Understanding Effects of Mood Through the Elaboration Likelihood and Flexible Correction Models

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Our discussion uses the elaboration likelihood model (ELM; Petty & Cacioppo, 1986b) and the flexible correction model (FCM; Wegener & Petty, 1997) to understand various mood effects. These theoretical positions complement one another in that the ELM conceptually organizes effects of mood largely when the potential biasing effects of mood are not salient to the perceiver, whereas the FCM focuses on individuals' attempts to remove influences of mood that are perceived as inappropriate. After briefly describing the ELM and FCM, we explain how these perspectives can account for various effects of mood on judgment and information processing.

ELM: EFFECTS OF VARIABLES WHEN BIAS IS NOT SALIENT

According to the ELM, people generally want to hold reasonable views about the extent to which the various attitude objects in their environment (e.g., social issues, people, etc.) are good or bad. Yet across situations, individuals, and objects, there are likely to be differences in the extent to which people are willing and able to put a high level of cognitive effort into forming (and reforming) views of these attitude objects. To the extent that people are both motivated and able to put cognitive effort into forming or changing their views of an object, they are likely to carefully scrutinize information perceived as relevant to judging that object. That is, they are likely to effortfully assess the "central merits" of an object or advocacy in order to determine the extent to which it is good or bad (see Petty & Cacioppo, 1986a). Therefore, the ELM postulates an elaboration con-
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Another way for a variable to influence judgments when motivation and ability to think are high is to bias the processing of judgment-relevant information. That is, if multiple interpretations of judgment-relevant information are possible, a variable might make one interpretation more likely than the other equally plausible interpretations.\(^1\) For example, it has been repeatedly shown that people assume that attractive people possess other positive traits (e.g., Cooper, 1981; Thorndike, 1920). This halo effect could bias processing of information presented by an attractive person by making positive interpretations of ambiguous information more likely than if the source were not attractive. This could occur for a variety of reasons. For example, in some cases, the quality or qualities of the source might prime certain constructs that are used to disambiguate the information that is considered. In other cases, knowledge structures associated with the source characteristics (e.g., naive theories about what characteristics are possessed by attractive people) could be used to make inferences about information not presented or about the ambiguous implications of presented information. Biased processing should be less likely to the extent that judgment-relevant information is quite clear and unambiguous (e.g., see Chaiken & Maheswaran, 1994; Tesser & Cowan, 1975).

For some situations, people, or objects, however, motivation and/or ability to process judgment-relevant information is lacking. When this is the case, people devote less effort to assessing the central merits of an object. For example, they might consider fewer pieces of central evidence than individuals who are highly motivated and able to think (or they might consider the same pieces of evidence, but do so in a less thorough, more cursory way). In addition, when motivation or ability is low, people are more likely to use some kind of shortcut based on aspects of the message or setting that are peripheral to the central merits of the target. For example, people might come to an opinion of the object based solely on who presents information about the object, with little or no consideration of the central merits of the judgment-relevant information. Thus people might go along with an advocacy simply because the source is attractive, expert, or likable (Chaiken, 1980; Petty, Cacioppo, & Goldman, 1981; Petty, Cacioppo, & Schumann, 1983; see Petty & Wegener, 1998a, for additional discussion).

Thus, when either motivation or ability to process information is low, a variable might affect judgments if that variable can operate as part of a shortcut strategy for arriving at a reasonable view of the object (or if that

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\(^1\)Use of the word bias is not meant to imply a necessary inaccuracy or incorrectness. Rather, the term bias is used to denote a situation in which one of a number of equally plausible interpretations is consistently chosen based on the presence or absence of some other variable. Such bias effects could come about for either motivational or ability-based reasons (see Petty, Priester, & Wegener, 1994).
variable can be a salient but easy-to-process piece of relevant evidence). A wide variety of variables can be incorporated into simple decision rules regarding object perceptions. One common example of such a decision rule might be that “more is better” (e.g., Petty & Cacioppo, 1984a). Thus, if a large amount of information supporting a favorable view of an object is presented, people who are unwilling or unable to scrutinize the information might simply agree with the advocacy even if more careful scrutiny of the presented information might have led to a different view.

Finally, according to the ELM, variables can also affect judgments by influencing one’s motivation and/or ability to think carefully about judgment-relevant information. Thus one might choose to think about information more fully if the source is attractive rather than unattractive (e.g., DeBono & Harmish, 1988; Puckett, Petty, Cacioppo, & Fisher, 1983). Of course, the likelihood of a variable influencing the amount of scrutiny is constrained by other variables in the judgment setting—factors both internal and external to the social perceiver. Thus, if the baseline likelihood of elaboration is already quite low (e.g., because distraction external to judgment-relevant information is at a high level; Kiesler & Mathog, 1968; Petty, Wells, & Brock, 1976) or quite high (e.g., because the judgment target is important or personally relevant [Leippe & Elkin, 1987; Petty et al., 1981; Petty et al., 1985]) or because the people receiving judgment-relevant information are very high in “need for cognition” [Cacioppo & Petty, 1982b; Cacioppo, Petty, & Morris, 1983]), then impact of a variable on judgments is most likely to occur through the low- or high-elaboration roles outlined earlier. If background variables do not constrain elaboration to be particularly high or low and especially if a person is not sure whether or not effortless scrutiny of information about the target is merited, then the variable might affect judgments by helping to determine the level of thought given to the available judgment-relevant information.

In sum, according to the ELM, a variable can influence judgments (a) by serving as a central merit of a target, (b) by biasing processing of judgment-relevant information, (c) by serving as a peripheral cue to judging the target, and (d) by itself affecting the level of scrutiny given to judgment-relevant information. These different roles for variables are more or less likely depending on the overall baseline level of elaboration likelihood. Thus, the ELM is a model of moderated mediation (see Petty, Wegener, Fabrigar, Priester, & Cacioppo, 1993, for further discussion). Variables are most likely to bias processing of object-relevant information or to act as pieces of object-relevant information when extensive processing of information occurs (i.e., when motivation and ability are high; unless the variable can serve as a salient but very easily processed piece of information, which could also have an impact when minimal object-relevant scrutiny occurs). Impact of variables as peripheral cues is more likely when

motivation or ability is low, and influences of variables on amount of information scrutiny are more likely when elaboration likelihood is moderate (e.g., when people are unsure whether scrutiny of relevant information is merited or not).

It is important to note that although the ELM outlines the various roles that variables can serve to influence judgments (e.g., central merit, bias processing, etc.) and indicates when variables are most likely to take on these different roles, there are a number of contextual features that are left unspecified (see Petty & Cacioppo, 1986a, for additional discussion). For example, the specific content that constitutes a central merit of an object can differ across objects, perceivers, and situations. A feature or attribute (e.g., weighing 300 pounds) can be quite favorable when processed as a merit for one attitude object (e.g., judging a football tackle), can be unfavorable for another (e.g., judging a horse jockey), and irrelevant for other objects (e.g., judging a college professor). Some features (e.g., social image associated with the judgment target) might be chronically considered as relevant to the merits of the target by some people (e.g., high self-monitors; Snyder, 1979) or in some situations (e.g., when the dimension is primed; Shavitt & Fazio, 1991) but not by other people (e.g., low self-monitors; see Petty & Wegener, 1998b; Snyder & DeBono, 1989) or in other situations.

