EXPECTANCY ATTITUDES: A FURTHER EXAMINATION OF THE CONSTRUCT

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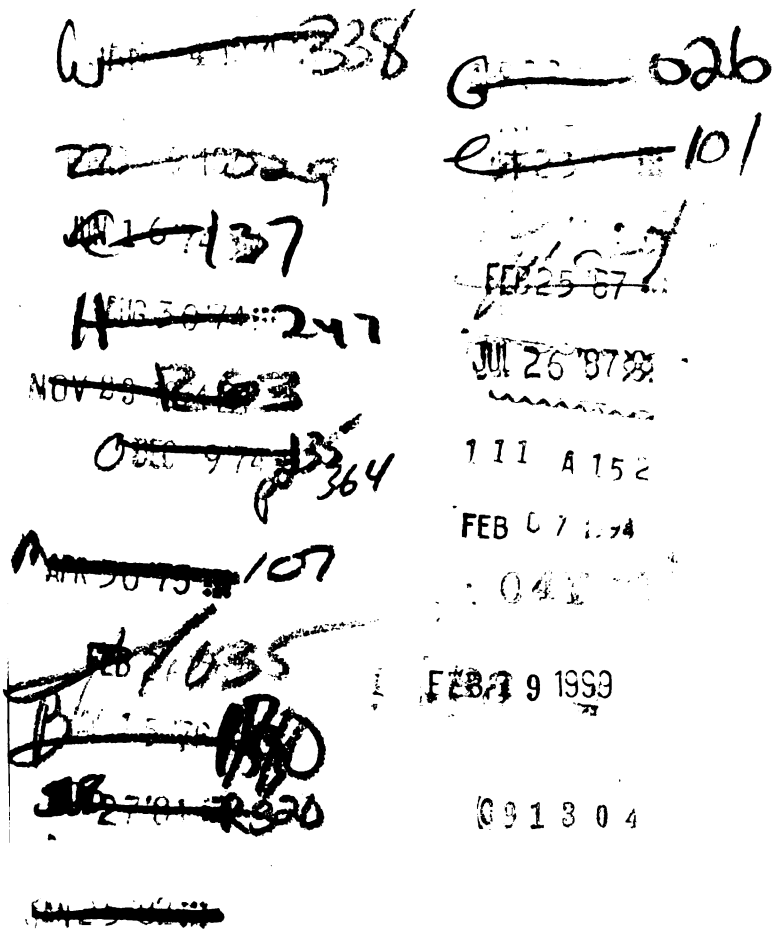
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ABSTRACT

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By

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This study was conducted for the following purposes: (1) to directly assess the relative utility of expectancy and job satisfaction attitudes as predictors of job related behavior, (2) to assess the tenability of the theorized dynamics of expectancy attitude formation, and (3) to determine the extent to which it is possible to account for need fulfillment-performance relationships in terms of expectancy attitude formulations.

Job attitude and self-report job performance data were collected from 2,683 employees of six medium-sized manufacturing companies in the Midwest. Subsample production record performance data (N = 246) and voluntary turnover data (N = 1,705) were also collected. The data were analyzed with correlational techniques.

Results showed job satisfaction attitudes to be superior to expectancy attitudes as predictors of both voluntary turnover and self-reported job performance. Neither attitude measure predicted production record performance.

Expectancies about future performance-reward associations were found to be more strongly related to degree of intrinsic need fulfillment than degree of extrinsic need fulfillment. This finding was interpreted as being consistent with the theory of expectancy attitude formation.

Results relevant to the third purpose of the study were mixed. As predicted, a correspondence was found between the strength of need fulfillment-self-report performance relationships and the strength of need fulfillment-expectancy attitude relationships. However, no such correspondence was found using the production record performance data, and no evidence was found for the hypothesized moderating effect of expectancy attitudes on the strength of need fulfillment-performance relationships.

Methodological deficiencies were discussed, and suggestions for future research offered.

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By

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LITERATURE REVIEW AND DISCUSSION

The Western Electric studies of the late 1920's and early 1930's gave rise to the human relations movement in industrial psychology. New emphasis was placed on good interpersonal relationships, jib satisfaction, and their relationship to human performance, and the assumption that high job satisfaction leads to high performance came to be popularly accepted. The examination of this assumption provided the initial stimulus for what is now one of the most studied relationships in industrial psychology--namely, the relationship between job satisfaction and job performance.

Since an initial study by Kornhauser and Sharp (1932) more than 30 studies have considered the relationship between job satisfaction and job performance, and several good reviews of these studies are available. Brayfield and Crockett (1955) examined all research relating job satisfaction to job performance up to that time and concluded that there was virtually no evidence of any relationship between these two variables. Vroom (1964) analyzed 20 correlational studies and found the median correlation between satisfaction and performance to be .14 with a range of .86

to -.31. Furthermore, he found no significant difference between studies which used objective measures of performance (N = 7, median correlation = .22) and studies which used ratings (N = 16, median correlation = .12). It was Vroom's conclusion that: "The absence of a marked or consistent correlation between job satisfaction and performance casts some doubt on the generality or intensity of either the effects of satisfaction on performance or performance on satisfaction" (p. 187). Another review (Herzberg, Mausner, Peterson, and Capwell, 1957), covering much of the same literature as Brayfield and Crockett, took a more optimistic view of the evidence. These authors, while recognizing that the available research does not provide evidence for an absolute relationship between job satisfaction and job performance, concluded that: ". . . there are enough data to justify attention to attitudes as a factor in improving the worker's output" (p. 103).

