# Mood and emotion while working

## Missing pieces of job satisfaction?

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# Mood and emotions while working - missing pieces of job satisfaction

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"Mood and Emotions while Working -
Missing Pieces of Job Satisfaction"

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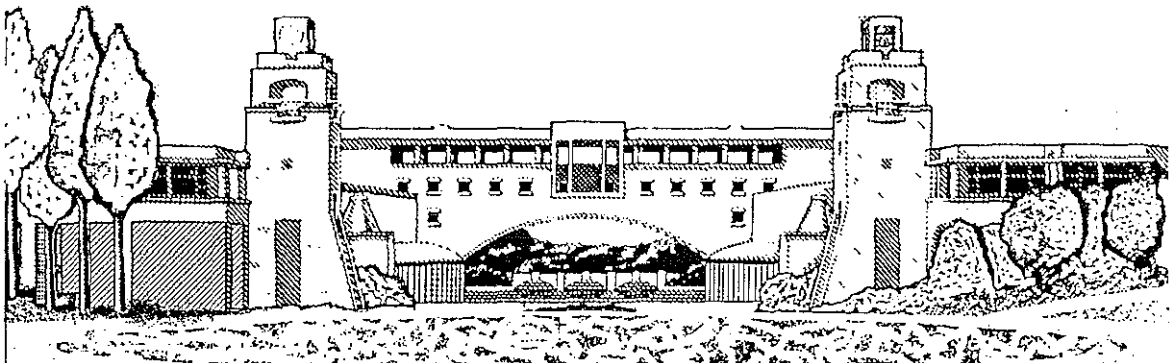


**B O N D     U N I V E R S I T Y**

# MOOD AND EMOTIONS WHILE WORKING - MISSING PIECES OF JOB SATISFACTION?

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# MOOD AND EMOTIONS WHILE WORKING - MISSING PIECES OF

# JOB SATISFACTION?

Abstract

Job satisfaction is often described as an affective response to one's job, but usually measured

largely as a cognitive evaluation of job features.  This paper explores several hypothesized

relationships between real time affect while working (50 observations of mood and emotions over

two weeks) and measures of job satisfaction.  As expected, affect measures predict satisfaction but

are not identical to satisfaction.  Affect is more strongly related to a faces measure of satisfaction

than to more verbal measures of satisfaction.  Positive and negative emotions both make unique

contributions to satisfaction, and contribute to the prediction of overall satisfaction above and

beyond facet satisfactions.  Frequency of net positive emotion is a stronger predictor of satisfaction

than is intensity of positive emotion.  Implications for further research and improving job

satisfaction are discussed.

**Mood and Emotions While Working - Missing Pieces of Job Satisfaction?**

For many years, researchers in organisational behaviour and industrial psychology have studied job satisfaction as both an independent and a dependent variable. Cranny, Smith, and Stone (1992) estimate that there have been more than 5,000 published articles and dissertations which examine job satisfaction in some way. Despite all this research, Staw (1984) points out that relatively little work has been directed at the *construct* of job satisfaction itself.

Job satisfaction is an attitude. Attitudes are usually described as containing at least two components: an affective (emotional, feeling) component, and a cognitive (belief, judgment, comparison) component. Research in social psychology has shown that both of these components are important, contribute unique variance to the overall attitude, and may be differentially caused and differentially linked to behaviour (Breckler & Wiggins, 1989; Millar & Millar, 1996; Millar & Tesser 1986).

Job satisfaction is often defined as an affective reaction toward one's job (Cranny, Smith, & Stone, 1992; Porac, 1987), but is usually measured as an evaluative assessment of job attributes compared to either internal or external standards (Locke, 1976; Rice, McFarlin, & Bennett, 1989; Weiss & Cropanzano, 1996). A number of researchers have criticized typical operationalizations of job satisfaction as being too heavily cognitive (c.f. Organ and Near 1985; Pekrun & Frese, 1992). Sandelands (1988) points out that common measures of work attitude focus on "cold cognitions" rather than hot emotions, the level at which the job is actually experienced. We we have been so busy measuring what people say about their jobs in a summary, retrospective, and comparative way, that we have neglected to measure how they feel while on their jobs. Porac (1987) argues that we know next to nothing about how real-time feelings at work are eventually translated into responses on overall job satisfaction

questionnaires. These criticisms suggest a need to explore the relationships between "hot"

measures of affect while working and standard measures of job satisfaction.


Mood and Emotions

The term "affect" is broad and encompasses two relatively distinct phenomena of interest in

this study: state moods and emotions. Moods tend to be longer lasting but often weaker states of

uncertain origin, while emotions are often more intense, more short lived, and have a clear object or

cause (Frijda, 1993). For instance, one may be in a generally grumpy mood all morning for no

particular reason, or one may feel intensely angry at someone during an argument from 2:30 to 2:37

(emotion). Moods and emotions are not unrelated, as a negative (positive) emotion may decay into

a diffuse bad (good) mood as the cause or object of the feeling becomes less salient, or a mood may

predispose one to feel similarly toned emotions as soon as suitable provocation is present.

Moods are usually conceptualized as having two dimensions. Depending on how the

dimensions are rotated, they can be labelled hedonic tone/ pleasantness and arousal/activation

(Russell, 1980; Larsen & Diener, 1992), or positive affect and negative affect (Watson & Tellegen,

1985). Weiss and Cropanzano suggest that the former conceptualization is most robust and useful

for measuring state mood at work. Some scholars believe that hedonic tone is by far the more

important of these two dimensions (Russell, 1978; Warr, 1990). Certainly in common usage,

individuals are more likely to describe their moods spontaneously in terms of hedonic tone (good

mood, bad mood) than activation. To the extent that job satisfaction is "an evaluative (good/bad)

response," hedonic tone would be expected to be the more relevant aspect of mood. As predicted,

Weiss, Nicholas, and Daus (1993) found that average hedonic tone while working was correlated

with job satisfaction while average activation level was not. Wright and Bonnett (1996) have also

found that pleasantness based measures are more useful in organizational research than activation-based measures.

