

Affect and Managerial Performance: A Test of the Sadder-but-Wiser vs. Happier-and-Smarter Hypotheses

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This study provides a comparative test of two psychological theories concerning the relationship between affect and performance. Managerial simulations are used to test whether people who are positive in disposition perform better or worse on both decisional and interpersonal tasks. Results are consistent in supporting the happier-and-smarter as opposed to the sadder-but-wiser hypothesis, since they show positive relationships between dispositional affect and performance. The results are discussed in terms of their relevance to both the older literature on links between satisfaction and performance and the more recent controversy over the dispositional approach to job attitudes. •

Managers have long believed that the happy worker is a productive one, but decades of research on whether job satisfaction influences productivity have generally revealed a weak to nonsignificant relationship (Brayfield and Crockett, 1955; Iffaldano and Muchinsky, 1985). Only turnover and absenteeism have shown reliable linkages to satisfaction (Mobley, 1982). As a result of these findings, organizational researchers have had the unfortunate task of being the bearer of bad news, offering managers consolations such as, "satisfaction may predict decisions to participate if not decisions to perform" (March and Simon, 1958), or "satisfaction may follow from performance if contingent reward systems are in place" (Cherrington, Reitz, and Scott, 1971). It is unknown whether these consolations have been persuasive or whether we have been successful in convincing managers that job attitudes and performance are loosely coupled. Nonetheless, most researchers have long relegated the satisfaction-performance linkage to the folklore of management, as an unsubstantiated claim of practitioners and the popular press (Staw, 1986).

Recently, something interesting has happened that could reopen the issue of whether people's attitudes and performance are linked in organizations. While most of the field has assumed that the attitude-performance question was safely put to rest, the variables making up this relationship have undergone metamorphosis (Staw, Sutton, and Pelled, 1993). No longer is job satisfaction the only operationalization of attitudes at work. Instead, a number of researchers have been concerned with the expression of emotion on the job (Rafaeli and Sutton, 1989), positive and negative moods (Isen and Baron, 1991), and dispositional affect (Staw, Bell, and Clausen, 1986). Likewise, instead of considering job performance simply as a combination of work quantity and quality, other researchers have explored extrarole behavior (O'Reilly and Chatman, 1986), citizenship (Organ, 1988), and task revision (Staw and Boettger, 1990). These expansions of the construct space for both attitudes and performance now make it possible to test new linkages between these variables. In our view, one of the most promising reformulations of the attitude-performance question involves the study of affect in organizations. Before posing theoretical arguments or hypotheses, however, it is necessary to consider some definitional issues.

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0001-8392/93/3802-0304/\$1.00.

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We thank Jennifer Halpern for her role in the original planning of this study and for her contributions to the development of the coding scheme used in this project. This study was made possible by a faculty research grant to the first author from the Institute of Industrial Relations at the University of California at Berkeley.

The Nature of Job Attitudes

Attitudes have historically been a broad construct used to denote cognitive, affective, and behavioral aspects of the relationship between a person and social, physical, or ideological objects (e.g., Katz and Stotland, 1959). Using this definition, one's attitudes toward his or her job could include a set of beliefs about the work (e.g., it is easy or challenging), an affective reaction to the work (e.g., one likes it or not), and behavioral intentions (e.g., likelihood of leaving or recommending the job to a friend). An obvious problem with this definition is that it is difficult to know where the attitudinal construct leaves off and behavior begins. As a result, many researchers have followed Fishbein and Ajzen's (1975) recommendation that cognition, affect, and behavior be separated as much as possible and that attitudes primarily reflect the affective component of the person-object relationship. Many organizational researchers have also followed this convention. In an influential treatise on job satisfaction, Locke (1976: 1300), defined job satisfaction as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences." Smith, Kendall, and Hulin (1969: 6), in their development of the JDI indicator of job satisfaction, similarly proposed that "job satisfactions are feelings or affective responses to facets of the situation."

When job attitudes are explicitly equated with affective states, it is not much of a logical extension to argue that job attitude research should be expanded by incorporating more varied research on affect. This implies that job attitudes mean more than job satisfaction. Candidates for the study of affective reactions at work should therefore include the range of moods, emotions, and dispositions experienced by people in the organization. Whereas emotions, such as anger or fear, generally denote a strong reaction to a specific object or cause, moods usually refer to a milder, more diffuse affective state that may not be directed toward any single attitudinal object (Lazarus, 1991). Likewise, an affective disposition commonly refers to a general tendency to experience a particular mood (e.g., to be happy or sad) or to react to objects (e.g., jobs, people) in a particular way (Lazarus, 1991). Thus, one might propose that job attitude research can be broadened by considering a wider range of emotions directed toward the work situation, such as anger at supervisors, frustration with policies, or enthusiasm for the product. Alternatively, the study of job attitudes could be enriched by delving more deeply into the affective dispositions and moods that people bring to the work situation, the route we follow in this paper.

A number of recent studies have tested the behavioral consequences of affective states and dispositions (see Taylor and Brown, 1988; Isen and Baron, 1991, for reviews). For example, affect has been related empirically to helping behavior (George and Brief, 1992), evaluation of others (Cardy and Dobbins, 1986), risk taking (Isen, Nygren, and Ashby, 1988), negotiation skills (Carnevale and Isen, 1986), creativity (Isen, Daubman, and Nowicki, 1987), susceptibility to influence (Schwarz, Bless, and Bohner, 1991), and biases in information processing (Alloy and Abramson, 1988).

Certainly, as Isen and Baron (1991) noted, these consequences are relevant to our understanding of behavior in organizational settings. But, because many of these consequences are conflicting or contradictory, it is not yet clear how affect influences the performance of individuals working on organizational tasks. In the study that follows, we therefore provide a comparative test of two fundamental, yet conflicting perspectives underlying the relationship between affect and performance.

Affect and Managerial Performance

It can be argued that managerial performance is an especially good arena for investigating the behavioral consequences of affect. First, because the work of managers is relatively unstructured, it may be highly subject to influence by the person occupying the role (Miner, 1987; Bell and Staw, 1989). In contrast, because the tasks of lower-level employees are often machine-paced or highly routinized, it may be harder for them to control the way they perform their jobs. Thus, we might expect that the affective states of managers would more likely be translated into behavioral outcomes than would the affect of lower-level workers. Second, we believe that many of the behaviors one might expect to be influenced by affective states, as derived from previous psychological research, are central to managerial work (Mintzberg, 1973). Managers must make many decisions, often with ambiguous and incomplete data, in order to cope with both daily demands and longer-term strategic problems. Managers must also perform numerous interpersonal tasks such as working with staff, supervising others, participating in meetings, and representing the organization to outside constituencies. As we hypothesize below, individuals' affect may influence both the decision-making and interpersonal aspects of managerial performance.

Affect and Decision Making

A number of experimental studies have found links between positive mood and decision-making performance. The bulk of this research, conducted by Alice Isen and her colleagues, has used mild positive mood inductions, such as being offered food or a small gift, to examine the cognitive and behavioral consequences of affective states. Typical of the studies in this literature is that by Isen and Means (1983) showing that people who were made to feel happy performed a complex task (choosing a car for purchase among six alternatives, each differing along nine dimensions) more efficiently than control subjects. They were better able to eliminate unimportant information and find useful heuristics to solve the problem. Other research has indicated that positive affect can induce people to process information or solve problems creatively. Isen and Daubman (1984) found that positive affect led subjects to use broader categories for sorting information and to display more flexibility in their categorization schemes. Likewise, Isen et al. (1985) showed that people who were happy, compared with controls, gave more unusual and more diverse associations to neutral stimulus words. Finally, Isen, Daubman, and Nowicki (1987) demonstrated that increasing

positive affect improved people's performance on Duncker's (1945) classic candle task and Mednick's (1962) Remote Associates Test, both commonly used measures of creativity. Thus, it appears that positive affect may serve as a stimulus for certain kinds of problem-solving—decision tasks that are either so complicated that they require simplification and the use of heuristics, or activities that can be aided by greater cognitive flexibility and originality in response.

Studies examining the consequences of longer-term affective dispositions have also shown the beneficial results of positive disposition. Scheier, Weintraub, and Carver (1986) found that dispositional optimism (a generalized expectancy for positive outcomes) was associated with better adaptation under stress, problem-focused coping, seeking of social support, and emphasis on the positive aspects of stressful situations. In contrast, dispositional pessimism was associated with denial, distancing, focus on stressful feelings, and disengagement from goals. Finally, in one of the most interesting tests of the behavioral consequences of affective disposition, Seligman and Schulman (1986) found that optimistic, as opposed to pessimistic, explanatory style predicted the success of life insurance agents. In a job in which persistence is essential for performance, those who were dispositionally optimistic sold more insurance and stayed on the job longer than those who were dispositionally pessimistic.

From the psychological literature on positive mood and optimism, one might hypothesize that there are distinct advantages for managers who are positive in affect. In general, positive individuals appear to be more energized and also able to direct their energies in more appropriate directions than those who are negative in emotionality. Thus, when managers must make many decisions and cope with decisions that are complex, involving competing and ambiguous elements, positive affect should be a facilitating influence. One could expect that the flexibility, creativity, and persistence fostered by positive affective states will help managers perform better on the decisional component of their work roles. Hence, we propose:

Hypothesis 1: Managerial decision making will be facilitated or improved by positive affect.