In addition, just as the ELM itself does not specify what information serves as a central merit in any given context, it does not specify what variables serve as peripheral cues. These too can vary with objects, perceivers, and people. Thus, for some people who love the color green, it could serve as a favorable cue, but for those who hate it, it could serve as a negative cue. Similarly, the ELM does not specify which levels of variables lead to increases versus decreases in processing of judgment-relevant information under relatively moderate levels of elaboration likelihood and which interpretations of ambiguous information are made more likely by particular biasing agents when elaboration likelihood is high. Rather, the ELM specifies the conditions under which each of the “multiple roles” is most likely to be assumed by variables under study (see Petty & Cacioppo, 1986a; Petty & Wegener, 1990).2

2For example, the ELM does not itself specify whether high levels of source expertise would lead to increases or decreases in scrutiny of judgment-relevant information at moderate baseline levels of elaboration. It could be that (at least in some circumstances) people would want to scrutinize what experts have to say more than what nonexperts do because experts are more likely to provide valid and valuable information or because recommendations by experts are more likely to be enacted (Heesacker, Petty, & Cacioppo, 1983; Petty & Cacioppo, 1986a). It could also be, however, that people would not need to scrutinize what experts say as much as what nonexperts say because they assume that an expert would not say something stupid, but a nonexpert’s recommendations might be erroneous. Or each of these motivations could hold in different situations (see Petty & Cacioppo, 1981).
Finally, it is important to note that according to the ELM, the same overall judgment outcome can take place for very different reasons. Thus a high level of a variable (e.g., source attractiveness) can lead to increases in favorability of judgment (a) because elaboration was low, but the high level of the variable was used as a favorable peripheral cue or easy-to-process piece of information; (b) because elaboration was high, and the high level of the variable served as a favorable piece of judgment-relevant information; (c) because elaboration was high, and the high level of the variable biased scrutiny of judgment-relevant information in a favorable direction; (d) because the high level of the variable increased the amount of scrutiny of judgment-relevant information, and scrutiny of this information led to favorable thoughts because the information was cogent; or (e) because the high level of the variable decreased the amount of scrutiny of judgment-relevant information, and because of the decreased scrutiny people failed to realize the flaws in the information. Also, just as the same judgment outcome can occur for different reasons, the same information (e.g., attractive source) can assume different roles in different situations and therefore lead to different outcomes (see also Petty & Cacioppo, 1986b; Petty & Wegener, 1998a, 1999). Thus an overall judgment outcome alone often provides rather ambiguous evidence regarding processes that might underlie the judgment outcome. Yet according to the ELM, the process by which any outcome is achieved is important because of the consequences for the judgment.

In conclusion, although the ELM provides a useful organizing framework, additional theoretical and empirical developments complement the ELM by specifying which processes enable particular variables to affect judgments within each relative level of elaboration likelihood. Thus, although we use the ELM as the overarching framework from which to understand the multiple roles for mood, we also note theoretical and empirical developments that complement the ELM framework by identifying many of the more specific processes by which mood can affect judgments at different levels of elaboration likelihood.

FCM: PERCEPTIONS AND JUDGMENT WHEN BIAS IS SALIENT

As we noted in the previous discussion, the ELM focuses on the effects of variables on judgment when issues of potential bias are not salient in the minds of perceivers. What happens, however, when people become aware that some aspects of themselves or the judgment setting might unduly or inappropriately influence judgments? According to our flexible correction model (FCM; Wegener & Petty, 1997), attempts at correction (i.e., removal or avoidance of bias) are guided by perceivers' naive theories of the biases potentially at work (see also Petty & Wegener, 1993; Wegener & Petty, 1995; Wegener, Petty, & Dunn, 1998). The FCM assumes that there is variation in the default (i.e., uncorrected) effects of variables and that people must be motivated and able to identify potential biases and to correct for their perceived effects if correction is to occur. Both identification of potential biases and corrective efforts themselves are guided by people's naive theories of the potential biases that might operate in any setting. Consistent with these notions, when opposite theories of bias have been empirically identified, corrections in opposite directions have occurred. This has been the case regardless of whether the opposite theories of bias were of different effects for the same context operating on different targets (Wegener & Petty, 1995), different effects for different contexts operating on the same targets (Wegener et al., 1998), or different effects for the same contexts operating on the same targets but perceived by different people (Wegener & Petty, 1995). In addition, variations in the magnitude of the perceived bias have been shown to predict the magnitude of corrections (Wegener & Petty, 1995).

According to the FCM, a given theory-based correction is more likely to occur to the extent that the theory is accessible in memory, is applicable to the target and setting, and serves the goals of the perceiver. Thus, to the extent that a given theory of bias is inaccessible, inapplicable, or at odds with the perceiver's goals, that theory is unlikely to guide corrections. Theory-based corrections are considered generally to require greater cognitive effort than not attempting correction does, though repeated experience with a particular type of correction could lead that correction process to become less effortful or even routinized (cf. Smith, 1989). If routinization occurs, corrections might take place even with little or no explicit awareness of the potentially biasing factor(s). In most cases, however, before such extensive experience with a given correction occurs, the FCM conceptualizes corrections as following some awareness of a potentially biasing factor or factors.

Because the ELM assumes that, in the absence of other salient motives, the "default" motive in judgment settings is accuracy, it predicts that people would attempt to disregard perceived biasing influences if they were made salient. The ELM does not specify, however, the mechanisms by which such avoidance of bias takes place, and here we rely on the FCM to complement the ELM. As described in subsequent sections, the FCM allows prediction of when "corrections" can produce reversed effects of some biasing factors. This is not to say that people are necessarily fully aware of the correction process, however. Even if people can sometimes state a theory of bias and even if such theories can predict
Although corrections guided by theories of bias are viewed as generally requiring some amount of cognitive effort, across people, situations, and targets there is variation in the amount of cognitive effort given to theory-based corrections (just as there is variation in cognitive effort given to judgments when corrections do not occur; see preceding section on the ELM). Therefore, similar to the ELM analysis of uncorrected judgments, corrected assessments based on greater cognitive effort are hypothesized to persist longer over time, to better resist future attempts at change, and to better predict additional judgments and behavior compared with corrected assessments based on lower levels of cognitive effort. Greater cognitive effort is hypothesized to lead to “stronger” (i.e., persistent, resistant, and predictive) assessments of targets because greater cognitive effort is likely to reflect judgments that have been related to and scrutinized in light of other related knowledge structures. Frequent activation of the assessment of the target during this scrutiny, along with links created between that assessment and other strongly held information in memory, should make that assessment relatively accessible in memory and should provide informational bases from which efforts at changing the assessment can be counterargued and resisted (see Petty & Cacioppo, 1986b; Petty & Wegener, 1998a, for further discussion).

