selectivity of learning caused by affective states. *Journal of Experimental Psychology: General, 110,* 451-473.

Bower, G. H., & Mayer, J. D. (1985). Failure to replicate mood-dependent retrieval. *Bulletin of the Psychonomic Society, 23,* 39–42.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review, 64,* 123–152.

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

Clark, M. S., & Waddell, B. A. (1983). Effects of moods on thoughts about helping, attraction and information acquisition. *Social Psychology Quarterly, 46,* 31–35.

Clore, G. L. (1985, September). *The cognitive consequences of emotion and feeling.* Paper presented at the annual convention of the American Psychological Association, Los Angeles.

Craik, F. I. M., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General, 104,* 268–294.

Feshbach, S., & Singer, R. D. (1957). The effects of fear arousal and suppression of fear upon social perception. *Journal of Abnormal and Social Psychology, 55,* 283–288.

Festinger, L. A. (1954). A theory of social comparison processes. *Human Relations, 7,* 117–140.

Forgas, J. P. (Ed.). (1981). *Social cognition: Perspectives on everyday understanding.* London: Academic Press.

Forgas, J. P .(1983). What is social about social cognition? *British Journal of Social Psychology, 22,* 129–144.

Forgas, J. P. (1985). *Interpersonal behavior: The psychology of social interaction.* Oxford: Pergamon Press.

Forgas, J. P., & Bower, G. H. (1988). Mood effects on social judgments. In K. Fiedler & J. P. Forgas (Eds.), *Affect, cognition and social behavior.* Toronto, Canada: Hogrefe.

Forgas, J. P., Bower, G. H., & Krantz, S. (1984). The influence of mood on perceptions of social interactions. *Journal of Experimental Social Psychology, 20,* 497–513.

Forgas, J. P., & Hepperlin, C. (1982). *The effects of mood on memory and social judgments.* Unpublished manuscript, University of New South Wales, Sydney, Australia.

Forgas, J. P., & Moylan, S. (1987). After the movies: The effects of mood on social judgments. *Personality and Social Psychology Bulletin, 13,* 467–477.

Freud, S. (1952). *A general introduction to psychoanalysis.* New York: Washington Square Press. (Original work published 1917)

Garber, J., & Hollon, S. D. (1980). Universal versus personal helplessness in depression: Belief in uncontrollability or incompetence? *Journal of Abnormal Psychology, 89,* 56–66.

Gouaux, C. (1971). Induced affective states and interpersonal attraction. *Journal of Personality and Social Psychology, 20,* 37–43.

Gouaux, C., & Summers, K. (1973). Interpersonal attraction as a function of affective state and affective change. *Journal of Research in Personality, 7,* 254–260.

Griffitt, W. (1970). Environmental effects on interpersonal behavior. Ambient effective temperature and attraction. *Journal of Personality and Social Psychology, 15,* 14–144.

Heider, E. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Hoehn-Hyde, D., Schlottmann, R. S., & Rush, A. J. (1982). Perceptions of social interactions in depressed psychiatric patients. *Journal of Consulting and Clinical Psychology, 50,* 209–212.

Isen, A. M., & Means, B. (1983). The influence of positive affect on decision-making strategy. *Social Cognition, 2,* 18–31.

Kelly, G. A. (1955). *The psychology of personal constructs.* New York: Norton.

Matlin, M., & Stang, D. (1978). *The Pollyanna principle: Selectivity in language, memory and thought.* Cambridge, MA: Schenkman.

Pietromonaco, P. R., & Markus, H. (1985). The nature of negative thoughts in depression. *Journal of Personality and Social Psychology, 3,* 799–807.

Ross, L., Lepper, M., & Hubbard, M. (1975). Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology, 32,* 880–892.

Schiffenbauer, A. (1974). Effect of observer's emotional state on judgments of the emotional state of others. *Journal of Personality and Social Psychology, 30,* 31–35.

Schneider, D. J. (1973). Imp
Psychological Bulletin, 7

Taylor, S. E. (1981). On the
psychology. In J. Harvey
and the environment (pp.

Schneider, D. J. (1973). Implicit personality theory: A review. *Psychological Bulletin, 79,* 294–309.

Taylor, S. E. (1981). On the interface of cognitive and social psychology. In J. Harvey (Ed.), *Cognition, social behavior and the environment* (pp. 241–276). Hillsdale, NJ: Erlbaum.

Velten, E. (1968). A laboratory task for induction of mood states. *Behavior Research and Therapy 6,* 473–482.

Wills, T. A. (1981). Downward comparison principles in social psychology. *Psychological Bulletin, 90,* 245–271.