Like moods, emotions can easily be classified into positive and negative categories. However, research has shown that there are many more than two distinct emotions (Diener, Smith, & Fujita, 1995; Shaver, Schwartz, Kirson, & O'Connor 1987). Typologies of "basic" emotions usually contain from five to ten emotion terms, such as fear, anger, sadness, disgust, joy, and love (Pluchik, 1994). There has been virtually no research on how the experience of specific emotions at work affects job satisfaction.

Because state moods and emotions are transient phenomena, they are difficult to measure accurately long after they have occurred. It has been found that people over-estimate the frequency with which they have experienced both positive and negative emotions when reporting retrospectively compared to reporting in real time (Diener et al., 1995). Even daily mood reports are demonstrably less accurate than the average of more frequent reports (Hedges, Jandorf, & Stone; 1985). Clearly, it is preferable to obtain reports of current mood and emotions at the time they are being experienced. Experience Sampling Methodology (ESM) has been developed as a means of obtaining real time reports of phenomena of this nature (c.f. Alliger & Williams, 1993; Hormuth, 1986; Larson & Csikszentmihalyi, 1983; Wheeler & Reis, 1991). In the present study, respondents reported on their current mood and emotions at intervals five times each working day for two weeks.

The Relationship of Mood and Emotions at Work to Job Satisfaction

Weiss and Cropanzano's (1996) Affective Events Theory proposes that mood and emotions while working are the raw materials which cumulate to form the affective element of job

satisfaction, while judgments or comparisons of job attributes contribute to the cognitive element of satisfaction. Intuitively, it makes sense to expect that a person who often experiences very positive feelings while at work will report greater overall job satisfaction than a person who frequently feels unpleasant moods and negative emotions while at work (George & Jones, 1997).

There is some evidence in the literature that state moods are related to overall job satisfaction. Brief and Roberson (1989) found that a retrospective report of subjects' mood at work over the past week (Job Affect Scale) was significantly related to overall satisfaction as assessed by the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, Dawis, England, & Lofquist, 1967), by the sum of all 72 Job Descriptive Index (JDI) items (Smith, Kendall, & Hulin, 1969), and by a one item faces scale (Kunin, 1955). Weiss et al. (1993) found that average pleasantness of mood, assessed four times per day over three weeks, was significantly related to a five item measure of overall job satisfaction.

There have been relatively few studies of emotions experienced at work (see Pekrun & Frese, 1992 for a review), and no systematic studies of the relationship between real-time emotions at work and job satisfaction. Because emotions have a target (one is angry *at* some one, frustrated *because* of an impediment in reaching a goal, proud *of* an accomplishment), they are likely to be triggered by actual events in the workplace. As such, emotions should often be directly attributable to the job, and should be more readily recalled than vague and diffuse moods experienced while on the job but not necessarily due to the job. For these reasons, Weiss and Cropanzano (1996) suggest that emotions at work may be more relevant to job satisfaction than are moods, though both should be related to satisfaction.

Hypothesis 1: Measures of average mood and average positive and negative emotions will be significantly related to overall job satisfaction.

Attitude research suggests that responses to attitude surveys are constructed on demand

using the information which comes to mind at the time (see Hippler, Schwarz, & Sudman, 1987).

Most multi-item job satisfaction measures are belief oriented, and so may not stimulate very much

recall and weighting of emotional content. One exception to this tendency is the faces scale (Kunin,

1955). The faces measure does not constrain respondents to specific objective comparisons (e.g.

my coworkers talk too much, the work is hot, respected, tiring, etc.), but simply asks respondents

to choose one of eleven drawings of facial expressions which represents their feelings about the

attitude object. Because specific cognitions are not primed, and facial expressions may instead cue

emotional recall, affect may be better captured when overall satisfaction is assessed with the faces

scale. Brief and Roberson (1989) found that the Job Affect Scale measure of mood contributed

much more to predicting a faces measure of overall satisfaction than it did to the MSQ or JDI

measures. It is expected that this finding will be replicated in this study.

Hypothesis 2: Mood and emotion measures will predict the faces scale of overall

job satisfaction better than they predict the Job In General Scale (Ironson, Smith,

Brannick, Gibson, & Paul, 1989) and the Facet-free Job Satisfaction scale (Quinn

& Staines, 1979).

The relationship of mood and emotions to various facets of job satisfaction will also be

explored. One might expect mood and emotion to be relatively strong predictors of satisfaction

with the work itself for two reasons: much of the variance in overall satisfaction seems to be due to

satisfaction with the work itself (Ironson et al., 1989), and for all jobs the work is continuously

present as a potential cause of mood and emotions at work. In some jobs, coworkers and

supervisors may also be continuously present as possible triggers of emotion. Satisfaction with

pay and promotion seem by nature more calculative, comparative, and cognitive. These aspects of

a job also seem less likely to cause emotional responses as frequently as the work itself. When a

comparison regarding pay or promotion *is* triggered, strong emotion may be generated, but such

comparisons should be relatively infrequent. For instance, one might feel very unhappy about

one's relative pay after seeing a salary survey report, but feel pleased with an accomplishment or

frustrated at interrupted progress on a task many times each day.