Sadder but wiser. The psychological literature on affect does not uniformly support the view that positive affect has beneficial consequences. Some research shows that depressed people may actually be more accurate in their judgments than their nondepressed counterparts, such that they are sadder but wiser.¹ In a series of experimental studies, Alloy and Abramson (1979) found that nondepressed students significantly overestimated the degree of contingency between their responses and outcomes when the outcomes were desired and underestimated the degree of contingency when the outcomes were undesired. In contrast, depressed students were more accurate in their judgments regardless of whether the outcomes were desired or not. A number of follow-up studies have generally replicated this depressive realism effect (e.g., Alloy, Abramson, and Viscusi, 1981; Alloy and Abramson, 1982)

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In most of the research on sadder-but-wiser effects, students are categorized as "depressed" on the basis of their questionnaire responses to an inventory such as the BDI (Beck et al., 1961). Most subjects characterized as depressed in these studies are not severely or clinically depressed but, instead, display a mild or subclinical form of depression that could simply be labelled as unhappiness. Nearly one-third of college samples have typically been placed in this depressive group.

and have confirmed its causal direction (Martin, Abramson, and Alloy, 1984). Thus, although most people suffer from an optimism bias (Matlin and Stang, 1978; Lichtenstein, Fischhoff, and Phillips, 1982) and an illusion of control (Langer, 1975), those who are affectively negative seem to be relatively immune to these shortcomings.

Studies supporting the sadder-but-wiser hypothesis indicate that those with depressive tendencies may avoid a broad range of self-protective biases (Taylor and Brown, 1988). They may be less biased in attributing the causes of positive and negative outcomes (Sweeney, Anderson, and Bailey, 1986), less likely to minimize the possibility of negative events, or to overestimate the chance of positive events (Alloy and Ahrens, 1987). Depressives may also be less likely to perceive the world as under their control when it is, instead, subject to exogenous forces (Golin, Terrell, and Johnson, 1977). Finally, those who have depressive tendencies may be less likely to overestimate their own abilities in ambiguous task situations (Tabachnik, Crocker, and Alloy, 1983). The implication of these data is that the most accurate information processing may be practiced by those who are least positive in affect.

Additional support for the sadder-but-wiser hypothesis can be deduced from the attitude-change literature. Recent research on attitude change has identified two different information-processing strategies people may adopt when they are exposed to persuasive communications (Chaiken, 1980; Petty and Cacioppo, 1986). It has been argued that people use either systematic/central-route processing, involving detailed, analytic, and effortful evaluation of messages, or take a more heuristic/peripheral route, emphasizing surface features of the message or its source. Several empirical studies have shown that those who are induced to be in positive moods are less likely to distinguish between high- and low-quality messages and more likely to rely on source-credibility variables than those in neutral or negative moods (see Mackie and Worth, 1991; Schwarz, Bless, and Bohner, 1991, for reviews). It can therefore be argued that positive mood may either reduce one's capacity for information processing or inhibit one's motivation to go beyond simple heuristic processing.

Because managerial roles often require effortful, systematic, and relatively unbiased processing of information, the performance of individuals occupying these roles may be influenced by the cognitive illusions, biases, and simple heuristic processing found in the depressive realism and persuasion literatures. Thus, we can propose:

Hypothesis 2: Managerial decision making will be hindered by positive affect.

Resolving the controversy. Before one can extend the psychological research on affect to organizational settings, it is necessary to resolve the controversy between the sadder-but-wiser and what could be called the happier-and-smarter positions. To do this one cannot, however, simply sort managers according to their positive or negative emotionality and correlate affective measures with ratings of managerial performance. Organizational performance ratings

are too easily influenced by affective dimensions, so that one may be measuring positive halo rather than decision-making skills (Cooper, 1981). A better solution would be for either current or future managers to exhibit their decision-making skills on an exercise that is designed to parallel realistic organizational problems. Such an exercise could be objectively coded on specific dimensions that are designed to provide a fair test of the competing theoretical positions (Cooper and Richardson, 1986). For example, one might argue that both the happier-and-smarter and sadder-but-wiser hypotheses would make diametrically opposed predictions on the accuracy of decision making, as well as information search, recognition of contingencies, and analytical skills. The happier-and-smarter position would be that positive affect is beneficial to each of these aspects of decision making, while the sadder-but-wiser position would predict adverse effects on these same dimensions.

Affect and Interpersonal Behavior

Being positive in mood and disposition also appears to influence a broad range of interpersonal behavior, much of it self-reinforcing. As in a self-fulfilling cycle, positive people think more positively of others (Gouaux, 1971; Baron, 1987), and others also find them to be more attractive (Coyne, 1976; Cardy and Dobbins, 1986). The cyclicity of positive affect is probably due not only to possible halo effects (Cooper, 1981) but also to positive people actually being more interpersonally rewarding. A large literature links affect to helping behavior (e.g., Aderman, 1972; Fried and Berkowitz, 1979; Cunningham et al., 1990). As Isen and Baron (1991) noted, positive affect leads to sociable and benevolent acts, especially in situations in which such acts help to maintain the individual's positive affective state (Isen and Simmonds, 1978). Positive affect also seems to be important in interpersonal conflict situations. Individuals with positive affect have been found to be more cooperative and likelier to find integrative solutions in negotiation contexts (Carnevale and Isen, 1986). Finally, positive people appear to have more social influence. As Cialdini (1984) noted, being likable is useful for getting others to agree with one's position, so as to sell ideas as well as products. Perhaps, as predicted by Petty and Cacioppo's (1986) attitude-change model, being positive puts others in a similar mood state, thus enabling the person to be persuasive via peripheral as well as central-route processing of communication. Hence, both the weak and strong arguments of positive people may be influential in their interpersonal dealings with others.

In terms of organizational behavior, Organ (1988) noted that job satisfaction is a predictor of citizenship behaviors, those helpful acts that go beyond the normal requirements of a job. Similarly, George and Brief (1992) argued that positive affect is a broad determinant of spontaneous behavior in organizations, encompassing acts such as helping coworkers, protecting the organization, making constructive suggestions, and spreading goodwill. In many ways, both Organ (1988) and George and Brief (1992) have extended the consequences of affect beyond the person's interactions with others to his or her relationship with the organization as a whole.

Our hypothesis will be limited to the interpersonal behavior of managers with various levels of affect. We predict that those who are positive in affect will be more effective in situations in which interpersonal persuasion and negotiation are necessary—contexts in which managers must interact with others to procure resources or get policies approved and implemented. We predict that those who are most positive in affect will be rated most highly in terms of their interaction skills, participation in group decision making, leadership, and contribution to group solutions. Thus,

Hypothesis 3: Managers' interpersonal relations will be aided or improved by positive affect.

It is difficult to derive a hypothesis that might compete with the above position that happier individuals are more cooperative and interpersonally competent. One could hypothesize that highly critical people are perceived to be more intelligent than others because they have noticed the flaws in the arguments or preferences of others (Amabile, 1983). Nonetheless, it is not clear how such perceptions of intelligence would translate directly into improvements in interpersonal relations, and as a result, any sadder-but-interpersonally-competent hypothesis must be regarded as highly speculative.

Overview of the Study

The research reported here examined three hypotheses concerning the relationship between affect and managerial performance. Two of the hypotheses were contradictory, contrasting the sadder-but-wiser and happier-and-smarter effects on decision making, while the third hypothesis on interpersonal behavior added a further test of the happier-and-smarter position. As we describe below, a dispositional measure of affect was related to performance on both decisional and interpersonal exercises that were designed to simulate major aspects of managerial performance. These data were supplemented by summary ratings of managerial potential for individuals of various affect levels. Together, these data help elucidate the role of affect in managerial performance.

METHOD

The data for this study come from the M.B.A. assessment project conducted by the Institute of Personality and Social Research (IPSR) at the University of California at Berkeley. This project is a joint effort of business and psychology researchers to understand the personality determinants of organizational behavior.

Subjects. One hundred and eleven first-year M.B.A. students (64 men and 47 women) participated in an assessment center weekend. The mean age of the subjects was 27.6 years, ranging from a low of 21 to a high of 40 years of age. Subjects had an average of 3.4 years of work experience since their undergraduate degrees.

Only 12 M.B.A.s participated in each weekend assessment. These students were assessed by a 12-member personality staff and a six-member managerial staff. The personality staff consisted of psychology faculty, researchers affiliated

with IPSR, and doctoral students enrolled in a practicum course on the assessment of personality. The managerial staff consisted of faculty and doctoral students from the Haas School of Business and the organizational psychology program at Berkeley. Although the psychology faculty and research affiliates of IPSR were already very experienced in assessment techniques, all members of the personality and managerial staff received extensive training for the assessment tasks. The weekend assessment consisted of behavioral exercises, a decision simulation, in-depth interviews, and an extensive number of personality inventories. The M.B.A. students received personal feedback, as well as a small amount of course credit for their participation in the assessment.

Measurement of Affective Disposition

To measure affect we used a composite scale of positive affectivity. As defined by Watson (1988: 128), positive affectivity (PA) "reflects one's level of pleasurable engagement with the environment." High PA is characterized by high levels of enthusiasm, energy, mental alertness, and determination, while low PA reflects lethargy and depression (Watson, 1988; Watson, Clark, and Carey, 1988).