The one conclusion that is obvious from all these reviews is that the strong, pervasive relationship between job satisfaction and productivity that had been suggested by many of the early proponents of the Human Relations Movement is not supported by the research findings. Two general schools of thought have resulted from this state of affairs. Members of one school, while recognizing that the relationship is not a simple one, have maintained a

firm belief in the proposition that, in general, the satisfied worker is the worker who will work the hardest (belief in a basic satisfaction ⟶ performance paradigm). In their opinion, the task of the future is to examine the conditions under which this generality does not hold so that by better understanding the factors that moderate this relationship one can better predict performance through the use of job satisfaction attitudes. In other words, they feel that job satisfaction attitudes are still the most promising set of attitudes to use for predicting behavior. As will be seen later, they attribute the lack of conclusiveness of past evidence with regard to the satisfaction ⟶ performance assumption not only to a poor understanding of what moderates this hypothesized relationship, but also to methodological weaknesses in past studies which have investigated it--some of which are rooted in theoretical notions. Proponents of the other school argue that while job satisfaction undoubtedly has some effect on later performance, other attitudes bear a much more direct relationship to performance differences. In essence, this group is unwilling to accept the proposition that, in general, the happy worker is the worker who will work the hardest, and feels that a totally different approach should be taken in trying to predict performance through the use of attitude measures.

Among those who are less ready to abandon the use of satisfaction attitudes for predicting performance are Katz and Kahn (1966). In their opinion, one of the major reasons why past research of the satisfaction-performance relationship has been nonsupportive is that the great majority of studies in this area have utilized samples composed of nonmanagement people. According to these authors, little relationship should be expected between job satisfaction and job performance for these employees, simply because such great constraints are placed on their ability to express attitudinal changes behaviorally. The typical nonmanagement employee, it is argued, has little control over his own work pace. To the contrary, his work pace is greatly controlled by the men and machines with which he works. How, then, it is asked, can individual differences in the performance of these employees be expected to be systematically related to individual differences in their job satisfaction? It is concluded, therefore, that the failure to find more conclusive evidence for the satisfaction $\longrightarrow$ performance paradigm can be at least partly attributed to the large number of studies in this area which have utilized nonmanagement samples. To support this position, Katz and Kahn cite the study conducted by Brody (1945) in which the sample was composed of production workers who had substantial control over their own work pace. In this study, a correlation of .68 was found between job satisfaction and job performance.

Herzberg et al. (1959) offer a different sort of explanation for previous job satisfaction-job performance research findings. On the basis of theoretical arguments, Herzberg and his associates conclude that a great deal of the research in this area has suffered methodologically with regard to the items used to measure job satisfaction. In a classic study, these authors, utilizing a sample of engineers and accountants, and a critical incidents format, found evidence for what they consider to be a two-factor theory of job satisfaction. They labeled these two factors the job satisfiers (motivators) and the job dissatisfiers (hygiene factors) and concluded the following about them:

1. The job satisfiers (achievement, recognition, work itself, responsibility, advancement) are related to the job itself, its challenges, demands, etc., and satisfaction of the satisfiers offers the greatest potential for performance improvements.

2. The job dissatisfiers (company policy, supervision, salary, working conditions) are related to the surroundings in which the job is performed, and are relevant to performance differences only to the extent that the worker is dissatisfied with them. Once these factors no longer produce dissatisfaction for the worker, further improvement in them will not improve performance.

Although a great deal of research has been conducted to examine the authors' contention that different factors cause satisfaction and dissatisfaction, little attention has been focused on another important finding of their study--that when asked to recall

whether feelings about the satisfiers or dissatisfiers had an effect on their job performance, 73 percent of the sample stated that changes in the job satisfiers resulted in performance differences, while only 48 percent of the sample stated that changes in the job dissatisfiers altered their performance. While recognizing that this large difference might have been due to the fact that changes in the job dissatisfiers more often resulted in restrictive performance changes which the subject was not willing to report, the authors were more readily convinced that the percentage differences indicated that job satisfiers have greater performance effects than job dissatisfiers. A natural further conclusion of the authors was that the nature of the morale measures which have been used in past satisfaction-performance research might account for the lack of strong relationships found. More specifically, they concluded that these measures often are confounded because they tap both satisfiers and dissatisfiers. Since their research results indicated that the satisfiers are more apt to have an impact on performance, they reasoned that morale measures containing only satisfiers would reveal stronger relationships--a methodological change founded in a somewhat unique theoretical position.

While to my knowledge no one has explicitly done so, a similar methodological argument can be made using Maslow's

theoretical framework. Very briefly, Maslow (1954) postulates that man's needs are arranged in a hierarchy of importance:

Self-actualization Needs
Esteem Needs
Love and Belongingness Needs
Safety Needs
Physiological Needs

According to Maslow, the original needs of importance are the physiological needs, and as such they are the primary motivators of behavior. Once these needs have been consistently satisfied, they no longer are of great importance, and instead the safety needs assume the role of primary motivators. The process continues until the higher order needs (esteem and self-actualization needs) eventually become the primary motivating forces. On inspection, it can be seen that the higher order needs correspond closely to the satisfiers in Herzberg's two-factor theory (except for advancement, which can also be construed as being closely related when it is assumed to be sought for esteem and self-actualization need fulfillment purposes). If it can be assumed that Maslow's lower order needs are basically satisfied in our society (they no longer have strong motivating effects), and many authors believe this to be true (McGregor, 1960; Argyris, 1964), then the argument can again be made that the morale indices used in previous satisfaction-performance studies may be accountable for the results obtained.