> Hypothesis 3: The job satisfaction facet which is best predicted by mood and
>
> emotion measures will be satisfaction with the work itself. Facets least well
>
> predicted will be satisfaction with pay and promotion.

While emotions easily cluster into positive and negative categories (Diener et al., 1995;

Shaver et al., 1987), there is also unique variance associated with each distinct emotion. For

instance, the negative emotion *rage* is quite different from *fear*, which is different from *sadness* in

both causes and effects (Shaver, et al., 1987), while *elation, gladness,* and *joy* have been shown to be

empirically discriminable (de Rivera, Possell, Verette, & Weiner, 1989; see also Harrison, 1986).

This suggests that additional understanding of the dynamics of job satisfaction might be

forthcoming from an exploration of which specific emotions are most related to overall satisfaction.

The relationship of sixteen specific positive and negative emotions, such as pride, happiness, anger,

and frustration, with job satisfaction will be reported. If some emotions are found to be more

relevant than others for the prediction of job satisfaction, this may suggest ways of modifying the

work environment or work processes to reduce the incidence of emotions which are most strongly

and negatively related to satisfaction and increase the incidence of those which are most positively

related. There is little basis for predicting which specific emotions might be most important to job satisfaction, though the expected direction of the relationships is clear - specific positive emotions should be positively related to job satisfaction and specific negative emotions negatively related.

Positive and negative affect are usually strongly inversely related at a moment in time, as people do not feel simultaneously very happy and very unhappy, or both joyful and disgusted. However, when positive emotions and negative emotions are aggregated over time, the relationship between the composites is considerably weaker (Diener & Emmons, 1984; Diener et al., 1995). If positive and negative emotion composites are relatively independent of each other, there is opportunity for both to add unique variance to the prediction of other variables. In the case of attitudes toward political figures, for instance, both positive and negative emotions add significantly to predicting overall attitude toward the target (Ottati, 1997). This suggests that both positive and negative emotion composites may carry useful information with respect to job satisfaction. Suppose two people feel equally strong positive emotions on average while working, but one also sometimes feels angry, worried, and depressed at work. It seems unlikely that they will report identical overall job satisfaction.

Hypothesis 4: Positive and negative emotion measures will each contribute

unique variance to the prediction of overall job satisfaction.


There has been a debate in the job satisfaction literature about whether overall job satisfaction is simply the sum of facet satisfactions. A combination of facet satisfactions generally accounts for only about 50% of the variance in overall job satisfaction (Ferratt, 1981; Highhouse & Becker, 1993; Ironson et al., 1989). This has led some to question whether all the important pieces of job satisfaction have been identified (Scarpello & Campbell, 1983). Clearly, this paper contends

that one of the missing pieces of overall job satisfaction is affect. If facet satisfaction ratings are by nature primarily cognitive and comparative, it is reasonable to expect affect to account for additional variance when respondents are asked to report their overall job satisfaction. Consistent with this idea are two studies which found that affect contributed beyond beliefs to the prediction of some measures of overall job satisfaction (Brief & Roberson, 1989; Weiss et al., 1993).

Hypothesis 5: Affect measures will contribute to the prediction of overall job satisfaction above and beyond the contribution of facet measures of satisfaction.

Hypotheses 1 through 5 will be tested using measures of mood, positive emotions, and negative emotions averaged across all fifty reporting periods. This seems to be the most straight-forward way to capture the total affective experience of work. But is this the way people actually aggregate their affective experiences? Taber and Alliger (1995 p. 103) contend that, "There currently is no 'algebra of job satisfaction' that describes how task experiences and daily job events concatenate into feelings of job satisfaction." Researchers in the area of subjective well-being have explored the relationship between moment to moment affect and overall happiness, and have found that the *percent of time* people experience *net* positive affect is much more important than the *intensity* of such positive affect when it is experienced (Diener, Sandvik, & Pavot, 1991). In other words, those who are happiest overall are at least slightly happy most of the time, while being deliriously happy some of the time is not sufficient to guarantee overall happiness. This finding seems quite robust in the happiness literature, so hypothesis 6 suggests that the same pattern will occur in predicting job satisfaction. If frequency rather than intensity is the key to satisfaction, employers seeking to satisfy their workforce might concentrate on providing a work environment

free of the irritations and hassles which tip the balance toward frequent, if mild, negative affect.

They might also build in small frequent positive reinforcements, rather than relying on possibly

more intense but less frequent positive experiences created by formal rewards, promotions, or

public celebrations to assure satisfaction.

Hypothesis 6: Frequency of experiencing net positive emotion will be a better

predictor of overall job satisfaction than will intensity of positive emotion when it

is experienced.

METHOD

Procedure

This study utilized experience sampling methodology to collect frequent real-time reports of

affective experiences at work. The study was run in three stages for each participant. Stage one

was a longer questionnaire containing items on demographics and job attitudes. Stage two was a

two week period during which participants wore programmed alarm watches which rang five times

each working day. They were asked to keep a questionnaire booklet in reach at all time. Upon

hearing an alarm, respondents filled out a one page questionnaire which assessed mood and

emotions at the moment the alarm sounded. The watches rang at different times each day, with

each alarm no closer than one hour to the previous one. Watch programs were customized to each

participant's work hours, avoiding scheduled lunch and break periods. Stage three was another

longer questionnaire containing additional job satisfaction measures.