A scale of positive affectivity was constructed by averaging the standardized z scores for the following three measures: (1) A single-item, 9-point *self-report trait rating of positive affect*. Positive affect was described as "cheerful, enthusiastic, optimistic, accentuates the positive, versus pessimistic, discouraged, and emphasizes the negative." (2) An average score of the *personality assessors' rating of each participant's positive affect* on the same single-item 9-point scale described above. As described, 12 personality assessors rated each individual in terms of his or her affect. The mean interrater reliability was .82. (3) The well-being scale of the Multidimensional Personality Questionnaire (MPQ) (Tellegen, 1982). This scale consists of 24 true-false items assessing positive affect. Sample items are "I often feel happy and satisfied for no particular reason," "It is easy for me to become enthusiastic about things I am doing," and "I live a very interesting life." Like other MPQ measures, the well-being scale is factor analytically derived and has been shown to have acceptable internal consistency and reliability over time (Tellegen, 1982).

At least two of the three affect subscales had to be available for an M.B.A. participant to be included in the data set. Thus, the sample ranged from 94 to 111 subjects, depending on the dependent variable being analyzed. The average interitem correlation of this three-part affect scale was .47, ranging from a low of a .35 correlation between staff ratings of affect and the well-being scale to a .67 correlation between the well-being scale and self-ratings of affect. The coefficient alpha for the three-part affect scale was .74.

Assessing Decision Making

Decision making was assessed through a managerial simulation developed by Development Dimensions

International (DDI) (1983). The simulation is a three-hour in-basket exercise that includes 21 different decision items. The format is one in which the subject must assume the role of plant manager, due to the sudden death of one's predecessor. The subject must deal in written form with numerous accumulated problems to ensure the plant runs smoothly. The exercise is designed to simulate both the complexity and ambiguity of actual managerial decisions. Some of the problems need quick action, while others require the collection of additional data to make a sound decision. Some of the problems can be addressed on their own, while others require consideration of decisions on previous or subsequent items. Several problems necessitate actions to be taken by the subject, while others require use of one's staff to gather data or carry out tasks. Among the 21 decision items are problems involving manufacturing, personnel, research and development, and legal issues.

The original DDI coding scheme was revised for this research. We developed specific and objective categories for behavior on the in-basket, so as to reduce any problems of coder judgment and to increase replicability. The following decision dimensions were coded from the in-basket exercise: (1) *accuracy*: whether the decision made was actually the correct one; (2) *additional information*: whether additional data was requested from subordinates or gathered before making a decision; (3) *situational contingencies*: whether subjects recognized the interrelationship of problems and decisions to each other; (4) *use of data*: use of quantitative reports such as productivity and absenteeism indexes in making decisions; (5) *timeliness*: whether problems that needed quick action were addressed and others not undertaken prematurely; (6) *delegation*: whether tasks and decisions were delegated to the right person; and (7) *follow-up*: whether instructions were given to others for future reporting and meeting dates.

For each of the above coding categories, counts were made on whether the participant displayed the particular or appropriate behavior. A one or zero was recorded for each of the decision items that provided an opportunity to display the coded behavior. When a decision item did not provide an opportunity to display the behavior, no coding was done. A total score was calculated for each participant for each of the decision dimensions.

There was no scoring for the time participants took to complete the DDI exercise, because every participant appeared to use all of the available three hours. Differences in the quantity of items addressed and the thoroughness of their solution were assessed by the codings for decision quality described above.

Of the dimensions described here, the first four constitute the fairest comparative test of the sadder-but-wiser versus the happier-and-smarter hypotheses, since for each of them one could theoretically predict opposite results. On the latter three measures (timeliness, follow-up, and delegation), it is only possible to draw one-way or unitary predictions. For example, for timeliness and follow-up it is possible to predict an adverse influence of positive affect, since the sadder-but-

wiser position would imply more careful timing and greater follow-up on the behavior of others. Likewise, one might argue that positive people are better able to delegate properly on a complex problem. These latter predictions are more speculative inquiries, rather than comparative tests derived directly from the affect literature.

For each of the measured dimensions of decision making a simple count was used to note whether the behavior was exhibited or not. We then calculated the number of items on which subjects exhibited a given behavior, out of the total number of items on which there was an opportunity to show the behavior (not all 21 items involved each of the aspects of decision making). Finally, a percentage mean was noted for each decision dimension.

In-basket exercises have been shown to be relatively valid and reliable indicators of managerial decision making and administrative skills (Frederiksen, 1966; Thornton and Byham, 1982: 181–184). Such simulations may be especially useful when one of the variables of a theoretical test is likely to contaminate the measurement of performance. Several experimental studies have shown that rated positive affect and likability may lead to inflated performance ratings (Cardy and Dobbins, 1986; Krzystofiak, Cardy, and Newman, 1988; Smither, Collins, and Buda, 1989). Thus, to assess managerial decision making it may be advantageous to have objectively coded tasks such as in-basket exercises rather than in-situ performance ratings.

Assessing Interpersonal Performance

To assess interpersonal performance, we used a leaderless group discussion (LGD) exercise. LGD exercises are frequently used in managerial assessment centers and have been found to be both a valid and reliable measure of interpersonal skills and activity level (Bray and Grant, 1966; Thornton and Byham, 1982: 170–176). The LGD used in the M.B.A. assessment was a competitive exercise involving the allocation of limited resources. Each participant was asked to represent a subordinate's interest in getting a pay raise, as well as the best interests of the company. There were neither sufficient resources to meet all requested raises nor enough time to evaluate fully all the possibilities for allocating funds. Each participant not only had to persuade others of his or her claim on resources but also help move the group toward an overall allocation scheme that was acceptable to all group members. Thus, like many managerial tasks in which both distributive and integrative solutions are possible, participants were asked to work for their own as well as joint interests.

M.B.A. students participated in the LGD in groups of six. Participants were given ten minutes to study the case and then thirty minutes to reach a consensus decision on the allocation of pay raises for each of six candidates. The participants were ranked by their peers (the other five members of the group) on their overall performance and contribution to group effectiveness. They were also ranked by 12 personality assessment staff members who observed the group discussions. Staff ranked the following dimensions: extent of participation, quality of participation,

politeness, leadership, criticality, social compliance, mastery of information, and task engagement. The mean staff reliability was .95; the mean peer reliability was .81 (see also John and Robins, 1991).

Other Measures

Managerial potential. M.B.A. students were also assessed on more global dimensions of management. As noted earlier, for each group of 12 participants there were six members of a managerial assessment staff (separate from the 12-member personality staff used in the assessment of positive affect or the LGD exercises). The managerial assessors observed the LGD exercise (but did not formally rate participants on it), read the participants' responses to the in-basket exercise (without formally coding the responses), and conducted in-depth interviews. At the end of all assessment activities, the managerial staff met in three-person groups to discuss each participant's performance and, in turn, rated the participants on the following 15 dimensions: initiative, stress tolerance, energy, leadership, sensitivity to others, analytic thinking, decision making, creativity, factfinding, oral communication, written communication, control, planning and organizing, and delegation. The three-person assessment teams reached consensus ratings on each managerial dimension. If individual staff ratings differed by no more than 1 point (on a 5-point scale), the modal score was chosen as the consensus rating. If any of the staff ratings differed by more than 1 point, the assessors then discussed the participant and again rated that managerial dimension until consensus was reached. These 14 consensus ratings were averaged to create a managerial dimensions scale ($\alpha = .90$). In addition, a single-item rating scale of the overall managerial potential of the participant was obtained from each assessment team.

Satisfaction. Though not part of the tests of the sadder-but-wiser or happier-and-smarter hypotheses, we also measured the satisfaction of participants with the Berkeley M.B.A. program. Because prior research on affective disposition has predicted job satisfaction (e.g., Staw, Bell, and Clausen, 1986), we believed it would be useful to cross-check these results with previous findings. Thus, satisfaction with the following 15 specific aspects of the M.B.A. program was assessed: course material, the quality of teaching, fairness of grading, physical facilities of the school, opportunities for interaction with faculty, opportunities for interaction with other students, size of classes, scheduling of classes, relevance of the program to one's career, opportunity to take desired courses, expertise of the faculty, reputation of the school, amount of work required, opportunities to participate in school activities such as clubs, and opportunities to participate in extracurricular activities such as social events and parties. Seven-point rating scales on each of these 15 items were summed to form an overall measure of satisfaction with the M.B.A. program ($\alpha = .75$). An additional 5-item scale of general life satisfaction (including questions on the participant's social life, living situation, life in the Bay Area, progress in career development, and overall quality of life) was also administered to participants ($\alpha = .79$).

Control variables. Because performance on the in-basket and LGD exercises could be affected by common demographic variables, we controlled for sex, age, GMAT scores, and years of post-undergraduate work experience. Ability and experience might be expected to influence performance on the in-basket, while age and sex could influence ability to persuade or lead others on the LGD task.

Analysis

Although the three hypotheses we tested were phrased in terms of positive affect facilitating or hindering performance, our analyses are associative rather than causal. In addition, it is important to note that the theoretical literatures on which the hypotheses are based do not necessarily imply uniform relationships across all levels of affect and performance. The literature supporting the happier-and-smarter effect, for example, consists of studies comparing subjects with elevated levels of PA with control subjects who have not received any affect manipulation (e.g., receiving a gift or finding money in a telephone booth). Moreover, studies supporting the sadder-but-wiser effect have generally contrasted subjects who are at least mildly or subclinically depressed with those without depressive symptoms. Typical of these studies is Alloy and Ahrens' (1987), in which 532 college students were subdivided on the basis of self-report measures of depression (Beck, 1967). Twenty-six percent of this sample was categorized as at least mildly depressed, 36 percent as nondepressed, and the remaining students, between these extremes, were excluded from the study. Thus the theoretically appropriate test of the sadder-but-wiser position is an examination of the contrast between those with high and low affect, rather than simply testing for an inverse relationship between affect and performance. The conceptually parallel test for the happier-and-smarter position is an examination of the contrasts between individuals with high positive affect and those with other affect levels.