Although in many natural settings effortful corrections might be most likely when a judgment target is important enough to also merit high levels of information scrutiny, corrections can also occur even if little judgment-relevant information was considered (e.g., if the perceived bias is created by a peripheral cue). That is, effort devoted to theory-guided corrections is conceptually distinct from the general effort aimed at scrutiny of information relevant to some judgment task. Evidence consistent with this notion was obtained by Petty, Wegener, and White (1998). Following presentation of judgment-relevant information, Petty et al. alerted college students to the possible bias associated with the likeliness of the source of information about a proposed school policy. In a first study, Petty et al. found that alerting students to the bias did not change the extent to which they scrutinized the presented information (i.e., the correction instruction left unaffected a manipulation of the quality of information presented about the target; see Petty & Cacioppo, 1986b; Petty et al., 1976), but it

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8 Future work might also show that correction instructions themselves (or variations in the type of correction instruction) might influence how much of a bias is identified. Although this might also have accounted for some of the difference between high-elaboration—no-instruction and high-elaboration—correction-instruction conditions in the Petty et al. (1998) research, there seem to be theoretical and some initial empirical reasons to conceptually distinguish between noncorrective and corrective effort (given that the same difference between no-correction and correction-instruction conditions existed for both high and low elaboration conditions).
can lead to mood-incongruent evaluations. When the purpose of the target story was to make people feel sad and people felt sad, the sad mood actually led to higher ratings of liking and of story quality than if a happy mood. Of course, our perspective also suggests that this effect could be reversed under different judgment circumstances (e.g., if processing level is low and mood is used as a peripheral cue or if people become aware of the effects of the prior mood induction and correct for its perceived influence). Also, for many targets (e.g., the potential companion mentioned earlier), feeling good when encountering the target would constitute a positive (i.e., mood-congruent) central merit.

Perhaps more often, when people are actively evaluating information about the target (i.e., when elaboration likelihood is high), mood can bias the interpretations of that information, especially if the information is ambiguous (Chaiken & Maheswaran, 1994; Petty, Gleicher, & Baker, 1991). For example, positive moods might activate more positive interpretations than would negative moods (e.g., Bower, 1981; Breckler & Wiggins, 1991; Ison, Shalker, Clark, & Karp, 1978; Mathur & Chattopadhyay, 1991). Regardless of whether one conceptualizes such activation in terms of associative networks (e.g., Anderson & Bower, 1973; Bower, 1981) or connectionist models (e.g., McClelland, Rumelhart, & Hinton, 1986; Smith, 1996), happy moods have often been found to make events or objects seem more desirable and/or more likely than the same events or objects appear when people are sad or neutral moods (e.g., see Erber, 1991; Forgas & Moylan, 1987; Johnson & Tversky, 1983; Mayer, Gaschke, Braverman, & Evans, 1992; Wegener & Petty, 1996; Wegener, Petty, & Klein, 1994).

Explicit evidence of mood biasing information processing was found by Petty, Schumann, Richman, and Strathman (1993). Under high-elaboration conditions in two experiments (i.e., when people were high in need for cognition [Cacioppo & Petty, 1982b] or encountered information about a self-relevant product [Petty, Cacioppo, & Schumann, 1983]), mood influenced judgments of the targets via cognitive responses to the information about the targets. That is, when effortful elaboration of judgment-relevant information was likely, positive mood produced positive thoughts about the information, which in turn influenced evaluations of the targets. Of course, mood would be less likely to exert a biasing impact on processing if there were salient and competing biasing factors operating—such as a strong prior attitude—or if the judgment-relevant information was completely unambiguous.

It is also important to note that when moods bias processing, the mood state does not invariably lead to mood-congruent biases in overall evaluation (Petty & Wegener, 1991; Wegener et al., 1994). For example, as noted earlier, mood can bias active assessments of targets, affecting assessments of the likelihood that the target possesses desirable versus undesirable characteristics. Using this expectancy (likeliness) × value (desirability) approach to judgments (e.g., Fishbein & Ajzen, 1975), Wegener et al. (1994) found that differential framing of information about target actions led to different biasing effects of mood on assessments of those actions. Specifically, when the arguments in a persuasive message were framed to say that adopting the recommended position was likely to make good things happen, a happy mood was associated with more favorable views of the advocacy than a sad mood. However, when the arguments were framed such that failing to adopt the advocacy was likely to make bad things happen, a sad mood was associated with more favorable views of the advocacy than a happy mood. The reasoning was that a happy mood made the positive consequences of adopting the advocacy seem more likely, and the sad mood made the negative consequences of not adopting the advocacy seem more likely. Consistent with the notion of this likelihood—desirability calculus being a relatively effortful activity, the likelihood mediation of mood effects on judgment only took place for people high in need for cognition. Of course, using this same likelihood—desirability view, one could also predict situations in which mood changes the perceived desirability of consequences of adopting the advocacy (thereby providing another means by which mood might bias the effortful assessment of the central merits of an advocacy; see Petty & Wegener, 1991, for additional discussion).

Low Elaboration: Mood as Peripheral Cue

When effortful elaboration of judgment-relevant information is unlikely (i.e., when motivation or ability is low), mood is likely to have an impact on judgments through relatively simple associations or heuristics (Petty, Schumann, et al., 1993; Wegener & Petty, 1996). Associating feelings with an object by classical conditioning would be one example of low-effort processes providing a link between mood and judgment (e.g., Griffith, 1970; Zanna, Kiesler, & Pilkonis, 1970) in that classical conditioning does not rely on effortful scrutiny of information about the target (see also Cacioppo, Marshall-Goodell, Tassinary, & Petty, 1992). Mood might also affect judgment relatively directly if mood is consulted in a “How do I feel about it?” heuristic (Schwarz, 1990; see also Cacioppo & Petty, 1982a; Schwarz & Clore, 1983). Petty, Schumann, et al. (1993) found evidence of

*A key difference between use of mood under low- and high-elaboration conditions is that under low-elaboration conditions, people would likely stop after inferring that “if I feel good, I must like it.” Under high-elaboration conditions, people would also consider any other judgment-relevant information that was available and would assess whether current feelings were really informative about the attitude object (i.e., they would assess the central merit of mood for the judgment at hand).
this more direct (low-effort) effect of mood on judgments for people who were low in need for cognition or who encountered an irrelevant product. That is, in low-elaboration settings, positive mood induced more positive judgments than neutral mood, even though cognitive responses to the information about the targets were unaffected by mood (see Petty & Wegener, 1991; Wegener & Petty, 1996, for additional discussion). Of course, mood is less likely to serve in this simple cue role if competing alternative cues are salient.