Each subject could potentially respond to fifty alarms. The average number of responses

per person was 37, with a range from 12 to 50. Some participants reported being ill or on holiday

for one or more days during the study period, which reduced below 50 the number of alarms to

which they could have responded. A total of 4507 alarm reports were received from 121

participants. Subjects were instructed to respond as soon as possible after an alarm, but in any

case, within 20 minutes of hearing the alarm. If they could not respond within 20 minutes, they

were advised to skip that alarm. The first item recorded on the one page questionnaire was the time

of response. This actual response time could be compared to the programmed alarm time. Analysis

of these data showed that the mean time to respond was 2 minutes, with 70% of alarms answered

immediately. Only .4% of alarms were answered more than 30 minutes late. Thus, most subjects

were responding while the memory of their feelings at the time of the alarm were fresh.


Research Participants

One hundred twenty four employed adults from 65 organizations were recruited to

participate in the study. Some were recruited by phone or in-person solicitation, some came via

newspaper and radio advertising, and some were recruited by other participants at their workplace.

Seventy three percent were female. The age distribution was 12% 17-25 years, 32% 26-35 years,

31% 36-45 years, 20% 46-55 years, 5% 56-65 years. Tenure on the job averaged 4.5 years and

ranged from one month to 23 years. A wide range of occupations was represented, including

childcare worker, hair dresser, outside salesperson, retail clerk, office worker, supervisor, skilled and

semi-skilled production worker, photo journalist, nurse, accountant, maintenance worker, bank

teller, rehabilitation counsellor, professor, and manager. Participants were given a movie pass as a

token of appreciation for joining the study, and 5 prizes of $100 cash were drawn and awarded to

those completing all phases of the study. Participants were followed up frequently and personally

throughout the study, and only three failed to complete all stages.

Measures

Experience sampling questionnaires need to be kept short for several reasons. First, respondents must be able to answer quickly, before their memory of the immediate experience decays or is influenced by the act of answering the survey. Second, research participants must be willing to fill out the survey again and again, and very long surveys are unlikely to gain compliance. Therefore, the stage 2 survey was limited to one page.

Emotion. While mood measures can be found in the literature, there are no existing measures of emotions at work. Mood measures are inadequate for this purpose for several reasons. First, because of the prevalence of the two dimensional mood model, nearly all mood measures contain adjectives related to activation, such as sleepy, drowsy, and dull, which clearly are not emotions. Second, the hedonic tone dimension may be too gross for the wide variety of distinct positive and negative emotions that exist. Third, adjectives that imply an object are not usually included in mood measures, as moods aren't supposed to have objects. Thus, mood measures are both contaminated and deficient as measures of emotion.

It was necessary to construct a new instrument, the Job Emotions Scale, (JES) for this study. The starting point was Shaver et al.'s (1987) list of 135 prototypical emotion terms. Shaver et al. obtained similarity ratings on the 135 emotions and conducted hierarchical cluster analyses. At the most global level, the emotion words could be clustered as positive or negative, with the exception of surprise, which many theorists feel isn't really an emotion. At the next level, five basic emotion categories emerged: love, joy, anger, sadness, and fear. Below these five were 25 subordinate categories. For instance, under love the subordinate categories were named affection (containing ten terms), lust (five terms), and longing (one term). The names for each of the 25 categories and the number of terms in each can be seen in the left-most two columns of Table 1.

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Insert Table 1 About Here
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A pilot study was undertaken to discover which of the 135 emotions are actually experienced with reasonable frequency while at work. One hundred seventy four university students with work experience rated the frequency with which they had felt each of the 135 emotions while working on their present or last job. The scale ranged from 1 = never experienced that emotion to 3 = occasionally experienced it to 5 = very often experienced it. These data were used to select a smaller number of positive and negative emotion terms for the JES.

Items chosen for inclusion on the Job Emotion Scales needed to occur reasonably frequently and cover as many of Shaver's 25 subordinate categories as seemed relevant in the workplace. An additional concern was to choose an equal number of positive and negative emotion terms. There is evidence that there are more distinct negative emotions than positive emotions (c.f. Hunt, 1997), but it was considered unwise to potentially influence mood by repeatedly presenting respondents with a disproportionately negative instrument.

The categories longing, lust, suffering, relief, enthrallment, torment, envy, sympathy, and surprise contained only a few emotion words, and/or were uncommon at work (see third column from the left in Table 1). Terms associated with these categories were excluded. If categories were common, the two most frequently experienced terms in the category were considered candidates for the scale, and usually one was retained. An exception to this rule was "satisfaction." This was the most commonly experienced emotion under the cheerfulness category, but it was excluded from consideration. Satisfaction seems to mean something quite specific in the work context, and it was undesirable to build in item overlap between the Job Emotion Scale and job satisfaction scales.

Factor analyses, item analyses, and rational judgment were used to determine which of the remaining positive and negative words were retained in the scale. Terms associated with the categories irritation and exasperation were consistently highly correlated, so a single term, "frustration," was chosen to represent this construct. As Cheerfulness was by far the most common category, two terms were chosen to represent it: happiness and enjoyment. Contentment was also represented by two terms, contentment and pleasure, to increase the number of positive terms to balance the eight needed to cover the more complex negative emotion domain. Factor analyses on the pilot data suggested one positive emotion factor and two to three negative emotion factors in the 16 items. Because the structure of recalled emotion frequency may be different than that of rated real-time emotion intensity (Diener & Emmons, 1984; Diener et al., 1995), factor analyses on the ESM data will be reported in the results and used to construct appropriate subscales.

Shaver et al. used noun forms, but for the Job Emotion Scale, the items were changed to the adjective form. The terms adopted for positive emotions were: *liking for someone or something, happy, enthusiastic, pleased, proud, optimistic, enjoying something,* and *content.* The mean frequency of the items selected was 3.33 (more than "occasionally). Negative adjectives were *depressed, frustrated, angry, disgusted, unhappy, disappointed, embarrassed,* and *worried.* The mean frequency was 2.53 (midway between seldom and occasionally). These items represent six of Shaver's ten positive emotion categories and 7 of his 14 negative emotion categories. In the stage 2 questionnaire, each term was rated on a five point scale on the extent to which it was being experienced when the alarm rang. Anchors ranged from 1 = not at all to 5 = a great deal.