In dividing a sample for theoretical contrasts it is ideal to have measures scored exactly as they have been in the previous literature (e.g., using the same cut-off values on the Beck Depression Inventory). Because the IPSR data used a composite scale of observational and self-report measures of affect, rather than the Beck inventory, we approximated the cut-off values of the depressive realism literature by trichotomizing our sample on affect. We then conducted analyses of covariance on the performance measures, using sex, age, GMAT scores, and years of experience as covariates. Those who were lowest in PA could thus be compared statistically with those who were highest in a priori tests of the sadder-but-wiser position, while those who were highest in PA could be compared a priori with others for tests of the happier-and-smarter position. To examine the generality of the results beyond particular cut-off values for affect, we also conducted hierarchical regression analyses in which performance was predicted by both the composite measure of affect and control variables.

RESULTS

Because of its conceptual and methodological fit with the previous literature, analysis of covariance was the primary

procedure for comparing the sadder-but-wiser vs. happier-and-smarter hypotheses. All of the analyses presented here tested for the effects of high, medium, and low positive affect on decisional and interpersonal performance, using the control variables of sex, age, GMAT scores, and years of experience as covariates. As a cross-check on the results we have included, in the Appendix, hierarchical regression analyses on both decision-making and interpersonal performance. For each hierarchical regression analysis, control variables (sex, age, GMAT scores, and years of experience) were entered first into the equations predicting performance, followed by the composite measure of positive affect.

Table 1 reports the means and standard deviations of each of the measures used in the study, as well as their zero-order intercorrelations.

Decision Making

Table 2 shows the means for the high-, medium-, and low-affect groups on each aspect of decision making. A multivariate test examining whether there were differences between affect groups, across all the decision-making variables, showed a highly significant effect, [$F(14,194) = 2.39, p < .005$]. A univariate analysis of covariance showed significant differences between affect groups in overall accuracy or correctness of decisions [$F(2,104) = 3.12, p < .05$]. There also were significant univariate effects on the three decision-process measures of information requests

Table 1

Means, Standard Deviations, and Intercorrelations of Measures

Variables	N*	Mean	S.D.	Zero-order correlations†							
				1	2	3	4	5	6	7	
1. GMAT	111	625.05	68.50								
2. Age	111	27.55	3.87	.20							
3. Gender (0 = male, 1 = female)	111	.42	.50	.02	.10						
4. Years of work experience	111	3.38	2.94	.06	.59	-.03					
5. Affect	111	.00	.81	-.05	-.30	.02	-.04				
6. Decision-making accuracy	111	.56	.18	.25	.03	.14	.02	.20			
7. Amount of additional information requested	111	.31	.14	-.08	.19	.13	.26	.16	.07		
8. Recognition of situational contingencies	111	.48	.30	.25	.14	.22	.03	.06	.25	.19	
9. Use of quantitative indices	111	-.01	.77	.33	.32	.25	.14	.03	.35	.17	
10. Analytic index	111	.01	.64	.24	.31	.28	.20	.12	.31	.63	
11. Timeliness in decision making	111	.86	.11	.15	.12	.02	.05	-.05	.39	.15	
12. Correct decision delegation	111	.62	.13	.35	.17	.20	.01	.06	.45	-.05	
13. Amount of follow-up	111	.38	.15	.08	.12	.19	.14	-.12	.11	.31	
14. Peer rankings of performance and contribution to group effectiveness in LGD	83	3.43	1.33	.19	.11	.01	.15	.20	.14	.16	
15. Quality of participation ranking in LGD	94	6.53	2.43	.29	.20	.11	.13	.24	.21	.18	
16. Mastery of information ranking in LGD	94	6.53	2.33	.31	.24	.12	.17	.17	.20	.18	
17. Leadership ranking in LGD	94	6.54	2.74	.24	.14	.06	.12	.24	.18	.17	
18. Extent of participation ranking in LGD	94	6.53	2.88	.20	.13	.03	.17	.24	.13	.13	
19. Task engagement ranking in LGD	94	6.52	2.27	.27	.18	.15	.14	.18	.17	.16	
20. Being critical ranking in LGD	94	6.54	2.54	.14	.09	-.09	.14	.00	.02	.04	
21. Social compliance ranking in LGD	94	6.53	2.56	-.06	-.08	.06	-.14	-.02	.00	-.07	
22. Politeness ranking in LGD	94	6.54	2.35	.04	.03	.23	-.09	.10	.12	.06	
23. Managerial dimension scale ratings	111	3.17	.59	.26	.17	.25	.13	.15	.37	.18	
24. Overall rating of managerial potential	111	2.54	.87	.35	.16	.08	.18	.20	.23	.08	
25. Satisfaction with the MBA program	111	4.60	.63	.05	-.19	-.23	-.11	.30	.17	-.12	
26. General life satisfaction	111	5.30	1.06	-.12	-.17	.03	-.11	.52	.12	.12	

* The sample size for an intercorrelation will be that of the lower number of the pair.

† Correlations above .19, $p < .05$, with a sample size of 111; correlations above .20, $p < .05$, with a sample size of 94; correlations above .22, $p < .05$, with a sample size of 83; all two-tailed tests.

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[$F(2,104) = 3.17, p < .05$], recognition of situational contingencies [$F(2,104) = 3.06, p < .05$], and use of data [$F(2,104) = 3.35, p < .05$]. Combining these three process measures into an overall analytic skills index yielded a highly significant effect [$F(2,104) = 4.84, p < .01$]. Each of these statistical effects was in the direction of facilitation, supporting the happier-and-smarter hypothesis, using two-tailed tests of significance. There were no significant effects for the timeliness of decisions, decision delegation, or the amount of follow-up requests.

Table 2 shows the a priori contrasts used for making specific tests of the sadder-but-wiser and happier-and-smarter positions. In no case did an a priori contrast support the depressive realism effect; the low-affect group was invariably below the high-affect group in mean performance on the decision task. The predominant effect was in the direction of a facilitating influence of affect, though the differences between the various means did not appear as a perfectly linear trend. Regression analyses using polynomial models did not, however, reveal significant curvilinearity in the data.

Regression analyses on decision making, shown in Table A.1 in the Appendix, yielded similar, though weaker results than those of the analyses of covariance. After controlling for the effects of GMAT, age, gender, and years of experience, the regression equations showed that affect significantly predicted decision-making accuracy, the amount of information requested, and the analytical index. Unlike the

Table 1 (continued)

8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
.38																	
.75	.68																
.03	.19	.17															
.30	.35	.29	.26														
.12	.13	.27	.12	.18													
.12	.24	.24	.12	.09	-.05												
.15	.18	.24	.22	.19	-.03	.80											
.15	.25	.27	.19	.25	.06	.77	.90										
.16	.14	.23	.21	.19	-.02	.86	.91	.89									
.11	.12	.17	.20	.12	-.08	.81	.76	.84	.91								
.10	.16	.20	.24	.16	.05	.75	.87	.90	.87	.85							
.01	.09	.06	.11	-.03	-.13	.52	.46	.63	.62	.79	.62						
-.02	-.01	-.06	-.09	.08	.09	-.48	-.42	-.61	-.60	-.77	-.61	-.93					
.03	.06	.07	.01	.12	.17	-.11	.06	-.17	-.18	-.44	-.13	-.78	.79				
.18	.31	.30	.29	.33	.08	.51	.55	.54	.57	.52	.52	.35	-.28	-.01			
.20	.25	.24	.21	.28	.02	.49	.49	.48	.54	.51	.49	.37	-.31	-.12	.75		
-.22	-.07	-.20	.12	-.03	-.06	.03	.02	.01	.01	-.04	-.01	-.06	.05	.10	.04	.20	
.09	-.03	.09	.06	.01	-.11	.06	.10	.09	.09	.08	.12	.02	-.07	.00	.02	.07	.37

analysis of covariance results, however, the regression coefficients did not indicate a significant influence of affect on recognition of situational contingencies or the use of quantitative indices.

Interpersonal Performance

Table 3 shows the interpersonal performance of individuals divided according to affect group. A multivariate test examining differences across all the interpersonal variables showed a highly significant effect [$F(18,124) = 2.16, p < .01$]. A univariate analysis of covariance showed significant differences between the affect groups on peer ratings of performance [$F(2,76) = 3.61, p < .05$]. There were also significant univariate effects on observers' ratings of quality of participation [$F(2,87) = 4.44, p < .05$], mastery of information [$F(2,87) = 3.65, p < .05$] and leadership [$F(2,87) = 3.52, p < .05$], as well as a marginally significant effect on the extent of participation [$F(2,87) = 2.47, p < .10$]. Each of these effects, as well as the a priori contrasts shown in Table 3, indicated that more positive individuals performed better on the interpersonal task. There were no significant effects on the interpersonal dimensions that were less directly related to performance, such as task engagement, being critical, social compliance, and politeness.