**Moderate Elaboration: Mood as a Determinant of Processing**

When nonmood factors have not constrained elaboration likelihood to be either extremely high or low, then mood can affect the amount of processing of judgment-relevant information that takes place—especially if there are no other salient and competing factors present to influence the extent of processing. As noted previously, the ELM does not itself specify whether positive mood, for instance, should increase or decrease scrutiny of judgment-relevant information. In fact, a variety of processes might enable mood to influence amount of processing. For example, if certain moods are associated with decreased cognitive capacity (Ellis & Ashbrook, 1988; Mackie & Worth, 1989) or if certain moods inform people that effortful processing is unnecessary (Clore, Schwarz, & Conway, 1994; Schwarz, 1990), then processing of judgment-relevant information would tend to be low in those states.

In our own work on mood effects on processing, we have focused on the motivational consequences of pressures toward mood management across happy, neutral, and sad states. According to our hedonic-contingency view (Wegener & Petty, 1994), people in happy moods choose their activities based on the hedonic consequences of those activities more than do people in sad or neutral states. The rationale for this hypothesis is that for people in a happy mood, most behaviors in which person could engage would make the person feel worse. Thus, if this person is to stay as happy or feel better than he or she currently does, activities must be chosen very carefully (i.e., hedonic rewards are highly dependent on the person considering the hedonic consequences of potential actions). For a sad person, however, the hedonic contingencies are quite different. Most potential behaviors would make the person feel better. Thus careful consideration of hedonic consequences is not as critical for sad people—they can reap hedonic rewards even if they act based on strategies that are unrelated to consideration of hedonic consequences (such as scrutinizing everything because there might be problems in the environment; cf. Clore et al., 1994; Schwarz, 1990). Because of these different hedonic contingencies, over time people might become more likely to consider the hedonic consequences of their actions when they are in a happy rather than a sad mood.7

In a direct use of this framework to study the effect of mood on the extent of scrutiny of judgment-relevant information, Wegener, Petty and Smith (1995) found that the hedonic qualities of the judgment-relevant information affected the amount of information processing for happy people more than for sad people. Wegener et al. (1995; Experiment 2) presented either strong (compelling) or weak (spurious) arguments in support of “University Service” for college students. In addition, this strong or weak information was used either to support a proattitudinal (and uplifting) program in which students could reap the benefits of lowered tuition if they chose to enroll in the program or to support a counterattitudinal (and depressing) program in which students would be forced to enroll in the program or face tuition increases. No time frame was given for possible implementation of the university service plan in order to hold elaboration likelihood at a relatively moderate level. The strong and weak arguments supporting the University Service program were the same regardless of whether the introduction of the topic was up-
lifting or depressing. Therefore, differences in information scrutiny by happy and sad people could not be due to differences in ability to scrutinize uplifting versus depressing information. Consistent with the hedonic-contingency framework, happy people showed greater attentiveness to the quality of the arguments in the message (i.e., were more persuaded by strong than weak arguments) when the introduction of the topic was uplifting rather than depressing. Sad people were equally affected by argument quality across the uplifting and depressing topic introductions. That is, information processing by happy people was more affected by the likely hedonic consequences of that processing than was information processing by sad people.

Another implication of the hedonic-contingency view is that happy moods can lead to either increased or decreased processing of judgment-relevant information when compared to neutral or sad moods, depending on the perceived hedonic consequences of information scrutiny or lack thereof. That is, if people in happy moods are more affected by the potential hedonic consequences of information processing, then happy people might avoid processing depressing information more often than people in sad or neutral moods but might process uplifting information more deeply than sad people or those in neutral moods. In fact, when one organizes the processing results from Wegener et al. (1995, Experiment 2) according to the hedonic quality of the information, the results indicate that happy mood led to greater processing than sad mood when the information framing was uplifting but led to less processing than sad mood when the information was framed as depressing (see also Howard & Barry, 1994). Given that most past research on the topic of mood and processing of persuasive communications has used counterattitudinal or depressing messages or topics (e.g., Bless, Bohner, Schwarz, & Strack, 1990; Kuykendall & Keating, 1990; Mackie & Worth, 1989; Worth & Mackie, 1987), the hedonic-contingency view seems capable of explaining why that research has generally found less processing in happy than in sad or neutral moods. At the same time, the hedonic contingency position also predicts that happy mood can lead to increases in processing when compared to neutral or sad states.

Future research will undoubtedly address the extent to which various processes in addition to hedonic contingency lead to effects of mood on scrutiny of judgment-relevant information. Consistent with the ELM organizing framework, we believe that such effects are most likely when elaboration likelihood is not constrained by nonmood factors to be extremely high or low. Although we believe that many such effects might be explained by a hedonic-contingency perspective, other processes (e.g., mood effects on cognitive capacity or perceptions of need for scrutiny of the environment) might also serve the role of complementing the ELM by specifying the specific motivational or ability processes involved.

CORRECTIONS FOR PERCEIVED MOOD-BASED BIASES

If people believe that a particular effect of mood is occurring (or will occur) and wish to remove that influence of mood (regardless of whether or not mood would actually have the anticipated effect), they might engage in corrective attempts guided by their theories of mood-based bias (see Wegener & Petty, 1997, for additional discussion). For example, if people believe that how they feel is unduly affecting (or will unduly affect) their perceptions of a target (and if people are motivated and able to correct for these perceived biases), they might be especially likely to adjust assessments of the target in a direction opposite to the perceived bias in an effort to characterize the target in an unbiased manner (see Petty & Wegener, 1993, for a measure of a perceived effect of mood; see also Wegener & Petty, 1995). In fact, in a recent series of studies (DeSteno, Petty, Wegener, & Rucker, 2000), we have obtained evidence of corrections reversing the uncorrected effects of mood. Specifically, students were placed in either a sad or an angry state and then instructed to estimate the likelihood of angry and sad events. When their mood state and accuracy concerns were not made salient, mood-congruency effects were observed (cf., Johnson & Tversky, 1983). That is, angering events were seen as more likely when people were angry rather than when they were sad, and sad events were seen as more likely when they were sad than when they were angry. However, when mood was made salient and people were reminded to be accurate in their judgments, individuals with high need for cognition showed the reverse pattern (with angering events rated as less likely in angry than in sad moods, and sad events rated as less likely in sad than in angry moods). These reversed mood effects are understandable if individuals with high need for cognition overcorrected their judgments for the expected effects of their emotional states. Measures of perceived bias (completed by a separate set of participants) were consistent with the observed corrections (for use of the FCM to explain corrections for general positive versus negative states, see Berkowitz, Jaffee, Jo, & Troccoli, 2000; Wegener & Petty, 1997).

Although corrections based on such naïve theories of bias provide a potential means for lessening, removing, or reversing (if overcorrection occurs) the biasing effects of mood, a person’s naïve theories of bias could also introduce or augment existing mood-based biases. For example, if a
person believes that a happy mood makes them too positive toward an advocacy, but in fact happy mood led to a less positive view of the advocacy than a sad mood (e.g., Wegener et al., 1994; see also Martin et al., 1997), then corrections aimed at removing an undue influence of mood might actually exacerbate the effect that would have occurred without the correction. People could become aware of potential effects of mood (and might become motivated to remove those perceived effects) regardless of whether elaboration of judgment-relevant information is high or low (e.g., regardless of whether the perceived effect of mood was to bias active information processing or to influence perceptions through use as a decision rule or heuristic; see also Petty et al., 1998). Although theories of bias could guide corrections in both cases, it might be more difficult to effectively correct for mood-based biases on interpretation of many pieces of judgment-relevant information. If such an effortful correction occurs, however, it should be more likely to last than would a simpler “overall” correction (see Wegener & Petty, 1997, for additional discussion of corrections for effects of mood).