Mood. As it was considered important to measure differentiated emotions as well as possible in the one page available, a decision was made to measure mood in somewhat less detail.

Based on the findings of Weiss et al. (1993) that hedonic tone was the most important aspect of mood, only hedonic tone was assessed. A single item was used. Each time the alarm rang, the first substantive item answered by respondents was "How were you feeling as the alarm rang? What kind of mood were you in?" They answered on an eleven point faces scale where 1 was the most unpleasant/unhappy face and 11 the most pleasant/happy face. Respondents' average mood scores were the means of the twelve to fifty responses each made to the faces mood scale.

Satisfaction. Overall job satisfaction was measured in three ways. The Job In General Scale (Ironson et al., 1989) is an 18 item overall job satisfaction instrument similar in format to the Job Descriptive Index (Smith et al., 1969). It was administered in stage 3. Coefficient alpha for this measure was .89. The Quinn and Staines (1979) Facet-free Job Satisfaction Scale was also administered at stage 3. The five items of this scale were coded as recommended by the authors, and yielded a reliability of .80. An eleven point faces scale (Kunin, 1955) for rating satisfaction with the job as a whole was administered at stages one and three. These two items were averaged to form a faces measure of overall satisfaction. The intercorrelation between the items was .67. Facet satisfaction was assessed with the Job Descriptive Index (Smith et al., 1969) at stage 1. Coefficient alpha reliabilities were Work Itself .82, Pay .83, Promotion .85, Supervision .86, and Coworkers .88.

## RESULTS

The factor structure of the 16 emotion items of the JES was investigated first. Because the intention was to reduce the 16 variables to a smaller number of predictors that captured much of the variance in the larger set, principle components analyses with varimax rotation was utilized (Hair, Anderson, Tatham, & Black, 1995). Analyses were performed on the mean ratings over time for

the 8 positive and 8 negative emotions, and also on raw emotion scores for ten of the fifty response periods, one per day of the ESM portion of the study. The results for the positive emotion items were absolutely consistent across all analyses - there was only one positive emotion factor present, with all items loading very strongly on that factor. These items were summed to produce a positive emotion scale with coefficient alpha of .95.

As anticipated, negative emotions were more complex and differentiated. Analysis of the mean data showed two factors accounting for 78% percent of the variance. The second factor contained embarrassment and worry, while all other negative items loaded strongly on the first factor (see Table 2). Analyses of raw data showed that on two occasions the negative items formed a single factor, once three factors with eigen values greater than one appeared, and the other seven analyses produced two factors, most commonly with embarrassment and worry loading on one factor and all other items on the other. Therefore, two negative emotion scales will be used throughout the rest of the analyses. The first is called general negative emotion, contains six items, and has a reliability of .90. The other is composed of the embarrassment and worry items. These two items correlated .57 with each other.

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Insert Table 2 About Here
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Intercorrelations between average mood, average positive emotion, general negative emotion, worry/embarrassment, and overall job satisfaction are shown in Table 3. Clearly, hypothesis 1 is supported, with most correlations between affect and satisfaction being significant beyond the .01 level. Only worry/embarrassment fails to correlate significantly with all satisfaction measures. The magnitude of the significant correlations, however, $|.25$ to $.53|$, is less than would be found if affect

while working was simply an alternate form of job satisfaction measure. Overall job satisfaction as typically measured seems to include both affect and other content.

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As predicted in hypothesis 2, the correlations of affect measures with the faces scale of overall job satisfaction are stronger than the correlations of affect with the Job In General Scale and the Quinn and Staines Facet-free Satisfaction measure. In all cases the differences between the correlations are statistically significant at beyond the .01 level. The faces method was used to measure both overall job satisfaction and moment to moment mood. However, the greater predictability of the faces satisfaction scale is not just an artifact of common measurement approaches, as faces satisfaction was predicted equally well by numerical ratings of emotions as by the faces mood measure.

The present findings complement and extend Brief and Roberson's (1989) conclusions that 1) mood at work predicts satisfaction, and 2) faces measures of job satisfaction contain more affective content than other standard satisfaction measures. Their study used a retrospective report of mood over the past week, which is potentially susceptible to memory and information processing biases. Their mood measure was also collected at the same time as the overall satisfaction measures. This may have inflated their results if all variables were influenced by transient mood at the time of responding (Brief, Butcher, & Roberson, 1995) or other response-response biases. The present study did not suffer from these potential difficulties, and confirmed their conclusions. This study also found that positive and negative emotion measures behaved similarly to mood measures in the extent to which they predict the various types of overall satisfaction measures.

Hypothesis 3 suggested that facet satisfactions would not be equally well predicted by real-time affect. Specifically, satisfaction with the work itself was expected to be most strongly related to the affect measures, and satisfaction with pay and promotion the least strongly related. Correlation and regression analyses relevant to this hypothesis appear in Table 4. Mean mood was significantly correlated with satisfaction with the work itself (.26) and satisfaction with coworkers (.22), and not significantly correlated with satisfaction with pay (.09) or promotion (.11). However, the differences between the correlations were not significant. Mean positive emotions were significantly correlated with satisfaction with the work itself (.18) and promotion (.21). Again, there were no significant differences between any correlations across facets. General negative emotions were significantly correlated with all facets of satisfaction but coworkers, with the strongest correlations being with supervisor satisfaction (-.33) and the work itself (-.32). Worry/embarrassment was correlated only with supervisor satisfaction. Multiple regressions using all affect measures to predict each facet were also performed. Affect accounted for less than 3% of the variance in satisfaction with coworkers (ns) but accounted for a significant 7% to 13% of the variance in the other four facets. Hypothesis 3 was not supported, in that while satisfaction with the work itself was reasonably well predicted by affect, several other facets were also well predicted by affect measures.