The regression results on interpersonal performance, shown in Table A.2 of the Appendix, were similar to those of the analyses of covariance, although somewhat stronger. After controlling for effects of GMAT, age, gender, and experience, there was a significant influence of affect on

Table 2

Analysis of Variance of Affect and Decision Making*

Decision making	Overall mean	Low-affect group mean	Med.-affect group mean	High-affect group mean	Overall <i>F</i> -test	Group comparison ($p < .05$)
Decision-making accuracy	.557 (.183)	.496 (.176)	.581 (.176)	.594 (.185)	3.12*	Low vs. high Low vs. medium
Amount of additional information requested before making decisions	.313 (.141)	.266 (.146)	.334 (.122)	.340 (.149)	3.17*	Low vs. high Low vs. medium
Recognition of situational contingencies	.478 (.297)	.431 (.305)	.428 (.276)	.575 (.29)	3.06*	Low vs. high Medium vs. high
Use of quantitative indices in decision making (e.g., productivity, absenteeism, and attitude indices—mean of normalized measures)	-.013 (.772)	-.04 (.871)	-.216 (.648)	.22 (.772)	3.70*	Medium vs. high
Analytic index (index of additional information requested prior to making decisions, situational contingencies recognized, and use of quantitative indices—mean of normalized measures)	.008 (.644)	-.162 (.683)	-.069 (.556)	.256 (.64)	4.94**	Low vs. high Medium vs. high
Timeliness in decision making	.855 (.105)	.864 (.09)	.854 (.114)	.847 (.110)	.21	
Correct decision delegation	.620 (.127)	.589 (.133)	.637 (.122)	.635 (.126)	1.85	
Amount of follow-up requested	.379 (.147)	.374 (.149)	.413 (.163)	.350 (.124)	1.68	

* $p < .05$; ** $p < .01$.

* Controlling for GMAT, age, gender, and years of experience. Adjusted means are reported. $N = 37$ for the low-, medium-, and high-affect groups (111 total).

Table 3

Analysis of Variance of Affect and Leaderless Group Discussion Performance Rankings*

Leaderless group discussion performance rankings†	Overall mean	Low-affect group mean	Med.-affect group mean	High-affect group mean	Overall <i>F</i> -test	Group comparison ($p < .05$)
Peer ranking of overall performance & contribution to group effectiveness (1-6)‡	3.43 (1.33)	3.31 (1.29)	3.04 (1.29)	3.98 (1.23)	3.61**	Low vs. high§ Medium vs. high
Quality of participation (1-12)	6.53 (2.43)	5.89 (2.26)	6.13 (2.47)	7.50 (2.31)	4.44**	Low vs. high Medium vs. high
Mastery of information (1-12)	6.53 (2.33)	6.21 (2.19)	5.96 (2.61)	7.35 (1.93)	3.65**	Low vs. high Medium vs. high
Leadership (1-12)	6.54 (2.74)	5.90 (2.8)	6.09 (2.85)	7.55 (2.31)	3.52**	Low vs. high Medium vs. high
Extent of participation (1-12)	6.53 (2.88)	5.79 (2.88)	6.32 (3.2)	7.39 (2.37)	2.47*	Low vs. high
Task engagement (1-12)	6.52 (2.27)	6.33 (2.32)	6.11 (2.47)	7.07 (1.95)	1.62	
Being critical (1-12)	6.54 (2.54)	6.69 (2.6)	6.38 (2.89)	6.54 (2.14)	.11	
Social compliance (1-12)	6.53 (2.56)	6.34 (2.69)	6.84 (2.69)	6.41 (2.33)	.31	
Politeness (1-12)	6.54 (2.35)	6.13 (2.29)	6.43 (2.08)	7.02 (2.62)	1.12	

* $p < .10$; ** $p < .05$.

* Controlling for GMAT, age, gender, and years of experience. Adjusted means are reported; $N = 30$ for the low-affect group, $N = 31$ for the medium-affect group, and $N = 33$ for the high-affect group (94 total).

† Variables were recoded so that the higher the number, the higher the ranking.

‡ $N = 30$ for the low-affect group, $N = 27$ for the medium-affect group, and $N = 26$ for the high-affect group (83 total).

§ $p < .10$.

ratings of performance, participation, mastery of information, leadership, extent of participation, and task engagement.

Ratings of Managerial Performance

Table 4 shows the cell means for the three affect groups on staff ratings of managerial performance. There were significant effects on both the managerial dimensions scale [$F(2,104) = 3.68, p < .05$] and the overall rating of managerial performance [$F(2,104) = 4.25, p < .05$]. Consistent with the data on decision making and interpersonal performance, those who were positive in affect were rated higher in managerial potential than those lower in affect. The regression results, shown in Table A.3 in the Appendix, also showed significant effects of affect on

Table 4

Analysis of Variance of Affect and Ratings on Managerial Dimensions*

Managerial dimensions	Overall mean	Low-affect group mean	Med.-affect group mean	High-affect group mean	Overall <i>F</i> -test	Group comparison ($p < .05$)
Managerial dimension scale	3.168 (.594)	2.960 (.594)	3.269 (.564)	3.274 (.591)	3.68*	Low vs. high Low vs. medium
Overall managerial potential	2.541 (.872)	2.216 (.863)	2.702 (.861)	2.703 (.830)	4.25*	Low vs. high Low vs. medium

* $p < .05$.

* Controlling for GMAT, age, gender, and years of experience. Adjusted means are reported. $N = 37$ for the low-, medium-, and high-affect groups (111 total).

ratings of managerial performance, after controlling for GMAT, age, gender, and years of experience.

DISCUSSION

It is often difficult, if not impossible, to build a perfect comparative test of theories. Advocates of each theoretical position may argue that the operationalization and testing favors one particular approach or another. Though this study was not immune to these potential difficulties, we would argue that both the sadder-but-wiser and happier-and-smarter positions were given a fair chance for confirmation by this research. The results of the comparative tests were not of uniform strength, but they were consistent in direction. On each set of dependent variables—those of decision making, interpersonal performance, and ratings of managerial potential—there was at least some evidence of a facilitating rather than an inhibiting role for positive affect.

Decision Making

The high-PA group was more accurate in its decisions, getting more of the in-basket items correct than those in either the low or mid-level affect groups. High-PA people also seemed to perform better on the processes underlying good decision making. They requested more information when there were insufficient data to make reasonable decisions. And, at least in the covariance analyses, high-PA people had a greater tendency to recognize situational contingencies, such as seeing when one decision would adversely influence another, and to make greater use of the data provided in the exercise. These significant relationships consistently supported the happier-and-smarter rather than the sadder-but-wiser position.

There were no significant effects on timeliness, delegation, and follow-ups requested. As noted earlier, these measures were not designed as comparative tests of the two theories. Although we predicted that low-PA people would be more careful in their timing of decisions and tend to retain decisions for themselves, because such predictions were not directly implied by the depressive realism literature, it is perhaps understandable why significant results were not obtained. In contrast, it could be argued that the follow-up measure was a stronger operationalization of careful and systematic decision making. This was the only direct test of the sadder-but-wiser position that did not show significant results in the direction opposite to prediction.

The accuracy and care that high-PA people displayed in their decision making was precisely counter to what would have been expected had individuals used more heuristic rather than systematic processing of information (Chaiken, 1980). Perhaps managerial decisions cue M.B.A. students into a heuristic of careful decision making. Such an argument would, of course, be stretching the intention of the sadder-but-wiser literature and make its hypothesis virtually untestable, because nearly any result could confirm the theory. More likely is the explanation that positive affect provides an energizing function that enables people to delve more deeply into decision tasks. Positive individuals tend, as posited by Isen and Baron (1991), to search more broadly

and to consider information more thoroughly than those who must labor with unhappy thoughts or depressed affect.

Interpersonal Behavior

The leaderless group data also showed a positive relationship between affect and interpersonal performance. On both peer and staff ratings, people who were high in positive affect scored better on several measures of interpersonal behavior. Positive individuals were judged by their peers to have made greater contributions to group effectiveness. Their participation and leadership were also rated more highly by staff observers, and so was their mastery of information needed to present their cases persuasively. Interestingly, there were no significant effects on the measures of being critical, social compliance, and politeness. What this pattern of data seems to show is that positive affect is not necessarily responsible for people being just nice or accommodating but, rather, more effective interpersonally. This pattern of results also runs counter to the possibility that the data are simply a function of halo effects. If halo or liking accounted for all the interpersonal effects, one would have expected the strongest results to have been manifested on affectively toned items. Yet, there were no significant effects on the items such as being critical, social compliance, and politeness. Instead, the strongest results were evidenced on the performance-related measures, such as extent and quality of participation, mastery of information, and contribution to group effectiveness. Moreover, if the results were simply a product of halo, one might have expected that the effects on peer ratings would have been stronger than those on ratings by trained staff. Yet, as shown in Table 2, there were no significant differences between staff and peer ratings in the relationship between affect and interpersonal performance.

What the interpersonal data show is that people high in positive affect are more competent interpersonally, able to contribute more to group solutions and exert a leadership role among others. In many ways, these results should not be surprising, for positive affect has been found to be associated with extraversion and sociability (Tellegen, 1982). Nonetheless, these results may also indicate that high-PA individuals are simply competent people who not only can make good decisions on solitary tasks such as the DDI but can also influence a group in productive ways.

Managerial Potential

The most global measures used in this study were ratings of the managerial potential of participants. Much as in an assessment center (Thornton and Byham, 1982), managerial staff used observations and interviews of the individuals, as well as the DDI and LGD exercises to judge the career potential of each participant. Though not independent of the simulation data, the assessments were derived from a different set of judges and based on a broader coding of performance than the measures of decision making and interpersonal behavior. If one assumes that the managerial staff (business school faculty and doctoral students) are good judges of future achievement, then these ratings mean that those with positive affect are more likely to be

successful in their careers. If one is skeptical about the ability of assessment centers to predict performance, and perhaps considers these ratings to be biased by halo effects, then one must still confront the fact that high-PA individuals are more likely to create positive impressions underlying judgments of managerial potential.