In Maslow's terms, the indices used were confounded because they tapped lower order needs which should not be expected to have substantial motivating effects. Thus, the same basic methodological criticism as that leveled by Herzberg and his associates can easily be reached using the somewhat different theoretical notions of Maslow.

Several studies, while not originally conducted for such purposes, shed some light on the Herzberg and Maslow based suggestions for improving satisfaction-performance relationships. Katz, Macoby, and Morse (1950), studying the relationship between satisfaction and performance for clerical employees, used three indices of job satisfaction: one reflecting satisfaction with the company as a whole, one reflecting satisfaction with financial and job status, and one reflecting satisfaction with the job itself. The third index, often called intrinsic job satisfaction, can be thought of as a global measure of what Herzberg considers the job satisfiers. It can also be considered (although with somewhat more apprehension) a measure which heavily taps what Maslow considers the higher order needs--the esteem and self-actualization needs. Using group comparisons, the authors found that employees in low producing groups expressed more intrinsic job satisfaction than employees in high producing groups. Katz, Macoby, Gurin and

Floor (1951) replicated this finding among maintenance of way crews on a railroad.

Research results said to offer support for the Herzberg and Maslow positions are found in a study by Lawler and Porter (1967b). Using a sample of 148 middle and lower level managers in five organizations, superior and peer rankings of performance, and satisfaction measures for five need categories based on a slightly modified version of Maslow's need hierarchy (security, social, esteem, autonomy, and self-actualization needs), the following results were obtained (Table 1, p. 27):

Pearson Correlations Between Satisfaction and Performance in Five Need Areas

	Rankings By	
Needs	Superior	Peer
Security	.21**	.17*
Social	.23**	.26**
Esteem	.24**	.16*
Autonomy	.18*	.23**
Self-actualization	.30**	.28**

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

On the basis of these results, the authors concluded that there is a slight tendency for satisfaction of higher order needs (Herzberg's satisfiers) to show higher correlations with performance

than satisfaction of lower order needs. However, such a conclusion is tenuous to say the least, since none of the above correlations were found to significantly differ.

More substantial support for the Herzberg and Maslow positions is found in a second study by Porter and Lawler (1968) in which the same need categories were utilized. Using a sample composed of 563 lower and middle level managers, and a data analysis technique which involved splitting the sample into thirds on the basis of values on one variable and then computing t-tests between the top and lower thirds on the other variable being examined, the authors found the following:

A. Using superior's rankings as the measure of performance:

   1. Members of the high performance group (N = 126) expressed significantly greater fulfillment of their autonomy and self-actualization needs than members of the low performance group (N = 134). Group differences for the security, social, and esteem needs were not significant.

   2. Members of the low performance group expressed significantly more need dissatisfaction (expected equitable fulfillment-received fulfillment) with regard to their social, esteem, autonomy, and self-actualization needs than members of the high performance group. Group differences for the security needs were not significant.

B. Using self-ratings as the measure of job performance: Members of the high performance group (N = 70) expressed significantly greater fulfillment of their esteem, autonomy, and self-actualization needs than members of the low performance group (N = 75). Group differences for the security and social needs were not significant.

Thus, the results of this study provide the most conclusive evidence for the contention that attitudes about higher order needs are more closely related to performance than attitudes about lower order needs.

By way of summary, it seems clear that the available research provides far from conclusive evidence for the Herzberg and Maslow positions. While the research studies of Porter and Lawler, expecially their 1968 study, are quite supportive, the other studies are equally unsupportive. Morse (1953) has suggested that one of the reasons the early studies failed to confirm the expectation that intrinsic job satisfaction would be positively related to productivity was that employee aspiration was moderating the relationship. That is, that workers with higher job involvement were setting higher levels of aspiration for themselves and therefore reacted more negatively to blocks in their progress than less motivated workers. It also appears that because these early studies used group analyses, the influences of group cohesiveness, revealed by Seashore (1954), may be at least partly accountable for the nature of the results obtained. Whatever the case, it appears that the safest conclusion that can be drawn at this time is that while the ideas of Maslow and Herzberg seem to hold some promise,

further research is needed before a definite statement can be made about them.

As previously mentioned, a second major force exists within the field of industrial psychology which is even more skeptical of the proposed satisfaction ⟶ performance paradigm. In brief, this group places little value in the notion of a basic, yet highly complex satisfaction ⟶ performance causality. Instead, it feels that it is more fruitful to think in terms of a performance ⟶ satisfaction causality. In taking this position, this group further argues that it is more beneficial to tap attitudes other than job satisfaction for purposes of predicting performance.