ADDRESSING COMMON EFFECTS OF MOOD FROM THE ELM AND FCM PERSPECTIVES: JUDGMENT, RECALL, PROCESSING, AND CREATIVITY

Mood-Congruent Judgment

Mood-congruent judgment could occur for a variety of reasons. For instance, according to the ELM, if elaboration of judgment-relevant information is low, mood could serve as a peripheral cue, leading to more favorable judgments of targets when in a happy rather than a sad mood. As noted previously, possible peripheral processes responsible for such an effect could include classical conditioning (in which the feelings are paired with the presence of the target) or use of a “How do I feel about it?” heuristic or decision rule concerning the target. In addition to low elaboration likelihood and a relative absence of salient alternative peripheral cues as conditions encouraging use of feelings-based heuristics, it might also be necessary that people are not led to question the relevance of their feelings for such a judgment (see Clore et al., 1994; Schwarz, 1990). If people do question the legitimacy of their feelings as a basis for judgment, then there might be less of a judgment effect for mood because of use of nonmood bases (i.e., information) for the judgment (see the Schwarz & Clore, 1983, discussion of “discounting”). According to the FCM, there might be an attenuated or even a reversed mood effect if questioning the legitimacy of mood leads to theory-based corrections away from a perceived mood-congruent effect (Berkowitz et al., 2000; DeSteno et al., 2000; Ottati & Isbell, 1996; Petty & Wegener, 1993; see also Wegener & Petty, 1997). As noted earlier, mood-congruent judgment could also be the result of “overcorrecting” for a perceived mood-incongruent bias. If people were to believe erroneously that a mood-incongruent effect was occurring, then theory-based corrections could actually enhance an existing mood-congruent effect (or create one if it did not already exist). Judgments unaffected by mood could occur if adequate “discounting” or correction processes take place or if salient nonmood peripheral cues dominate the uncorrected “cue” effects of mood.

According to the ELM, the primary uncorrected influence of mood under high elaboration conditions (i.e., when nonmood factors make motivation and ability to process judgment-relevant information quite high) would be to affect the nature of thoughts that come to mind concerning the judgment-relevant information. As discussed earlier, mood-congruent or mood-incongruent outcomes could occur depending on what thoughts mood is influencing (e.g., thinking about the likelihood of good things being associated with adopting the advocacy, or thinking about the likelihood of bad things being associated with rejecting the advocacy; see Petty & Wegener, 1991; Wegener et al., 1994). Biasing effects of mood are less likely if other salient biasing factors overwhelm effects of mood in directing the interpretation of judgment-relevant information or if judgment-relevant information is not open to multiple interpretations (i.e., the information is unambiguous).

Mood-congruent or mood-incongruent outcomes could also occur if people perceive their feelings as central merits of the judgment target. As noted earlier, in some instances, the positive or negative feelings people experience when they encounter the target are viewed as directly relevant to determining the extent to which the target is good or bad. In many cases, “good” feelings lead to the mood-congruent outcome of favorable judgments (e.g., when considering a potential dating partner, that person might be viewed more positively if one experiences positive rather than negative feelings when in the person’s presence). However, as in the case presented earlier, if people are judging the quality of a “bad” story, then a story that actually makes people feel sad might be viewed more positively (i.e., as higher in quality) than a story that is aimed at making people sad but fails to do so (Martin et al., 1997). Similarly, one could find that a “scary” movie is judged more positively if the person actually experiences fear than if only amusement is experienced during the movie. Also as noted previously, in high elaboration settings people could question the legitimacy of using mood as a basis for judgment (either in biasing processing of information or in considering one’s mood as a central merit of
the object). In such cases, flexible correction processes could lessen the judgment effect of mood, remove that effect, reverse that effect, or even exacerbate the original effect, depending on the direction and magnitude of the perceived effect of the mood (see Wegener & Petty, 1997). 8

When elaboration likelihood is not constrained to be either high or low, the effects of mood on judgment will depend on the direction of effects of mood on scrutiny of judgment-relevant information and on the content of the judgment-relevant information considered. If the judgment-relevant information is largely supportive of a favorable view of the target (e.g., as when "strong" arguments are included in a persuasive message; see Petty & Cacioppo, 1986b; Petty, Wegener, et al., 1993), then increases in scrutiny of that information by people in happy moods (e.g., when thinking about that information seems potentially uplifting; Wegener et al., 1995) could lead to a mood-congruent judgment outcome. However, decreases in scrutiny of the same favorable information by people in happy moods (e.g., when thinking about that information seems potentially depressing; Wegener et al., 1995) could lead to a mood-incongruent judgment outcome (see also Schwarz, Bless, & Bohnen, 1991). Just the reverse might occur if the judgment-relevant information actually supports an unfavorable view of the target (as when "weak" arguments are presented for an advocacy). In such cases, increases of information scrutiny by happy people could lead to mood-incongruent judgments, but decreases of scrutiny could lead to mood-congruent judgments.

Mood-Congruent Recall

Although the ELM and FCM are models of judgment and not of recall, mood-congruent memory could potentially play a role in some of the processes discussed thus far. For example, if mood leads people to engage

8That is, the same "feelings-as-information" and correction mechanisms outlined for low-elaboration conditions exist when people question the legitimacy of their mood under high-elaboration conditions (e.g., when feelings are perceived as relevant to the central merits of the target, but the person's current feelings are questioned because of the existence of additional—or recent—mood-influencing stimuli or events that might be unduly influencing perceptions of the target). For example, even if a person views his or her feelings when with a potential dating partner as relevant to the "merits" of the partner, the legitimacy of using those feelings might be questioned if the person realizes that he or she just experienced an unrelated extremely depressing (or uplifting) event. In such circumstances, ignoring mood and basing judgments on non-mood-based information might lead to lack of an effect of mood. Also, engaging in theory-based corrections of a perceived mood-congruent influence might lead to less mood-congruent effect, to no effect of mood, or even to a reversed (mood-incongruent) effect, depending on the nature of the person's naive theory of mood (and the person's motivation and ability to invoke the theory-based correction).
also be the case that happy people often engage in mood management to a greater degree than sad people do (Wegener & Petty, 1994). If so, motivations to seek positive material would often be stronger in happy than in sad moods, and thus motivational pressures toward mood-congruent recall in happy moods would be stronger than motivational pressures toward mood-incongruent recall in sad states. Of course, if people believe that mood-congruent (or mood-incongruent) recall is unduly influencing their views of a target, they might attempt to change this outcome by altering their recall tendencies and searching out additional countervailing information (or by making adjustments to the perceived "biased" implications of the mood-congruent or -incongruent material).