In organizations, managers' salary and promotion decisions are seldom a simple averaging of objective achievements. Except in sales positions, quantitative data are rarely available for judging the performance of managers, and even when clearcut data are present, they must often be conditioned by qualitative factors, such as a major plant closing in the person's sales district. Thus most organizational evaluations are based on an amalgam of quantitative and qualitative information, not unlike that available to our managerial staff, whose task it was to rate each participant's potential. As a result, we would expect the managerial staff ratings to be a reasonable prognosis of how this sample will fare in organizations. From these results we can conclude that high-PA people are more likely to be rated positively by their organizations and be more successful in their work careers than low-PA people.

Fit with Concurrent Research

Two recent reanalyses of field data completed after the start of this research showed conceptually parallel results. Using available longitudinal data, Staw, Sutton, and Pelled (1993) found that positive affect was a significant predictor of increases in supervisory evaluations, pay, and social support at work. House, Howard, and Walker (1991) likewise found that a composite measure of optimism predicted promotions over time among a sample of AT&T managers. These field studies add external validity not available from our simulation data using the M.B.A. sample. At the same time, the systematic observations provided by our decision-making and interpersonal tasks add a degree of precision and internal validity not present in these archival analyses of field data. Because the evaluation of performance in organizations can be subject to so many influences, such as social labeling, liking, power, and social similarity, it is important to know if positive affect really is related to effectiveness on managerial tasks. The present data on decisional and interpersonal performance strongly suggest this to be the case.

Attitudes and Performance

We noted at the outset of this paper that attitude-performance research could be improved by a broader operationalization of the constructs and that one promising avenue was to expand attitudinal research beyond the traditional measurement of job satisfaction to the investigation of affect in organizations. Measures of affect and satisfaction are no doubt related (e.g., in this study, affect was correlated .45 with the 5-item scale of life satisfaction and .30 with the 15-item scale of M.B.A. program satisfaction). In addition, dispositional affect has been shown to significantly predict job satisfaction over people's entire working careers (Staw, Bell, and Clausen, 1986). Nonetheless, by focusing on affect rather than

satisfaction it may be possible to be more successful in predicting organizational performance.

Dispositional affect may be a more useful predictor of organizational performance than satisfaction because it is more stable and enduring over time, allowing continual as opposed to fleeting attitudinal influences on behavior. For example, the person who tends to be optimistic and views the world positively may generally be more persistent and energetic in work contexts (Seligman and Schulman, 1986). The positive individual may also approach customers in a more friendly and engaging manner (Rafaeli and Sutton, 1989). These tendencies may not be as dependent on the transient mood of the individual, the particular conditions of employment, or social comparisons often underlying job satisfaction and dissatisfaction. Measures of dispositional affect might especially have advantages in predicting the performance of employees over long stretches of time. Performance ratings, as well as pay and promotion decisions, are infrequent events designed to reflect months (or years) of previous employment. Therefore, if the effects of job satisfaction are ephemeral, we would not expect there to be as strong a relationship between satisfaction and performance as the linkage between dispositional affect and performance.

Positive affect may also be a predictor of performance because it is a repository of past experiences with the world. As Campbell (1963) noted 30 years ago, attitudes should be considered as acquired behavioral dispositions, where one's orientation toward an attitudinal object is considered to be a product of past relationships as well as a guide to future interactions. Assuming that prior success is reinforcing, one might therefore expect that successful people would be high in dispositional affect. A positive and optimistic view of events and people implies that the world has been and is likely to remain benevolent. For example, Dunning and Story (1991) recently found that students who were categorized as depressed predicted *and experienced* more negative events than those who were not depressed. It is, of course, arguable whether positive affect is a cause of success, such that positive people do things to improve their chances in life, or, alternatively, whether affect is simply a consequence of one's performance. Our data, along with those of Seligman and Schulman (1986), imply that positive people do perform tasks differently than those who are negative, although an answer to the exact causal relationships between affect and performance must await further research.

Logically, one would expect the relationship between affect and performance to be dependent on the type of task involved. Perhaps both the decision simulation and LGD exercise used here were more receptive to affective influences than tasks used in typical performance studies. For example, having to work on a repetitive assembly line, without the need for complex cognitive processing, might diminish or reverse the advantages of a positive disposition. It is also possible that other tasks may be more receptive to sadder-but-wiser effects. Low-PA people might do better on a forecasting or risk-taking task than those with high PA. The

low-PA person may also have special advantages in performing a job in which negative affective displays are necessary, such as that of a bill collector (Sutton, 1991). Sorting out these possible interactions between affect and task type should be part of the agenda for future research on job attitudes.

Some Measurement Considerations

It is conceptually possible, as we noted earlier, to break attitudes into cognitive and affective components. In practice, however, it is difficult to draw firm boundaries between the affective and cognitive realms. Most attitude scales contain both affective and cognitive items (Brief and Roberson, 1989), and even measures of positive affect usually contain some cognitive items. Though it may be cleaner theoretically to use purely evaluative measures to tap affective disposition, the incorporation of cognitive items (usually those on optimism/pessimism) may increase the power of prediction. Thus, comparative studies using both affective (e.g., Tellegen's well-being scale or Watson's PANAS measure) and cognitively based measures (e.g., Seligman's measure of explanatory style) may be a useful avenue for future research.

There is still some controversy over whether affect represents a single dimension, anchored by positive-negative poles, or two separate dimensions in which positive affect is not the polar opposite of negative affect. Watson and his associates have strongly argued the case for treating positive and negative affect as separate conceptual dimensions (Watson and Tellegen, 1985; Watson, Clark, and Carey, 1988). As both Watson (1988) and Tellegen (1985) pointed out, however, the dimensionality of affect seems to be highly dependent on the adjective descriptors used in the scales. They noted that many mood terms reflecting happiness ("happy, cheerful") and contentment ("satisfied, pleased, contented") reflect both high positive affect and low negative affect. Conversely, descriptors denoting depression ("sad, blue, gloomy") and loneliness ("alone, lonely") serve as significant markers for both low positive affect and high negative affect. Watson and Tellegen (1985) labeled these descriptors "pleasantness terms" and cautioned against using these mixed markers in affect scales. To us, these pleasantness items, avoided by some of the popular affect scales such as the PANAS, may be exactly the descriptors needed to best capture the construct of affective disposition. In conducting future research, we therefore believe it is appropriate to measure happy and sad states, regardless of whether they are incorporated into a single bipolar scale (e.g., Diener and Emmons, 1984) or two scales measuring positive and negative affect.

Further Implications of Dispositional Affect

Past research has shown that happiness should not be considered simply as a transient state. Though situational conditions can certainly influence one's mood or reactions to a particular stimulus, it has been shown that affective disposition has continuity over time (Costa, McCrae, and Zonderman, 1987) and perhaps even a genetic component (Arvey et al., 1989; Bouchard and McGue, 1990). The

implications of thinking of happiness as a dispositional variable are substantial. One consequence is that job attitudes may be as dependent on the disposition of the individual as on the characteristics of the job or working conditions (Staw and Ross, 1985). Though controversial (see Davis-Blake and Pfeffer, 1989), some evidence already exists to support the influence of dispositional affect on job satisfaction (e.g., Staw, Bell, and Clausen, 1986).

A second implication of the dispositional nature of affect concerns the selection of organizational members. Staw and Ross (1985) had previously cautioned against the selection of employees on the basis of affective disposition. Even though dispositionally positive people are likely to have greater job satisfaction, they noted, based on Alloy and Abrahamson's (1979) findings, that the most positive individuals may not be the best performers. They argued that roles involving critical and decision-making skills would be most subject to a depressive realism effect, thus canceling any benefits that dispositionally positive employees might bring in terms of job satisfaction and related participation behaviors. After completing this study, the costs of positive affect are yet to be discovered. Positive people may instead be more productive, at least on the decision-making and interpersonal tasks assessed in this study. Additional research is of course necessary to uncover any overlooked costs as well as additional benefits of positive affect in organizations.

Conclusion

We began this article by noting that managers have long believed that the happy worker is a productive one, even though decades of data collection have failed to substantiate such a claim. What this study has shown is that it may be time to reopen the happiness-productivity question. Our data show that managers' deep-seated beliefs may not be fundamentally wrong, only off-base in terms of the specific mechanisms involved. Happy people may indeed be those who are most productive; however, rather than happiness and productivity being related as two separate, transient states, where increased satisfaction presumably results in increased performance, it is possible that such a relationship is more dispositionally based. We have shown that those who are high in dispositional affect may also perform better on tasks that involve decision making and interpersonal relations. It remains for future research to sort out the causal dynamics involved. We do not yet know whether dispositional affect triggers more transient affective states, which in turn influence performance; whether affect and performance are both part of a higher-order syndrome of personality traits; or whether both affect and performance covary over time with enduring features of people's work and life situation. Each of these inquiries has merit as a possible route for future research. Thus, we would argue that not only has belief in the happy-productive worker probably been dismissed prematurely, but that this seemingly simple hypothesis can and should be transformed into a series of more interesting and complex research questions.