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Insert Table 4 About Here
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Table 5 shows the relationships between the average experience of sixteen different emotions and overall job satisfaction. The pattern of affect being more strongly related to the faces measure of satisfaction than more cognitive/comparative measures of satisfaction holds up at the individual emotion level as well. The signs of the correlations are as expected, with specific positive

emotions positively related to job satisfaction and specific negative emotions negatively related to

job satisfaction. Of the eight positive emotions, feeling proud and experiencing liking for something

or someone had the lowest correlations with job satisfaction, while feeling content, happy, and

enthused generally had the highest correlations. On the negative side, feeling embarrassed and

worried had the lowest correlations with overall job satisfaction.

The more weakly related emotions of pride, liking, and embarrassment were the least

frequently reported emotions in their class in the ESM study. These emotions seem to have quite

specific precursors (someone or something to feel liking for, an accomplishment substantial enough

to be proud of, a gaff to feel embarrassed about) which may not occur often on many jobs. Some of

the emotions with stronger correlations may be more easily triggered by a wider variety of work

circumstances, be experienced more frequently, and hence contribute more to a summary judgment

of overall satisfaction. For instance, one can be unhappy or enthused or content for any number of

reasons. Alternatively, liking may be more associated with people than jobs, while pride and

embarrassment are more likely attributed to the self than the job, so these emotions may be seen as

less relevant to an evaluation of the job.

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Insert Table 5 About Here
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Hypothesis 4 predicts that aggregate positive and negative emotion measures will each

contribute unique variance to overall job satisfaction. Because of the generally small correlations

between worry/embarrassment and job satisfaction, only the general negative emotion scale will be

used to represent negative emotions in these analyses. The correlation between mean positive and

general negative emotion was relatively small at -.20, leaving plenty of scope for each to make a

unique contribution. The hypothesis was tested with multiple regression and Darlington's (1968)

usefulness index. The latter is the reduction in $R^2$ observed when one variable is removed from an equation in which both previously were predictors. These analyses can be seen in Table 6. Both positive and negative emotion contributed significantly to the prediction of all three satisfaction scales. In addition, positive and negative emotions contributed substantial unique variance in predicting satisfaction measures. It appears that positive and negative emotions are not simply mirror images of each other. Each is a separate part of the work experience which contributes on its own to overall job satisafaction.

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Insert Table 6 About Here
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Hypothesis 5 suggested that affect measures would contribute to the prediction of overall job satisfaction above and beyond facet satisfactions. This was tested with hierarchical regression, forcing in all JDI facet measures on the first step, then allowing the affect measures to enter stepwise on the second step. Results of these analyses can be seen in Table 7. At least one affect measure contributes beyond facets to the prediction of each measure of overall satisfaction. Positive emotion adds significantly to the prediction of all measures of job satisfaction, while average mood and worry/embarrassment also add to the prediction of the faces measure of overall satisfaction. For the faces measure, the adjusted R square goes from .41 to .60 with the addition of affect predictors, confirming earlier speculation that the faces measures contains substantially more than just cold cognitions about aspects of the job.

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Insert Table 7 About Here
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Clearly, when people fill out overall job satisfaction instruments, they are providing more than just an evaluation of five job facets. One of the additional components they are providing is

affect. However, even affect and five facets do not capture all the variance in overall satisfaction measures. It is possible that some of the remaining variance is due to satisfaction with unmeasured facets (Highhouse & Becker, 1993), transient mood at the time of responding (Kraiger et al., 1989; Brief et al., 1995), or dispositions (c.f. Judge, 1992; Judge, Locke, & Durham, 1997).

Hypothesis 6 concerns the "algebra of satisfaction." It follows Diener et al. (1991) in suggesting that the *frequency* of experiencing net positive emotion will be a better predictor of overall job satisfaction than will the *intensity* of positive emotion when it is experienced. To test this hypothesis, Diener et al.'s (1991) methods for calculating frequency and intensity of positive emotion were used. This entails first comparing mean positive emotion scores and mean negative emotion scores (mean of all eight negative items) at each time period. An individual is declared to be in a positive state if the positive score was higher than the negative score at that point in time. A count of the number of times positive emotion predominated is then divided by the number of reporting periods to indicate the percent of time that the individual experienced net positive affect. Finally, positive intensity is calculated as the average intensity of positive emotions across those reports in which the person felt more positive than negative emotion.

The frequency and intensity measures of positive emotion were correlated .42 with each other, suggesting that they are capturing at least somewhat different phenomena. Frequency of positive emotion correlated .40, .35, and .58 respectively with the Job in General, Facet-free, and faces satisfaction measures. Intensity correlated .24, .30, and .37 with the same measures. As predicted, the frequency correlations were all larger than their respective intensity correlations. In the case of Job in General, the frequency correlation was significantly larger than the intensity correlation at the .05 level, while the difference was significantly larger at the .01 level for the faces

satisfaction measure. On the whole, the results support the hypothesis that frequency of positive

emotion is more important for job satisfaction than intensity of such emotion.