Porter and Lawler (1968), two of the strongest proponents of this position, state the beliefs of this group well with regard to the causality of the job satisfaction-job performance relationship when they say:

> We hypothesize that performance--through rewards, particularly intrinsic ones--has a more direct effect upon satisfaction than satisfaction has upon performance. In other words, we see satisfaction primarily as a dependent variable and not a causal variable. We do not exclude the possibility (even probability) that feelings of satisfaction can in turn influence future performance. We do maintain, however, that such a connection is less direct than the reverse relationship. (p. 38)

As explained by Locke (1970), another proponent of this position, satisfaction is an emotional reaction which reflects the

degree to which one's past actions attained or failed to attain one's values and, thus, is best regarded as being primarily a product of performance. As further explained by Locke, while the emotional reaction of satisfaction (dissatisfaction) serves as an incentive to maintain or change one's course of action, it only secondarily controls man's behavior (future performance). The pursuance of goals is the primary motivator of man's future actions. And since these goals are determined by an individual's value system, his knowledge and beliefs, and his interpretation of the situation, these are the attitudes and beliefs which should be measured in an attempt to predict performance--not satisfaction attitudes.

In keeping with their viewpoint that it is best to think of the satisfaction-performance relationship as one of performance $\longrightarrow$ satisfaction, these authors offer a somewhat different interpretation of those studies (previously cited) which have shown satisfaction of the higher order needs to be most strongly associated with performance. In disagreeing with the interpretation founded on Herzberg and Maslow principles, these authors reason that higher order need satisfaction is more strongly related to performance than lower order need satisfaction because satisfaction of the higher order needs is more directly experienced as a result of task performance. It is pointed out that higher order needs are essentially task related

needs which are under the control of the individual. As such, the satisfaction of these needs is directly contingent upon performance. On the other hand, satisfaction of the lower order needs is largely under the control of external agents and is task related only to the extent that rewards are allocated on the basis of task performance.

In an attempt to measure attitudes which better predict performance than job satisfaction, those most skeptical of the satisfaction $\longrightarrow$ performance paradigm have turned to the theoretical ideas first presented by Lewin (1938) and Tolman (1932). In trying to explain the motivation of behavior, these authors offered the original statements of expectancy theory--a cognitive theory of motivation which places a great deal of emphasis on the anticipation of behavior-outcome connections.

Very briefly stated, expectancy theory states that the strength of the tendency for an individual to perform a particular act is a function of (a), the perceived probability that the particular act will be followed by a particular outcome (expectancy), times (b), the value of that particular outcome (valence). The valence of an outcome may be due to its own attractiveness or to beliefs concerning its associations with other outcomes which have their own valences (called instrumentalities by Vroom). The theory is often symbolized:

Force (to perform an act) = Expectancy × Valence

Since there are usually several different outcomes potentially associated with any given action, most expectancy theorists sum the Expectancy × Valence components across the total number of possible or relevant outcomes to obtain an overall estimate of motivation or "force" to act.

It is easy to understand how those who feel that job satisfaction is essentially the result of job performance would be attracted to expectancy theory. Expectancy theory, with its emphasis on the role of expectancy attitudes (perceived effort-reward relationships) and valences, not only offers a viable alternative to performance predictions based on satisfaction attitudes, but it also offers a concise, common sense, theoretical framework which can be relatively easily examined by obtaining expectancy attitude and valence measures and examining the relationships between E × V values and job performance. It gains further appeal because it emphasizes the anticipation of future behavior-outcome connections which, in essence, refutes the satisfaction ⟶ performance paradigm and its emphasis on present satisfactions as the primary motivators of future performance. The following studies constitute the body of empirical evidence which has so far been accumulated for expectancy theory predictions of performance.

Georgopoulus, Mahoney, and Jones (1957), using a sample of 621 individual incentive workers in a household appliance company, examined the general hypothesis: "If a worker sees high productivity as a path leading to the attainment of one or more of his personal goals, he will tend to be a high producer. Conversely, if he sees low productivity as a path to the achievement of his goals, he will tend to be a low producer" (p. 346). Three of the specific hypotheses derived from this general path-goal hypothesis were:

1. With respect to a given goal item, the percentage of high producers will be greater among workers having a positive path-goal perception (high productivity helps or low productivity hurts) than among those having a negative perception (high productivity hurts or low productivity helps).

2. With respect to a given goal item, the percentage difference of high producers between those having a positive and those having a negative path-goal perception will be greater among workers who have a high need than among those who have a low need for the same goal.

3. With respect to a given goal item, the percentage difference of high producers between those having a positive and those having a negative path-goal perception will be greater among workers who are free than among workers who are not free from constraining forces.

Thus, in expectancy theory terms, the authors examined instrumentality predictions of productivity (hypothesis 1), the role of outcome valence in these predictions (hypothesis 2), and the role of self-control over work pace with regard to these predictions (hypothesis 3).

Subjects ranked the importance of ten goals and also rated, on a five-point scale, the extent to which high and low productivity were instrumental to their attainment of these goals. Those ranking a particular goal as 1, 2, or 3 on importance were pooled to form the high need group for that goal. All others were placed in the low need group. Self-reports of typical percentage productivity were used to distinguish high and low producers. All subjects who stated that they were free to set their own work pace, who had a minimum of six months experience on the job, and who were between 20 and 59 years of age, constituted the group with high individual freedom with regard to on-the-job performance. All others were placed in the "not free" group.

While the hypotheses were tested only with regard to the goals of "making more money in the long run," "getting along well with the work group," and "promotion to a higher base rate," the results substantially supported all three hypotheses. Three of the six percentage differences were significant at the .05 level for hypothesis 1 and all six were in the predicted direction. Hypothesis 2 yielded differences in the predicted direction in five of six comparisons, and five of the six percentage differences were also in the predicted direction for hypothesis 3.