REFERENCES

- Aderman, David**
1972 "Elation, depression, and helping behavior." *Journal of Personality and Social Psychology*, 24: 91-101.
- Alloy, Lauren B., and Lyn Y. Abramson**
1979 "Judgment of contingency in depressed and nondepressed students: Sadder but wiser?" *Journal of Experimental Psychology: General*, 108: 441-485.
1982 "Learned helplessness, depression and the illusion of control." *Journal of Personality and Social Psychology*, 42: 1114-1126.
1988 "Depressive realism: Four theoretical perspectives." In Lauren B. Alloy (ed.), *Cognitive Process in Depression*: 223-265. New York: Guilford.
- Alloy, Lauren B., Lyn Y. Abramson, and Donald Viscusi**
1981 "Induced mood and the illusion of control." *Journal of Personality and Social Psychology*, 41: 1129-1140.
- Alloy, Lauren B., and Anthony H. Ahrens**
1987 "Depression and pessimism for the future: Biased use of statistically relevant information in predictions for self versus others." *Journal of Personality and Social Psychology*, 52: 366-378.
- Amabile, Teresa M.**
1983 "Brilliant but cruel: Perceptions of negative evaluators." *Journal of Experimental Social Psychology*, 19: 146-156.
- Arvey, Richard D., Thomas J. Bouchard, Nancy L. Segal, and Lauren M. Abraham**
1989 "Job satisfaction: Environmental and genetic components." *Journal of Applied Psychology*, 74: 187-192.
- Baron, Robert A.**
1987 "Mood interviewer and the evaluation of job candidates." *Journal of Applied Social Psychology*, 17: 911-926.
- Beck, Aaron T.**
1967 *Depression: Clinical, Experimental and Theoretical Aspects*. New York: Harper & Row.
- Beck, Aaron T., C. H. Ward, M. Mendelson, J. E. Mock, and J. Erbaugh**
1961 "An inventory for measuring depression." *Archives of General Psychiatry*, 4: 561-571.
- Bell, Nancy E., and Barry M. Staw**
1989 "People as sculptors versus sculptor: The roles of personality and personal control in organizations." In Michael B. Arthur, Douglas T. Hall, and Barbara S. Lawrence (eds.), *Handbook of Career Theory*: 232-251. New York: Cambridge University Press.
- Bouchard, Thomas I., and Matthew McGue**
1990 "Genetic and rearing environmental influences on adult personality: An analysis of adopted twins reared apart." *Journal of Personality*, 58: 263-292.
- Bray, Douglas W., and Donald L. Grant**
1966 "The assessment center in the measurement of potential for business management." *Psychological Monographs: General and Applied*, 80: 1-27.
- Brayfield, Arthur H., and Walter H. Crockett**
1955 "Employee attitudes and employee performance." *Psychological Bulletin*, 52: 396-424.
- Brief, Arthur P., and Loriann Roberson**
1989 "Job attitude organization: An exploratory study." *Journal of Applied Social Psychology*, 19: 717-727.
- Campbell, Donald T.**
1963 "Social attitudes and other acquired behavioral dispositions." In Sigmund Koch (ed.), *Psychology: A Study of a Science*, 6: 94-172. New York: McGraw-Hill.
- Cardy, Robert L., and Gregory H. Dobbins**
1986 "Affect and appraisal accuracy: Liking as an integral dimension in evaluating performance." *Journal of Applied Psychology*, 71: 672-678.
- Carnevale, Peter J. D., and Alice M. Isen**
1986 "The influence of positive affect and visual access on the discovery of integrative solutions in bilateral negotiation." *Organizational Behavior and Human Decision Processes*, 37: 1-13.
- Chaiken, Shelly**
1980 "Heuristic versus systematic information processing and the use of source versus message cues in persuasion." *Journal of Personality and Social Psychology*, 39: 752-766.
- Cherrington, David J., H. Joseph Reitz, and William E. Scott**
1971 "Effects of contingent and non-contingent rewards on the relationship between satisfaction and performance." *Journal of Applied Psychology*, 56: 531-536.
- Cialdini, Robert B.**
1984 *Influence: How and Why People Agree to Things*. New York: Morrow.
- Cooper, William H.**
1981 "Ubiquitous halo." *Psychological Bulletin*, 90: 218-244.
- Cooper, William H., and Alan J. Richardson**
1986 "Unfair comparisons." *Journal of Applied Psychology*, 71: 179-184.
- Costa, Paul T., Robert R. McCrae, and Alan B. Zonderman**
1987 "Environmental and dispositional influences on well-being: Longitudinal follow-up of an American national sample." *British Journal of Psychology*, 78: 299-306.
- Coyne, James C.**
1976 "Depression and the response of others." *Journal of Abnormal Psychology*, 85: 186-193.
- Cunningham, Michael R., David R. Shaffer, Anita P. Barbee, Patricia L. Wolff, and David J. Kelley**
1990 "Separate processes in the relation of elation and depression to helping: Social versus personal concerns." *Journal of Experimental Social Psychology*, 26: 13-33.
- Davis-Blake, Alison, and Jeffrey Pfeffer**
1989 "Just a mirage: The search for dispositional effects in organizational research." *Academy of Management Review*, 14: 385-400.
- Development Dimensions International**
1983 *Industrial Manager's In-basket*. Pittsburgh, PA: Development Dimensions International.

- Diener, Ed, and Robert A. Emmons**
1984 "The independence of positive and negative affect." *Journal of Personality and Social Psychology*, 47: 1105-1117.
- Duncker, Karl**
1945 "On problem-solving." *Psychological Monographs*. 58: Whole No. 5.
- Dunning, David, and Amber L. Story**
1991 "Depression, realism, and the overconfidence effect: Are the sadder wiser when predicting future actions and events?" *Journal of Personality and Social Psychology*, 61: 521-532.
- Fishbein, Martin, and Icek Ajzen**
1975 *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Frederiksen, Norman**
1966 "Validation of a simulation technique." *Organizational Behavior and Human Performance*, 1: 87-109.
- Fried, Rona, and Leonard Berkowitz**
1979 "Music hath charms . . . and can influence helpfulness." *Journal of Applied Social Psychology*, 70: 314-328.
- George, Jennifer M., and Arthur P. Brief**
1992 "Feeling good—doing good: A conceptual analysis of the mood at work—organizational spontaneity." *Psychological Bulletin*, 112: 310-329.
- Golin, Sanford, Francis Terrell, and Barbara Johnson**
1977 "Depression and the illusion of control." *Journal of Abnormal Psychology*, 86: 440-442.
- Gouaux, Charles**
1971 "Induced affective states and interpersonal attraction." *Journal of Personality and Social Psychology*, 20: 37-43.
- House, Robert J., Ann Howard, and Gordon Walker**
1991 "The prediction of managerial success: A competitive test of the person-situation debate." Paper presented at the Annual Meeting of the Academy of Management, Miami.
- Iffaldano, Michelle T., and Paul M. Muchinsky**
1985 "Job satisfaction and job performance: A meta analysis." *Psychological Bulletin*, 97: 251-273.
- Isen, Alice M., and Robert A. Baron**
1991 "Positive affect as a factor in organizational behavior." In Barry M. Staw and Larry L. Cummings (eds.), *Research in Organizational Behavior*, 13: 1-54. Greenwich, CT: JAI Press.
- Isen, Alice M., and Kimberly A. Daubman**
1984 "The influence of affect on categorization." *Journal of Personality and Social Psychology*, 47: 1206-1217.
- Isen, Alice M., Kimberly A. Daubman, and Gary P. Nowicki**
1987 "Positive affect facilitates creative problem solving." *Journal of Personality and Social Psychology*, 52: 1122-1131.
- Isen, Alice M., Mitzi M. Johnson, Elizabeth Mertz, and Gregory F. Robinson**
1985 "The influence of positive affect on the unusualness of word associations." *Journal of Personality and Social Psychology*, 48: 1413-1426.
- Isen, Alice M., and Barbara Means**
1983 "The influence of positive affect on decision-making strategy." *Social Cognition*, 2: 18-31.
- Isen, Alice M., Thomas E. Nygren, and Gregory F. Ashby**
1988 "The influence of positive affect on the subjective utility of gains and losses: It's not worth the risk." *Journal of Personality and Social Psychology*, 55: 710-717.
- Isen, Alice M., and Stanley F. Simmonds**
1978 "The effect of feeling good on a helping task that is incompatible with good mood." *Social Psychology*, 41: 346-349.
- John, Oliver P., and Richard W. Robins**
1991 "Accuracy and bias in self-perception: The role of individual differences in self-enhancement and narcissism." Unpublished manuscript, Institute of Personality and Social Research, University of California, Berkeley.
- Katz, Daniel, and Ezra Stotland**
1959 "A preliminary statement to the theory of attitude structure and change." In Seymour Koch (ed.), *Psychology: A Study of a Science*, 3: 423-475. New York: McGraw-Hill.
- Krzystofiak, Frank, Robert Cardy, and Jerry Newman**
1988 "Implicit personality and performance appraisal: The influence of trait inferences on evaluations of behavior." *Journal of Applied Psychology*, 73: 515-521.
- Langer, Ellen J.**
1975 "The illusion of control." *Journal of Personality and Social Psychology*, 32: 311-328.
- Lazarus, Richard S.**
1991 *Emotion and Adaptation*. New York: Oxford University Press.
- Lichtenstein, Sarah, Baruch Fischhoff, and Lawrence D. Phillips**
1982 "Calibration of probabilities: The state of the art to 1980." In Daniel Kahneman, Paul Slovic, and Amos Tversky (eds.), *Judgment under Uncertainty: Heuristics and Biases*: 306-334. Cambridge: Cambridge University Press.
- Locke, Edwin A.**
1976 "The nature and causes of job satisfaction." In Marvin D. Dunnette (ed.), *Handbook of Industrial and Organizational Psychology*: 1297-1349. Chicago: Rand McNally.
- Mackie, Diane M., and Leila T. Worth**
1991 "Feeling good, but not thinking straight: The impact of positive mood on persuasion." In Joseph P. Forgas (ed.), *Emotion and Social Judgments*: 201-219. Oxford: Pergamon.
- March, James G., and Herbert A. Simon**
1958 *Organizations*. New York: Wiley.
- Martin, David J., Lyn Y. Abramson, and Lauren B. Alloy**
1984 "The illusion of control for self and others in depressed and nondepressed college students." *Journal of Personality and Social Psychology*, 46: 125-136.
- Matlin, Margaret W., and David J. Stang**
1978 *The Pollyanna Principle: Selectivity in Language, Memory and Thought*. Cambridge, MA: Schenkman.