**Processing of Judgment-Relevant Information**

As noted earlier, within the ELM perspective, effects of mood on amount of processing of judgment-relevant information should be most likely when elaboration likelihood is not constrained by nonmood factors to be either very high or very low. Given that nonmood factors can influence amount of information processing independent of mood effects on processing, such nonmood factors (such as external distraction [Petty et al., 1976] or high personal relevance [Petty & Cacioppo, 1979; 1990]) can also constrain any opportunity for mood effects on processing to be observed.

In our work on mood and processing, we have found that the typical effect of happy moods leading to less processing than sad or neutral moods (e.g., Bless et al., 1990; Mackie & Worth, 1989) might often be confined to situations in which people view the processing of judgment-relevant information as relatively mood threatening (i.e., depressing) or at least not mood enhancing. According to our hedonic-contingency view, because happy moods increase attention to the hedonic consequences of potential activities, happy people might avoid processing material thought to be depressing more often than would people in neutral or sad moods. When the same information supports a more enjoyable target, however, happy people can actually scrutinize that information more fully than people in sad moods (Wegener & Petty, 1996; Wegener et al., 1995). Consistent with this perspective, it might also be that happy people could process some potentially negative material more fully than people in sad or neutral moods if processing that information would allow the person to better serve mood-management goals (e.g., if the negative material discusses actions that a person could take to keep an undesirable event from occurring; see Wegener et al., 1995). This does not mean that all effects of mood on processing would necessarily be guided by differential mood management across affective states, but much of the current literature is consistent with such a mood-management perspective.

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Consistent with the FCM, if people form theories about how mood influences amount of processing of information, then people might also attempt to change how much they scrutinize information if they believe that mood might be influencing thought in an undesired way (e.g., "I usually don't like to think when I'm happy, but I really should think about this, so I'd better concentrate especially intently"). Depending on the form of such theories and the nature of the information to be considered, such attempts at correcting the processing effects of mood could diminish or enhance mood-based processing differences and might even create additional processing patterns that were not originally present in the judgment setting. Although no research has directly investigated this type of naive theory, this presents a potentially interesting avenue for new research.

**Mood and Creativity**

Across a variety of settings, a happy mood has been shown to increase the creative nature of responses to tasks and problems (e.g., Hirt, Melton, McDonald, & Harackiewicz, 1996; Isen & Daubman, 1984; Isen, Daubman, & Nowicki, 1987; Murray et al., 1990). Although the ELM and FCM are not models of creativity, one might apply some aspects of our hedonic-contingency work to this domain. For example, in recent research, Hirt et al. (1996) showed that creative responses led to greater posttask interest in the activity (i.e., greater enjoyment of the activity). If, consistent with our hedonic-contingency perspective, happy people are more spontaneously concerned with feeling good during and after the task, they might be more likely to engage in the task in a manner that makes the task more enjoyable. Thus it could be that happy people generate more creative responses (in part) as an attempt to enjoy the task more. Such a view is also consistent with the fact that people in neutral and sad moods often do not differ in the level of their creativity (e.g., Hirt et al., 1996; Isen et al., 1987). Of course, creativity might also be spawned by other processes (e.g., the amount and nature of information cues by that feeling state; Isen et al., 1987). Even so, a mood-management interpretation also seems quite compatible with much of the evidence.

**SUMMARY**

The ELM (Petty & Cacioppo, 1986b) and FCM (Wegener & Petty, 1997) provide fruitful frameworks within which to organize the myriad uncorrected and corrected effects of mood (see also Petty, Cacioppo, & Kasmer, 1988; Petty et al., 1991; Wegener & Petty, 1996). The ELM focuses on the effects of mood through its multiple roles when people are not attempting
to remove influences of mood on judgment (though mood could be
discounted or counterargued if perceived as a weak argument). Within this
perspective, mood can influence judgment through either high- or
low-effort processes or by influencing the amount of effort given to
scrutiny of judgment-relevant information (depending on the baseline level of
elaboration likelihood created by nonmood factors). Effects of mood
associated with high-effort processes should be stronger (e.g., more long-last-
ing) than effects of mood relying on lower effort processes.

According to the FCM, when mood-based biases become salient, people
engage in corrective efforts if mood is seen as unduly biasing or in-
appropriate. Corrections are guided by individuals’ naive theories of how
mood influences perceptions of the target. Although these corrections
generally entail greater cognitive effort than not making corrections, vari-
ation in effort aimed at correction corresponds to the strength of the cor-
corrected assessments (i.e., their persistence over time, resistance to change,
and likelihood of the corrected assessments directing other judgments
and behavior—similar to the ELM predictions dealing with uncorrected
assessments of targets). Corrective effort is postulated to be conceptually
distinct from effort given to general scrutiny of judgment-relevant in-
formation (i.e., although circumstances that encourage either one of these
processes might also at times tend to encourage the other, circumstances
also exist in which one but not the other type of effort is exerted). Impor-
tant aspects of both the ELM and FCM approaches include the contextual
nature of mood effects and the importance of acknowledging (and studying)
the multiple processes that potentially bring about the same outcome of
mood on perceptions and judgment.

ADDRESSING CONTRIBUTORS’ QUESTIONS

1. The model attempts to be very general and account for a wide range
of mood effects in a wide range of conditions. One can ask whether this
generality comes at the expense of precision. How would you address the
criticism that your model has too few constraints and too many degrees of
freedom? Are there findings that could disconfirm the model?

Social psychological theories come in a variety of shapes and sizes. Some
theories are quite limited in scope, focusing on a small number of
potential independent variables, explanatory constructs, processes, and
effects. For instance, a classical-conditioning view of mood effects on judg-
ment might be applicable to a number of potential independent variables
(mood inductions) and dependent variables (judgment targets), but the basic
tenets of the view are that feelings (the unconditioned stimulus) be-

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come paired with a new target (the conditioned stimulus) such that the tar-
get comes to bring about a response that is similar to that produced by the
unconditioned stimulus (the conditioned response). Such a view leads to
the straightforward, but limited, hypothesis of mood-congruent judg-
ments.

Other theories are somewhat more complex and make use of explanato-
ry constructs that might themselves be considered more flexible. For ex-
ample, in the mood-as-input view (Martin, Ward, Achec, & Wyer, 1993),
positive moods can lead to either greater or less persistence on a processing
task compared with negative moods. In this view, the result depends on
whether people are told to focus on whether or not they enjoy the task or on
whether or not they have “done enough” on the task to be satisfied with
their performance. Theories at this “moderate” level of complexity are
becoming common in social psychology. Some of these theories are applica-
table to a wide variety of phenomena, despite the use of only a small number
of critical explanatory concepts. One might consider the flexible correction
model (FCM; Wegener & Petty, 1997) that forms a substantial part of our
view as one such theory. Though the FCM specifies a number of conditions
that encourage or discourage corrections, the hypothesized corrections are
predicted to be guided by stored or generated naive theories of bias or both.
As reviewed elsewhere, the FCM is applicable to a wide variety of contexts in
which people might become aware of potential biases, including person im-
pression, persuasion, courtroom judgment, and other social judgment do-
 mains (see Wegener & Petty, 1997), but the set of explanatory constructs is
relatively small (as in most social psychological theories).