Lawler and Porter (1967a), using a sample of 154 managers from five organizations ranging from a large manufacturing firm to a local YMCA, examined the relationships between expectancy attitudes with regard to seven rewards (pay, promotion, prestige, security, autonomy, friendship, and opportunity to use skills and abilities) and superior, peer, and self-evaluations of both performance and effort. They then examined the strength of the relationships when the expectancy attitudes were multiplicatively weighted by importance (valences).

Behavior-reward instrumentality perceptions were obtained for the behaviors of effort, high productivity, and good job performance, by asking each subject to indicate on a seven-point scale how helpful each of these behaviors would be in obtaining each of the seven rewards. Behavior-reward expectancy measures were then obtained for each reward by summing an individual's responses to the three behavior-reward instrumentality items for that reward. Job behavior was predicted by placing these values in a multiple regression equation.

In order to evaluate the relative efficiency of weighted versus unweighted expectancy measures as predictors of behavior, Expectancy × Importance measures were computed for each individual by multiplying each of his behavior-reward expectancies by the

importance he placed on that reward. These were then substituted into the multiple regression equation. Using these procedures, the results of the study were as follows (Table 1, p. 136):

Multiple Correlations for Seven Expectancy Attitudes as Predictors of Job-Behavior Measures

Job-Behavior Measures		Expectancy Measures	Expectancy × Importance
Superior Ranks:	a. Job Performance	.17	.18
	b. Effort	.22	.27
Peer Ranks:	a. Job Performance	.21	.21
	b. Effort	.25	.30*
Self Ratings:	a. Job Performance	.25	.38**
	b. Effort	.32*	.44**

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

Examination of the results reveals several apparent trends. First, self-ratings of performance appear to be best predicted by expectancy attitudes, followed by peer rankings and superior rankings. Second, weighting expectancy attitudes by importance appears to improve performance prediction. And third, expectancy attitudes appear to be more closely related to effort than to ultimate performance. Unfortunately, the authors failed to cross-validate their

findings. Consequently, these "trends" must be considered to be of a highly suspect nature.*

In a previously cited study by Porter and Lawler (1968), the motivational effects of pay were examined in an expectancy theory framework. Subjects were asked to indicate the importance of pay on a seven-point scale. On a similar scale, subjects indicated the extent to which they perceived pay to be contingent upon work quality, productivity, and effort. Using superior and self-ratings of performance and effort, the following hypotheses were supported:

1. The higher the perceived probability that pay depends on performance factors, the more effort an individual will devote to performing his job effectively.

2. The relationship between the perceived probability that pay depends upon job performance factors and measures of actual performance and effort will be stronger for those individuals who say their pay is relatively important to them than it will be for those who say their pay is relatively unimportant to them.

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*As Ewen (1956) and others have found in the case of job satisfaction, the weighting of individual items by importance measures produces scales that correlate almost perfectly with the unweighted scales. This creates doubt as to whether any theoretical or practical significance can be attributed to differences in their patterns of correlations with third variables. See also Ryans (1954).

The authors' failure to cross-validate also raises important questions about the actual predictive power of the authors' Expectancy and Expectancy × Importance regression equations. Using Lord's (1950) shrinkage formula to estimate population multiple R's ($\hat{\rho}$'s) from the authors' reported multiple R's resulted in $\hat{\rho}$'s ranging from -.10 to .35.

Support for hypothesis 1 can be considered further evidence that expectancy attitudes bear a relationship to performance variables, while support for hypothesis 2 again points out the apparent usefulness of considering reward valence in the expectancy theory equation for resultant job related behavior.

Schuster, Clark, and Rogers (1971), using a sample of 575 professional employees in a major division of a firm, and a modified chi-square technique, reexamined these two hypotheses. Procedures similar to those used by Porter and Lawler were used to measure pay valence and performance-pay instrumentality. Unlike the Porter and Lawler study, only self-ratings of effort and supervisory ratings of performance were obtained.

Results for hypothesis 1 showed work quality-pay and productivity-pay instrumentalities to be greater at high performance levels (results significant at levels of .02 and .03, respectively). A similar, but nonsignificant trend was obtained for perceived effort-pay instrumentality. These results, when coupled with the additional findings that: (1) high performers saw themselves as expending more effort than low performers ($p < .001$), and (2) nearly 70 percent of the subjects expressed the belief that effort determines performance, led the authors to conclude that substantial support had been demonstrated for the hypothesis. That is, that effort

expenditures to perform effectively were dependent upon perceived performance-pay instrumentalities.

Results for hypothesis 2 were far less conclusive. To test the hypothesis, the sample was divided into those who rated their pay as important and those who rated their pay as unimportant. Within these groups performance-pay and effort-pay instrumentalities were compared with supervisory ratings of performance. For those rating pay as important, a strong relationship was found between rated performance and both performance-pay and effort-pay instrumentalities. However, the data did not permit the authors to determine a trend or lack of trend for those who rated their pay as unimportant. This precluded their ability to either accept or reject the hypothesis. Thus, unlike Porter and Lawler, the present authors were unable to provide any evidence that pay valence plays an important role in performance-pay and effort-pay instrumentality predictions of performance.