- Mednick, S. A.**
1962 "The associative basis of the creative process." *Psychological Review*, 69: 220-232.
- Miner, Anne S.**
1987 "Idiosyncratic jobs in formalized organizations." *Administrative Science Quarterly*, 32: 327-351.
- Mintzberg, Henry**
1973 *The Nature of Managerial Work*. New York: Harper & Row.
- Mobley, William H.**
1982 *Employee Turnover: Causes, Consequences and Control*. Reading, MA: Addison-Wesley.
- O'Reilly, Charles A., and Jennifer A. Chatman**
1986 "Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization of prosocial behavior." *Journal of Applied Psychology*, 71: 492-499.
- Organ, Dennis W.**
1988 *Organizational Citizenship Behavior: The Good Soldier Syndrome*. Lexington, MA: Lexington Books.
- Petty, Richard E., and John T. Cacioppo**
1986 *Communication and Persuasion: Central and Peripheral Routes to Attitude Change*. New York: Springer-Verlag.
- Rafaeli, Anat, and Robert I. Sutton**
1989 "The expression of emotion in organizational life." In Barry M. Staw and Larry L. Cummings (eds.), *Research in Organizational Behavior*, 11: 1-42. Greenwich, CT: JAI Press.
- Scheier, Michael F., Jagdish K. Weintraub, and Charles S. Carver**
1986 "Coping with stress: Divergent strategies of optimists and pessimists." *Journal of Personality and Social Psychology*, 48: 1162-1172.
- Schwarz, Norbert, Herbert Bless, and Gerd Bohner**
1991 "Mood and persuasion: Affective states influence the processing of persuasive communication." In Mark P. Zanna (ed.), *Advances in Experimental Social Psychology*, 24: 161-199. New York: Academic Press.
- Seligman, Martin E. P., and Peter Schulman**
1986 "Explanatory style as a predictor of productivity and quitting among life insurance sales agents." *Journal of Personality and Social Psychology*, 50: 832-838.
- Smith, Patricia C., Lorne M. Kendall, and Charles L. Hulin**
1969 *The Measurement of Satisfaction in Work and Retirement: A Strategy for the Study of Attitudes*. Chicago: Rand McNally.
- Smither, James W., Hillarie Collins, and Richard Buda**
1989 "When ratee satisfaction influences performance evaluations: A case of illusory correlation." *Journal of Applied Psychology*, 74: 599-605.
- Staw, Barry M.**
1986 "Organizational psychology and the pursuit of the happy/productive worker." *California Management Review*, 28 (4): 40-53.
- Staw, Barry M., Nancy E. Bell, and John A. Clausen**
1986 "The dispositional approach to job attitudes: A lifetime longitudinal test." *Administrative Science Quarterly*, 31: 56-77.
- Staw, Barry M., and Richard D. Boettger**
1990 "Task revision: A neglected form of work performance." *Academy of Management Journal*, 33: 534-559.
- Staw, Barry M., and Jerry Ross**
1985 "Stability in the midst of change: A dispositional approach to job attitudes." *Journal of Applied Psychology*, 70: 469-480.
- Staw, Barry M., Robert I. Sutton, and Lisa H. Pelled**
1993 "Employee positive emotion and favorable outcomes at the workplace." *Organization Science* (in press).
- Sutton, Robert I.**
1991 "Maintaining norms about expressed emotions: The case of bill collectors." *Administrative Science Quarterly*, 36: 245-268.
- Sweeney, Paul D., Karen Anderson, and Scott Bailey**
1986 "Attributional style in depression: A meta-analytic review." *Journal of Personality and Social Psychology*, 50: 974-991.
- Tabachnik, Naomi, Jennifer Crocker, and Lauren B. Alloy**
1983 "Depression, social comparison, and the false-consensus effect." *Journal of Personality and Social Psychology*, 45: 688-699.
- Taylor, Shelley E., and Jonathon D. Brown**
1988 "Illusion and well-being: A social psychological perspective on mental health." *Psychological Bulletin*, 103: 193-210.
- Tellegen, Auke**
1982 *Brief Manual of the Differential Personality Questionnaire*. Minneapolis: University of Minnesota Press.
1985 "Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report." In A. H. Tuma and J. D. Maser (eds.), *Anxiety and the Anxiety Disorders*: 681-706. Hillsdale, NJ: Erlbaum.
- Thornton, George C., and William C. Byham**
1982 *Assessment Centers and Managerial Performance*. New York: Academic Press.
- Watson, David**
1988 "The vicissitudes of mood measurement: Effects of varying descriptors, time frames, and response formats on measures of positive and negative affect." *Journal of Personality and Social Psychology*, 55: 128-141.
- Watson, David, Lee A. Clark, and Greg Carey**
1988 "Positive and negative affectivity and their relation to anxiety and depressive disorders." *Journal of Abnormal Psychology*, 97: 346-353.
- Watson, David, and Auke Tellegen**
1985 "Toward a consensual structure of mood." *Psychological Bulletin*, 98: 219-235.

APPENDIX

Table A.1

Regressions of Control Variables and Affect on Decision-Making Performance ($N = 111$)*

Variables	Decision-making performance							
	Decision-making accuracy	Amount of additional information requested	Recognition of situational contingencies	Use of quantitative indices	Analytic index	Timeliness in decision making	Correct decision delegation	Amount of follow-up requested
GMAT	.007** (.0002)	-.0002 (.0002)	.001* (.0004)	.003** (.001)	.002* (.001)	.0002 (.0002)	.0006*** (.0002)	.0002 (.0002)
Age	.002 (.006)	.006 (.005)	.01 (.01)	.07** (.02)	.05* (.02)	.002 (.004)	.006 (.004)	-.002 (.005)
Gender	.05 (.03)	.03 (.03)	.12* (.06)	.34** (.13)	.35** (.12)	.003 (.02)	.04† (.02)	.06* (.03)
Years of work experience	-.0005 (.01)	.009 (.01)	-.01 (.01)	-.02 (.03)	.01 (.03)	-.0004 (.004)	-.005 (.005)	.008 (.006)
Affect	.05* (.02)	.04* (.02)	.04 (.04)	.12 (.09)	.18* (.08)	-.003 (.01)	.02 (.01)	-.02 (.02)
F-ratio	3.11**	3.12**	3.01**	6.83***	6.41***	.69	4.65***	1.7
Adjusted R ²	.09	.09	.08	.21	.20	-.01	.14	.03

* $p < .05$; ** $p < .01$; *** $p < .001$; two tailed tests.

* Unstandardized coefficients are reported, with standard errors in parentheses.

† $p < .10$.

Table A.2

Regressions of Control Variables and Affect on Interpersonal Performance*

Variable	Peer rating of performance and contribution to group effectiveness	Interpersonal performance							
		Quality of participation	Mastery of information	Leadership	Extent of participation	Task engagement	Being critical	Social compliance	Politeness
GMAT	.003 (.002)	.01** (.003)	.01** (.003)	.01* (.004)	.008† (.004)	.009** (.003)	.005 (.004)	-.002 (.004)	.002 (.004)
Age	.04 (.05)	.23** (.09)	.21* (.09)	.19† (.11)	.16 (.11)	.16† (.09)	.03 (.11)	-.02 (.11)	.11 (.10)
Gender	.03 (.29)	.40 (.46)	.48 (.44)	.25 (.54)	.06 (.58)	.64 (.44)	-.43 (.54)	.34 (.55)	1.01* (.49)
Years of work experience	.04 (.06)	-.01 (.10)	.02 (.10)	.02 (.12)	.10 (.13)	.02 (.10)	.11 (.12)	-.12 (.12)	-.14 (.11)
Affect	.40* (.18)	1.05*** (.30)	.80** (.29)	1.07** (.35)	1.08** (.38)	.72** (.29)	.08 (.35)	-.14 (.36)	.38 (.32)
F ratio	1.90†	5.47***	5.17***	3.60**	3.10**	3.97**	.81	.52	1.59
Adjusted R ²	.05	.19	.18	.12	.10	.14	-.01	-.03	.03
N	83	94	94	94	94	94	94	94	94

* $p < .05$; ** $p < .01$; *** $p < .001$; two-tailed tests.

* Unstandardized coefficients are reported, with standard errors in parentheses.

† $p < .10$

Table A.3

Regressions of Control Variables and Affect on Ratings of Managerial Dimensions ($N = 111$)*

Variable	Ratings on managerial dimensions	
	Managerial dimension scale	Overall managerial potential
GMAT	.002** (.001)	.004*** (.001)
Age	.02 (.02)	.02 (.03)
Gender	.28** (.11)	.10 (.15)
Years of work experience	.01 (.02)	.03 (.03)
Affect	.15* (.07)	.27** (.10)
F-ratio	4.59***	5.47***
Adjusted R^2	.14	.17

* $p < .05$; ** $p < .01$; *** $p < .001$; two-tailed tests.

* Unstandardized coefficients are reported, with standard errors in parentheses.