The elaboration likelihood model (ELM; Petty, 1977; Petty & Cacioppo,
1986a) differs from most theories in this regard. In a number of
senses, the ELM is a metatheory—a model that organizes and makes use
of other existing theories in addition to making certain predictions of its
own, such as specifying when various processes influence judgments. Consi-
der, for example, the way in which the ELM would deal with mood ef-
effects based on classical conditioning. According to the ELM, classical-con-
ditioning effects should be most likely when motivation or ability to
engage in extensive thought about a judgment target is relatively low.
That is, classical-conditioning effects do not depend on scrutiny of the
qualities of targets—they are the result of a simple pairing of the emotion
with, typically, a previously neutral stimulus. In fact, such low-effort effects
might generally be overwhelmed by thoughts occurring in response to
more high-effort scrutiny of judgment-relevant information. Thus, the
ELM would limit the impact of classical conditioning on judgments to set-
gings in which elaboration likelihood is relatively low (e.g., see Cacioppo et
al., 1992). Thus some existing theories of mood effects on judgment
would be viewed from an ELM perspective as focusing on relatively low-
elaboration processes (e.g., classical conditioning [Staats & Staats, 1958], use of a "how do I feel about it" heuristic [Schwarz, 1990]), others on relatively high elaboration processes (e.g., mood priming influencing thoughts; cf. Bower, 1981; Isen et al., 1978; Petty, Schumann, et al., 1993; Wegener et al., 1994), and yet others on factors that influence the amount of processing (e.g., cognitive capacity [Mackie & Worth, 1989], hedonic contingency [Wegener, Petty, & Smith, 1995]).

So, in part, some of the "constraints" come from the set of existing (complementary) theories that focus on processes involving different levels of elaboration. In this regard, however, it is important to note that a test of one (or between two) of these complementary theories is not necessarily a test of the ELM view. For example, if a series of critical tests comparing the classical-conditioning versus the mood-as-information view comes to favor one theory over another, this would not be considered a test of the ELM. The critical ELM prediction is that to the extent that these theories operate, they should work better when the elaboration likelihood is low rather than high.

This is not to say that the ELM itself is lacking constraints (for a discussion of similar concerns voiced by Mongeau & Stiff, 1993, outside the mood domain, see Petty, Wegener, et al., 1993). To be sure, if the ELM were simply to say that mood congruency can come about for many reasons (i.e., mood acting as cue, biasing processing, influencing amount of processing, acting as an argument) without specifying when each of these is most likely, the model might well be un falsifiable. This is not what the ELM does, however. The ELM organizes all theories and processes along the elaboration continuum, stating for example that processes such as biased processing should be most likely to have an impact when elaboration likelihood is high but that other processes such as mood-based heuristics or conditioning should be most likely to have an impact when elaboration likelihood is low (e.g., see Petty, Schumann, et al., 1993; Wegener et al., 1994). Furthermore, the ELM specifies both situational and individual, as well as motivational and ability, variables that influence the elaboration likelihood. In experiments testing the ELM, it certainly would have been possible, for example, for the impact of argument quality manipulations on judgment to be unaffected by motivational (e.g., personal relevance; Petty & Cacioppo, 1979) or ability (e.g., distraction; Petty et al., 1976) variables or for such variables to exert only strong main effects on persuasion (as in social judgment theory; Sherif & Hovland, 1961; see Petty, Cacioppo, & Haugtvedt, 1992; Petty, Wegener, et al., 1993, for additional discussion). Likewise, it would be difficult for the ELM to account for classical-conditioning (and other cue-based) effects occurring primarily under conditions of high elaboration or for biased-processing effects occurring primarily under conditions of low elaboration, though this has not been the pattern of data so far (e.g., Petty, Schumann, et al., 1993). Thus, in our view, the ELM is disconfirmable, though the data to this point have been quite supportive.

Some researchers might yearn for times when there was a single primary explanation for mood-congruency effects, and mood-incongruent outcomes signaled a specific challenge to the accepted point of view. Work using such "single-effect" and "single-process" assumptions (Petty, 1997), however, is clearly no longer tenable in the mood literature. One of the strengths of the ELM and FCM frameworks, we believe, is that both approaches explicitly dissociate outcome from process. For example, according to the ELM, mood-congruent judgment (a judgment outcome) could come about from positive mood (a) serving as a peripheral cue or easily processed piece of information, (b) biasing processing in a mood-congruent direction, (c) increasing processing when favorable (strong) judgment-relevant information is available, (d) decreasing processing when unfavorable (weak) judgment-relevant information is available, or (e) serving as a piece of favorable judgment-relevant information. Importantly, each of these possibilities is postulated to occur under specified conditions (e.g., see Petty & Cacioppo, 1986a; Petty, Cacioppo, Sedikides, & Strathman, 1988; Petty et al., 1991; Wegener & Petty, 1996). Similarly, within the FCM, a mood-congruent outcome could be the result of lack of correction for a mood-congruent bias or of a correction for a perceived mood-incongruent bias, again under specified conditions (see Wegener & Petty, 1997). The fact that many processes are acknowledged as capable of bringing about the same judgment outcome reflects a maturity in the literature and associated theory (Petty, 1997) and does not threaten the utility of the ELM and FCM. Rather, the acknowledgment of multiple processes underlying judgments improves the predictive utility of the models by enabling them to predict which of many possible mood-congruent outcomes, for example, are likely to persist over time and which are not.

2. How does the model explain the findings, over a number of experiments, that tasks that require more extensive, constructive, and substantive processing are more likely to show mood effects (e.g., Forgas, 1992)? Wouldn't your model predict mood effects as a function of priming in conditions of high substantive processing but as a function of heuristic and peripheral processes in conditions of low substantive processing? Is there some reason to assume that the affective influences produced through the heuristic mechanism are smaller than those produced through the priming mechanism?
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The question correctly notes that our framework provides for mood effects under conditions of both high and low levels of information processing. We assume that mood effects, like the effects of many other variables, can occur under both high- and low-processing conditions but that the mechanisms are different. For example, consider a manipulation of the number of arguments in a message. According to the ELM, increasing the number of arguments in a message from three to nine could induce more persuasion under low-elaboration conditions because the number of arguments can invoke the heuristic, “the more the better.” Under high-elaboration conditions, however, increasing the number of arguments can also increase persuasion if substantive processing of the arguments leads people to generate more favorable thoughts (see Petty & Cacioppo, 1984a).