Hackman and Porter (1968), using a sample of 82 female service representatives of a telephone company, tested expectancy theory predictions of effort and performance. Subjects were asked to indicate on a seven-point scale their beliefs concerning the likelihood that working hard would result in a given outcome for each of 14 outcomes. They were also asked to indicate on a seven-point

scale the importance they attached to each of the 14 outcomes.

Five performance criteria were used:

1. Superior ratings of job involvement
2. Superior ratings of job performance (quality and quantity of work, judgment, dependability, initiative, cooperation and ability to learn)
3. Company records of error rates
4. Company records of sales effectiveness
5. A composite "effectiveness index" based on the sum of standard scores for criteria 1, 3, and 5 above

Results of the study were as follows (Table 2, p. 423):

Correlations Between Expectancy Theory Predictions and Criteria

Criterion Measure	Correlation with $\sum E \times V$ Predictor
Superior Ratings of Involvement	.27**
Superior Ratings of:	
Quality	.06
Quantity	.37**
Cooperativeness	.13
Judgment	.25**
Dependability	.36**
Initiative	.28**
Ability to Learn	.25**
Error Rate	-.23*
Sales Effectiveness	.31**
Composite Criterion	.40**

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

$\sum E$, $\sum V$, and $\sum E + V$ scores were also correlated with the criteria, resulting in sets of correlations smaller than those obtained using the $\sum E \times V$ predictor scores. Correlations between the $\sum E$ scores and the 11 criteria (reversing the sign of the r with error rate) ranged from -.08 to .23, with a median of .11; for the $\sum V$ scores the correlations ranged from .08 to .33, with a median of .16; and for the $\sum E + V$ scores the correlations ranged from -.01 to .27, with a median of .17.

The results were interpreted by Hackman and Porter as providing substantial support for expectancy theory predictions of job performance. The authors attributed the lack of relationship between $\sum E \times V$ predictor scores and the criterion of work quality to the fact that the predictor was derived on the basis of outcomes which were expected to result from "working especially hard"--not working especially well. The superiority of the $\sum E \times V$ predictor scores over any other expectancy-valence combination was interpreted by the authors as providing support for the multiplicative model of expectancy theory which they (and others) propose.*

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*The multiplication of interval scores is meaningless due to the arbitrary nature of the zero points on interval scales of measurement. At best, the expectancy and valence measures used in this study (and all other such studies) can be assumed to constitute interval scales. From a measurement viewpoint, therefore, it is equally meaningless to compute expectancy $\times$ valence scores

A study by Galbraith and Cummings (1967), while less conclusive, is said to offer additional support for the multiplicative model of expectancy theory. Subjects were 32 factory workers who controlled their own work pace. They were asked to indicate by graphic ratings the instrumentality of high performance for six outcomes (pay, fringe benefits, promotion, free time, superior supportiveness, and group acceptance) and also to rank order these six outcomes according to their importance. A measure of intrinsic value of high performance (ego-involvement) was also obtained by asking each subject to indicate how much he thought about his work when off the job. Using an objective measure of one month's performance, and a modified analysis of variance procedure, the authors found significant two-way interactions for supportiveness valence and instrumentality ($p < .01$), and pay valence and instrumentality ($p < .05$), as determinants of job performance. Both group acceptance instrumentality and ego-involvement valence also

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in an attempt to provide support for the multiplicative model of expectancy theory. In fact, while it is not known to this author what the specific transformations might be, in all probability linear transformations (which maintain interval scales) exist for the expectancy and valence measures, which, if applied, would yield $E \times V$ scores at least approximately equal to $E + V$ scores. Furthermore, if, as some would argue, the measurement of expectancies and valences represents only ordinal measurement, then any logarithmic transformation (which maintains ordinal scales) could be applied to these scores to remove the interaction term.

approached significance. However, ego-involvement was negatively related to job performance.

Failure to find performance relationships with the outcomes of fringe benefits, promotions, and free time was attributed by the authors to the fact that certain constraints--especially those imposed by a union contract--restricted the range in instrumentality of performance for these outcomes. The authors had a more difficult time trying to explain the negative relationship they obtained between ego-involvement and performance. Basically, they argued that ego-involvement valence is probably more closely related to quality than quantity of performance, thus accounting for the results obtained. However, this interpretation is highly speculative to say the least. A critical question left unanswered by the study was the amount of variance accounted for by the significant interaction terms as compared to the main effects of valence and instrumentality.

Goodman, Rose and Furcon (1970), using a sample of 66 scientists and engineers employed in a government research lab, compared expectancy theory model performance predictions with performance predictions based on three other motivational models. The other models, all selected from the work of Pelz and Andrews (1966), were Direction of Motivational Orientation, Source of Motivational Stimulation, and Job Dedication. The specific hypotheses relating these models to performance were as follows:

1. Direction of Motivational Orientation: Scientific orientation rather than status orientation will be positively related to performance.

2. Source of Motivational Stimulation: Internal rather than external sources of stimulation will be positively related to performance.

3. Job Dedication: Degree of job dedication will be positively related to performance.

Direction of Motivational Orientation was measured by asking each subject to rank order the factors of organizational status, scientific contribution, salary, professional status, independence, and the work itself according to their perceived importance. The job involvement scale developed by Lodahl and Kejner (1965) served as the measure of Job Dedication. Source of Motivational Stimulation was measured by having respondents rate the stimulation for performance provided by the sources of "immediate supervisor" (external), "higher-up research supervisors" (external), "my own previous technical work" (internal), and "my own curiosity" (internal).