## DISCUSSION

This study has shown that the moods and emotions experienced at work on a moment to

moment basis are correlated with standard measures of overall job satisfaction. The faces scale in

particular captured a substantial amount of affective variance. Both positive and negative emotion

measures made unique contributions to overall satisfaction. Affect measures also contributed to the

prediction of overall job satisfaction above and beyond facet satisfactions. Frequency of positive

emotions was more predictive of satisfaction than was intensity of positive emotions.

One might suggest that mood and emotions while working represent true "quality of work

life." While these experiences are important for job satisfaction, they are not identical and deserve

to be studied in their own right. As suggested by Weiss and Cropanzano (1996), affective

experiences at work may be one of the mechanisms by which work context characteristics (such as

job design or superior's leadership style) influence job attitudes. It seems likely that affective

experiences at work may also contribute unique variance to the prediction of other important

decisions by employees, such as how much effort to exert, or whether to be absent or quit a job.

Recent research in social psychology suggests that the affective component of attitudes is

sometimes more useful in predicting behavior than the cognitive component (c.f. Bohm & Pfister,

1996; Sappington, 1990). The relationship of job affect to behavior requires further research.

This study has implications for the construct and measurement of job satisfaction. It is

clear that typical measures of job satisfaction do not assess affect as well as they could, though we

persist in describing job satisfaction as "an affective response to the job". We should either develop

new measures of job satisfaction that incorporate more affective content, or develop stand-alone measures of job affect while being very clear that standard measures of job satisfaction produce largely "cognitive evaluations of the job." It has recently been demonstrated that it is possible to separately assess the cognitive/instrumental versus emotional aspects of attitudes (Breckler & Wiggins, 1989; Crites, Fabrigar, & Petty, 1994; Sappington, 1990). Efforts to develop such scales specific to work attitudes may be fruitful.

A potential limitation on the conclusions which may be drawn from this study is the difficulty with inferring causality. I have tended to take the position, like Weiss and Cropanzano (1996), that affective experiences contribute to attitudes. However, it is also possible that pre-existing positive or negative job attitudes cause individuals to be predisposed to feel similarly toned affect from moment to moment while working. In the present study, when respondents were buzzed they reported their immediate feelings with little reliance on memory and presumably minimal cognitive processing. There is evidence that attitudes like job satisfaction may not exist on an ongoing basis but are constructed on demand from recalled information (Porac, 1987; Wilson & Hodges, 1992). If this is true, then it is likely that mood and emotion are more primitive and precede (cause) considered attitudinal judgments like satisfaction rather than the reverse. In either case, it is useful to know that moment to moment affect at work is related to overall job satisfaction.

Another potential causal problem is that dispositional affectivity could operate as a third variable that causes both moment to moment affective experiences at work and job satisfaction, so that the relationships reported above are largely spurious artifacts of chronic affectivity. Certainly the literature confirms that negative affectivity is related to frequency of negative feelings and to a lesser extent, to job satisfaction (c.f. Levin & Stokes, 1989; Watson & Clark, 1984). In view of this

situation, Brief, Burke, George, Robinson, and Webster (1988) have called for chronic affectivity to not remain an unmeasured variable in research on the relationships between job stress and outcomes. They demonstrated that NA can account for a substantial share of the relationship between reported job stress and attitudinal outcomes.

To address this potential confound, dispositional affectivity was assessed with the Positive and Negative Affect Scales (PANAS, Watson, Clark, & Tellegen, 1988) in stage 1. Respondents were asked to report on how they generally felt, in their life as a whole, not just on the job. PA and NA were weakly related to the satisfaction measures (r's .-.22 to .23, average $| r | = $ .16). PA was strongly related to positive emotions and moderately related to mood, while NA was moderately related to mood and both negative emotion scales. Therefore, all analyses in the study were repeated using PA and NA as control variables. The results were quite similar to those reported above - occasionally weaker but still significant - suggesting that the relationships between aggregated state affect and satisfaction are much more than simply effects of chronic affectivity.

If causality does run from real-time emotional experiences to satisfaction and is not predetermined by dispositional affectivity, there may be leeway for organizations to improve satisfaction by modifying the work environment or processes to produce more positive affective experiences. While moods may not be directly controllable given their somewhat vague and diffuse causes, events that provoke specific positive and negative emotions should be more amenable to organizational intervention. Reducing the incidence of events provoking employee frustration, anger, disgust, and disappointment, while increasing those that produce happiness, enjoyment, enthusiasm, contentment, and pleasure might go some way toward increasing satisfaction. Further research will be needed to identify the types of events that tend to reliably produce specific emotions in the workplace. The finding that it is the percent of time that one feels net positive

affect at work, more so than the intensity of that affect that matters for satisfaction, suggests that a

campaign to reduce hassles and increase the frequency of minor work-related uplifts (Kanner,

Coyne, Schaefer, & Lazarus, 1981) might be effective.

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**Table 1**
**Shaver et al.'s Categories, Category Frequency at Work,**
**and Items Chosen for Job Emotions Scale**