Which effect will be bigger, the cue-based (peripheral) effect under low-elaboration conditions or the substantive-processing (central) effect under high-elaboration conditions? The answer to this question should depend on a number of factors. For example, what is the size of the argument number manipulation? Perhaps comparing five versus seven arguments would produce a very small cue effect because five does not seem very different from seven as a cue to validity. However, adding two strong arguments might have a noticeable effect when processing is high. In contrast, comparing three versus nine arguments might produce a much bigger effect. Of course, the substantive-processing effect itself should depend on the nature of the arguments presented. If the arguments presented are not particularly persuasive, then adding arguments under high-elaboration conditions might not be helpful (and may even backfire), whereas adding them under low-elaboration conditions would be helpful because the merits of the arguments are not processed here (Petty & Cacioppo, 1984a). Thus the cue effect under low-elaboration conditions would exceed the substantive-processing effect under high-elaboration be smaller than, equivalent to, or larger than the substantive-processing effect of the same variable. The key is to understand the nature of the cue process under investigation (e.g., the nature of the heuristic involved) and the nature of the central process under investigation (e.g., whether the arguments produce favorable, unfavorable, or mixed thoughts when

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A similar analysis leads to the conclusion that the mood effects under high-elaboration conditions can be larger than, equivalent to, or smaller than the effects observed under low-elaboration conditions. Consider, for example, how the effects of mood might vary as a function of the number of arguments in a message. As the number of arguments in a message increases, the biasing effect of mood on thoughts might increase because there is more information that can be processed in a biased fashion. However, as the number of arguments in a message decreases, there might be fewer biased thoughts produced. Similar predictions could be made concerning the number of arguments that are ambiguous rather than unambiguous, with larger numbers of ambiguous arguments leading to increases in biased processing. If this would occur, the fewer the (ambiguous) arguments in a message, the greater the likelihood that the mood-as-cue effect would be equal to or exceed the biased-processing effect of mood. Similarly, consider a case in which positive mood is paired with a message containing positively framed arguments (e.g., if you buy this satellite dish, you will enjoy viewing all of the weekend sporting events) that are already perceived by individuals as the maximum in desirability and likelihood (i.e., enjoying all the weekend sporting events is seen as maximally good and maximally likely if the satellite dish is purchased). Here, mood is unlikely to have an effect under substantive processing because the desirability or likelihood of the consequence cannot be improved further (Petty & Wegener, 1991). The substantive-processing effect of positive mood on these positively framed arguments could be increased, however, by using arguments that were more moderate in desirability and likelihood.

Thus our framework suggests that social psychological studies of mood and judgment could produce larger mood effects under high- than under low-elaboration conditions because of the information available concerning the judgment target (e.g., numerous pieces of relatively ambiguous information). Alternatively, if mood is not the only relevant heuristic or decision rule available (e.g., if the person has an existing stereotype or category that could be used instead of mood), cue effects of mood could be small or nonexistent, especially if the alternative cues are more salient than mood. However, if other materials had been routinely selected (e.g., containing few pieces of unambiguous information or using targets for which no alternative heuristics are available), the difference in size between cue and biased-processing effects could be attenuated or reversed. We have already demonstrated in empirical research that mood effects on judgment need not be greater under high- than low-elaboration conditions (e.g., see Petty, Schumann, et al., 1993). More important, as our earlier discussion indicates, the ELM suggests variables that would moderate whether mood effects are greater or lesser under high- compared with low-elaboration conditions.

*The ELM also holds that mood and other variables can work by low-effort versions of the high-effort processes that operate under high elaboration (e.g., biasing the processing of just one of the many arguments presented rather than all of them; see Petty, 1997; Petty & Wegener, 1999, for further discussion).
3. The model suggests that individuals in an analytic mode attend to the attributes of an object, whereas individuals in a less analytic mode attend to the object as a whole. The model further assumes that the effects of mood at these two levels of focus reflect different processes (i.e., mood-congruent retrieval versus affect as information). No data are included, however, to support the idea that more than one process is involved or that either of them is mood-congruent retrieval or affect as information. Can the assumption about different processes be supported?

This question, like the previous one, is applicable to more variables than just mood. The essence of the question appears to be this: When a variable produces the same effects under high- and low-elaboration conditions, how can you know that different processes are involved? For example, when people are shown to be influenced by the number of arguments or by mood under both high- and low-elaboration conditions, what is the evidence that the process is different?

ELM researchers have provided evidence of different processes for the same variables in a number of ways. For example, reconsider the work on number of message arguments described previously (Petty & Cacioppo, 1984a). In this work, students were presented with either three or nine arguments that were strong or weak in favor of senior comprehensive exams. The exam policy was presented as either relevant to the students (fostering high-elaboration conditions) or irrelevant (fostering low-elaboration conditions). When all of the arguments presented were strong, people were more persuaded by the nine- than the three-argument messages under both high- and low-elaboration conditions. Based on these conditions alone, it is not clear that the processes induced under high- and low-elaboration conditions were different. When the arguments were weak, nine arguments also produced more persuasion than three under low-elaboration conditions (the same result as was obtained with strong arguments). Under high-elaboration conditions with weak arguments, however, nine arguments produced less persuasion than three arguments (the opposite result to that obtained with strong arguments). The fact that the number-of-arguments manipulation had a main effect under low-elaboration conditions (i.e., more arguments increased persuasion with both strong and weak arguments) but interacted with argument quality under high-elaboration conditions (i.e., more arguments increased persuasion with strong arguments but decreased persuasion with weak arguments) suggests that the process by which argument number influences attitudes is different in high- versus low-elaboration settings.

In our research on mood effects, we have provided more direct evidence for the view that mood works differently under high- and low-elaboration conditions. Recall that in a study cited previously (Petty, Schumann, et al., 1993), the data showed that positive mood increased persuasion over neutral mood under both high- and low-elaboration conditions. However, positive mood only increased positive thoughts under highelaboration conditions, and controlling for positive thoughts eliminated the effect of mood on attitudes in these settings. This again suggests that the effect of mood can be the same on judgments even though the mediating process differs across conditions.

Finally, it is important to reiterate what the ELM does and does not specify. The ELM holds that different types of processes can mediate the effects of mood (and other variables) under low- and high-elaboration conditions (i.e., cue-based processes versus cognitive responses in reaction to scrutiny of central merits). The ELM does not specify one particular cue-based process for low-elaboration effects of mood or one particular process by which mood affects cognitive responses in high-elaboration settings. Thus, as noted in response to the first question, the ELM does not specify whether classical conditioning, mood as information, or some other low-effort process is the one that accounts for mood effects on low-elaboration conditions. Each of these relatively simple processes might account for mood effects in some low-elaboration settings. Similarly, ELM hypotheses regarding high-elaboration effects of mood do not depend on those effects being mediated by mood-congruent retrieval per se. We have engaged in initial research to uncover mechanisms by which mood has an impact in high-elaboration settings (e.g., Wegener et al., 1994). However, the key ELM prediction is that low-effort processes (such as classical conditioning) should be responsible for mood effects when the elaboration likelihood is low, but high-effort processes (such as those postulated by expectancy-value theories) should be responsible for mood effects when the elaboration likelihood is high (Petty & Wegener, 1991; Wegener & Petty, 1996). Still other processes (e.g., hedonic-contingency mechanisms; Wegener & Petty, 1994) are more likely to come into play when the elaboration likelihood is more moderate.

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REFERENCES