The expectancy theory model was operationalized by first having each subject rank his three most important work goals (valence). Next, perceptions about the importance of certain behaviors for the attainment of these work goals were measured (instrumentality). Finally, perceptions about the extent to which effort would lead to these behaviors were measured (expectancy).

Those subjects indicating a weak effort-behavior relationship were placed in the low-task control group, and their predictor scores were arrived at by simply summing their importance × instrumentality scores. Subjects indicating a strong effort-behavior relationship were placed in the high-task control group and, accordingly, their summed importance × instrumentality scores were multiplied by two to arrive at their predictor scores. Three different expectancy model predictor scores were obtained for each subject--one reflecting the perceived instrumentality of publications for obtaining desired rewards (Publications Index), one reflecting the perceived instrumentality of reports for obtaining desired rewards (Rewards Index), and one reflecting the perceived instrumentality of talks for obtaining desired rewards (Talks Index).

Performance measures consisted of self-reported publication output (PPB), actual publication output (Actual PPB), self-reports of unpublished technical reports, and self-reports of formal scientific talks.

In general, the first three motivational models failed to predict performance in the hypothesized manners. Expectancy model indices yielded the following correlations (from Table 1, p. 493):

Performance Measures	Publication Index	Reports Index	Talks Index
Reported Papers, Patents, and Books (PPB)	.39**	-.01	.30*
Actual PPB	.29*	.02	.24*
Unpublished Reports	-.03	.30*	-.02
Formal Talks	.15	.07	.33*

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

The important thing to note in these results is the fact that all three expectancy model predictor indices significantly correlated with the specific performance criterion (criteria) they were designed to predict. The significance of these correlations, and the almost total lack of predictability found for the other three models, tends to support the contention that the expectancy theory model is at least superior to these models for predicting performance.

Graen (1960), using a sample of 169 females from the local labor market, and an "experimental simulation" design, examined expectancy theory predictions of performance under three different organizational climates. The three climates were defined as follows:

1. Reciprocating Climate: Situation in which attainment of role outcomes (rewards) is viewed as being contingent upon performance.

2. Prompting Climate: Situation in which the attainment of role outcomes is seen as an inducement to effective performance and not as contingent upon effective performance.

3. Control Climate: Situation in which the attainment of role outcomes is viewed as being neither contingent upon effective performance nor an inducement to effective performance.

The role outcome used in the operationalization of the Reciprocating Climate was recognition for achievement, while money was the role outcome used in the operationalization of the Prompting Climate.

Importance ratings for the outcomes of achievement, salary, human relations, recognition, work itself, policies and practices, technical supervision, responsibility, working conditions, and promotions served as valence measures. Instrumentality was measured by asking each subject to indicate on a five-point scale, for each outcome, what he felt his chances were of receiving the outcome as a result of his effective job performance. Expectancy was measured by asking each subject to indicate on a five-point scale what he felt his changes were of improving his performance if he "really worked hard."

Data collection was divided into two sessions. In the first session, subjects were given the importance questionnaire and trained on two tasks. The first task, called the search task, required the subjects to find certain specified numbers in a correlation matrix and write them down. The second task, called the rounding task, required the subjects to find specified numbers in the same manner as on the search task and then round the numbers

from six to two decimal places according to specified rules. At the end of the session, subjects were given a search task and a rounding task to complete as work samples. Subjects were assigned to homogeneous ability and outcome preference groups on the basis of their performance on these tasks (both quantity and quality) and their responses on the importance questionnaire.

In the second session, members of each homogeneous ability and outcome preference group were randomly assigned to one of three treatment conditions (organizational climates). Two pretreatment and four posttreatment search and rounding tasks were given. After completion of the last posttreatment task, subjects filled out the instrumentality and expectancy questionnaires. Task performance in this second session was measured both statically and dynamically. Performance was measured dynamically by means of a pretreatment to posttreatment gain score.

Using the above measures and procedures, Graen found significant correlations between expectancy theory predictor scores and actual performance only under the Reciprocating Climate treatment (r's in the 30's and 30's). Furthermore, these results were specific to predictions of quantity gain on rounding tasks.

On the basis of the above-mentioned results, and the additional finding that perceived role behavior-role outcome

instrumentalities increased only under the Reciprocating Climate treatment condition, Graen concluded that organizational climate places an important boundary condition on expectancy theory as a means of predicting role behaviors. According to Graen, only in organizational climates similar to that produced by his Reciprocating Climate treatment condition do employees perceive the organization as an understandable and predictable system--a system in which rewards are always contingent upon performance. And it is only in such climates that employees will in turn react in a manner which is predictable through the use of expectancy attitudes.

While Graen's conclusion is weakly supported by his data, a much more noteworthy aspect of this study is the general lack of support found for expectancy theory predictions of performance. Even under the "ideal" climate espoused by Graen for such predictions--the Reciprocating Climate--there were no significant expectancy theory predictor correlations with posttreatment performance. This is extremely startling when one considers that the majority of studies in this area have utilized similar concurrent designs to find generally supportive results for expectancy theory performance predictions. Perhaps the experimental nature of this study is of consequence.