| Shaver et al.'s Category Name | Number of Terms in Category | Mean Category Frequency in Pilot | Items Chosen for JES (Item Frequency in Pilot) |
|---|---|---|---|
| **LOVE** | | | |
| Affection | 10 | 2.48 | Liking (3.16) |
| Lust | 5 | 2.12 | -- |
| Longing | 1 | 2.11 | -- |
| **JOY** | | | |
| Cheerfulness | 17 | 2.75 | Happiness (3.70) Enjoyment (3.46) |
| Zest | 6 | 2.74 | Enthusiasm (3.54) |
| Contentment | 2 | 3.08 | Contentment (2.97) Pleasure (3.18) |
| Pride | 2 | 3.06 | Pride (3.24) |
| Optimism | 3 | 3.21 | Optimism (3.40) |
| Enthrallment | 2 | 2.01 | -- |
| Relief | 1 | 3.01 | -- |
| **SURPRISE** | 3 | 2.58 | -- |
| **ANGER** | | | |
| Irritation | 6 | 2.47 | -- |
| Exasperation | 2 | 2.54 | Frustration (2.91) |
| Rage | 15 | 1.95 | Anger (2.83) |
| Disgust | 3 | 1.96 | Disgust (2.04) |
| Envy | 2 | 1.88 | -- |
| Torment | 1 | 1.66 | -- |
| **SADNESS** | | | |
| Suffering | 4 | 1.81 | -- |
| Sadness | 12 | 1.84 | Unhappiness (2.39) Depression (2.31) |
| Disappointment | 3 | 2.23 | Disappointment (2.54) |
| Shame | 4 | 1.81 | -- |
| Neglect | 12 | 1.91 | Embarrassment (2.25) |
| Sympathy | 2 | 2.21 | -- |
| **FEAR** | | | |
| Horror | 9 | 1.72 | -- |
| Nervousness | 8 | 2.39 | Worry (2.90) |

Table 2
Rotated Factor Loadings on Mean Scores for Negative Emotions

| Emotion | Factor 1 | Factor 2 |
|---|---|---|
| Depressed | **.78** | .26 |
| Frustrated | **.84** | .10 |
| Angry | **.89** | .13 |
| Disgusted | **.86** | .14 |
| Unhappy | **.85** | .31 |
| Disappointed | **.80** | .40 |
| Embarrassed | .06 | **.91** |
| Worried | .39 | **.79** |

Table 3

Correlations Between Affect and Satisfaction Measures

| | Job In General | Facet-free Satisfaction | Faces Overall Satisfaction | Mean Positive Emotions | General Negative Emotions | Worry/ Embarrassment |
|---|---|---|---|---|---|---|
| Facet-free Satisfaction | .77** | | | | | |
| Faces Overall Satisfaction | .72** | .69** | | | | |
| Mean Positive Emotions | .30** | .33** | .46** | | | |
| General Negative Emotions | -.32** | -.25** | -.50** | -.20* | | |
| Worry/ Embarrassment | -.11 | -.07 | -.33** | -.14 | .55** | |
| Average Mood | .30** | .28** | .53** | .62** | -.45** | -.34** |

N = 121

* p < .05      ** p < .01

Table 4

Zero Order Correlations and Multiple Regressions Predicting Facet Satisfaction from Affect

| | Average Mood | Mean Positive Emotion | General Negative Emotion | Worry/ Embarrassment | Adj $R^2$ |
|---|---|---|---|---|---|
| JDI Work | .26** | .18* | **-.32**\*\* | -.09 | .107** |
| JDI Pay | .09 | **-.11** | **-.22*** | -.03 | .070* |
| JDI Promotion | .11 | **.21**\*\* | **-.24**\*\* | **-.08** | .130** |
| JDI Supervision | .17 | .07 | **-.33**\*\* | -.18* | .078** |
| JDI Coworkers | .22** | .13 | -.17 | -.11 | .024 |

N = 121
* p < .05     ** p < .01
Bold faced variables had significant betas in the multiple regression.

Table 5

Correlations of Specific Emotions with Satisfaction

| | Job In General | Facet-free Satisfaction | Faces Overall Satisfaction |
|---|---|---|---|
| Liking | .18* | .24** | .26** |
| Happy | .28** | .31** | .50** |
| Enthusiastic | .34** | .39** | .52**. |
| Pleased | .26* | .29** | .40** |
| Proud | .15 | .16* | .23** |
| Optimistic | .26** | .28** | .37** |
| Enjoying | .30* | .37** | .46** |
| Content | .36** | .36** | .57**. |
| Depressed | -.27** | -.23** | -.41** |
| Frustrated | -.26** | -.24** | -.43** |
| Angry | -.31** | -.26** | -.44** |
| Disgusted | -.25** | -.21* | -.44** |
| Unhappy | -.33** | -.21* | -.47** |
| Disappointed | -.23** | -.14 | -.41** |
| Embarrassed | -.08 | -.02 | -.28** |
| Worried | -.11 | -.08 | -.31** |

$N = 121$

\* $p < .05$     \*\* $p < .01$

Table 6

Usefulness Analyses for Positive and Negative Emotions Predicting Job Satisfaction

| | Job in General | | Facet-free Satisfaction | | Faces Satisfaction | |
|---|---|---|---|---|---|---|
| | Beta[1] | Usefulness | Beta | Usefulness | Beta | Usefulness |
| Mean Positive Emotions | .24** | .057 | .30** | .085 | .37** | .132 |
| General Negative Emotions | -.27** | .070 | -.18* | .033 | -.43** | .176 |
| Total Adj $R^2$ | .14** | | .13** | | .37** | |

[1] Standardized Betas when both variables are in the equation.

N = 121

* p < .05    ** p < .01

Table 7

Contribution of Affect Beyond Facets to the Prediction of Overall Job Satisfaction

| | Job in General | | Facet-free Satisfaction | | Faces Satisfaction | |
|---|---|---|---|---|---|---|
| | Adj $R^2$ | Beta Step 2 | Adj $R^2$ | Beta Step 2 | Adj $R^2$ | Beta Step 2 |
| Step 1 | .434 | | .393 | | .411 | |
| Five JDI Facets | | | | | | |
| Step 2 | .460 | | .439 | | .604 | |
| Average Mood | | | | | | .20* |
| Mean Positive Emotion | | .18* | | .23** | | .21** |
| General Negative Emotions | | | | | | |
| Worry/ Embarrassment | | | | | | -.20** |

N = 121