Only one study (Lawler, 1968) has so far been conducted to examine the tenability of the expectancy attitude $\longrightarrow$ performance causality inferred in expectancy theory. Performance measures (superior, peer, and self-ratings) and valence-expectancy attitude measures (for the rewards of pay, promotion, prestige, security, autonomy, and opportunities to use skills and abilities) were secured at two points in time separated by about one year. The "cross-lagged" correlational technique of Campbell and Stanley (1963) and the "dynamic" correlational technique of Vroom (1966) were used to analyze the data from 55 managers.

Results of the "cross-lagged" correlational technique showed that, in general, multiple correlations of valence-expectancy attitudes at time 1 with performance measures at time 2 (one year later) were greater than both:

1. Multiple correlations between concurrent measures of valence-expectancy attitudes and measures of performance.
2. Multiple correlations between performance measures at time 1 and valence-expectancy attitude measures at time 2 (one year later).

Thus, the results tended to support the contention that valence expectancy attitudes influence performance.

The "dynamic" correlational technique was utilized to guard against the possibility that the results obtained by the "cross-lagged"

technique were due to a third variable. However, the use of this technique does not insure that such was not the case. Therefore, the results, while strongly suggestive of a valence-expectancy attitude $\longrightarrow$ performance paradigm, cannot be interpreted as providing absolute evidence for its existence.

As can be seen, the available research offers considerable support for the use of expectancy attitude formulations in predicting job performance. While the magnitude of the obtained expectancy attitude-performance relationships suggests that moderators are at work, the consistency of the modest expectancy attitude-performance relationships, as opposed to satisfaction-performance relationships, is impressive, and leads one to believe that future attitude-performance research may best be served by further examining expectancy attitude-performance relationships.

While the use of job satisfaction attitudes for predicting on-the-job performance has so far proved to be of little benefit and, on the surface at least, other attitude measures appear to offer more promise for such predictive purposes, job satisfaction attitudes have proven to be consistently related to another job performance variable--turnover.

Weitz and Nuckols (1953) mailed questionnaires containing both direct and indirect measures of job satisfaction to 1200 insurance agents. Based on a 47 percent return rate, scores on the direct measure correlated .20 with survival ($p < .01$) while scores on the indirect measure correlated .05 with survival (not significant).

Webb and Hollander (1956) obtained three measures of morale from each of 210 cadets in a naval training program. The measures consisted of:

1. Scores on a 20 item questionnaire measuring "interest in and enthusiasm for the naval air program"
2. Peer nominations of interest and enthusiasm for the program
3. Self-ratings of interest and enthusiasm for the program

Results showed that all three measures were significantly related to a pass-withdraw criterion, with peer nominations ($r_{bis} = .90$) and self-rankings ($r_{bis} = .83$) being better predictors than the questionnaire ($r_{bis} = .30$).

Sagi, Olmstead, and Atelsek (1955) obtained questionnaire measures of personal involvement (operationally defined as: "the degree to which a member feels responsible to and satisfaction with an organization relative to his personal expectations") from each of 293 college students who were members of a student service organization. A six month follow-up showed that scores on the personal

involvement measure significantly discriminated between those who had remained in the service organization and those who had voluntarily dropped out ($p < .003$).

Ross and Zander (1957) obtained measures of need dissatisfaction for the needs of recognition, autonomy, affiliation, achievement, and fair evaluation from each of 2,680 female skilled workers in 48 sections of a large company. Controlling for seniority, type of work, supervision, employee benefits, and salary, a four month follow-up showed that those who had terminated (N = 169) had earlier expressed significantly greater mean dissatisfaction with the needs of recognition, achievement, and autonomy than those who had not terminated.

Speroff (1950) found a correlation of -.76 between job satisfaction as measured by the Tear Ballot for Industry and tenure rate (tenure rate = $\frac{\text{total years on labor market}}{\text{number of jobs held}}$) for 36 workers in two small independently owner plants.

Hulin (1966) administered the Job Description Index, an instrument designed to measure job satisfaction, to 350 female clerical workers. Controlling for age, education, job level, and marital status, Hulin found that a five month follow-up showed terminators had expressed significantly less job satisfaction than nonterminators.

In studies which have used group analyses, similar results have emerged. Giese and Ruter (1949) found a correlation of -.42 between mean morale scores and annual percentage turnover rate for 25 departments in a mail-order company. A correlation of -.13 was found between turnover rates and average job satisfaction scores for 20 departments in a metal fabrication factory by Kerr, Koppelmeir, and Sullivan (1951). Finally, a correlation of -.21 was found between departmental turnover rates and morale scores at International Harvester by Fleishman, Harris, and Burtt (1955).

In summary, just as the available research results indicate a modest but consistent relationship between expectancy attitudes and on-the-job performance, the above mentioned research reveals a modest but consistent relationship between job satisfaction and turnover.

FURTHER DISCUSSION AND HYPOTHESES

Past research suggests that expectancy attitudes offer greater promise for predicting on-the-job performance than satisfaction attitudes. A closer examination reveals that this apparent superiority may be due to basic differences in the studies that have been conducted to examine the predictive power of these two kinds of attitudes. It will be remembered that the majority of satisfaction-performance studies have utilized samples consisting of production workers. According to some authors, because of the constraints placed on individually induced production worker performance variance, the use of such samples greatly reduces the possibility of attaining strong satisfaction-performance relationships. When one looks at the studies conducted to examine expectancy attitude-performance relationships it becomes obvious that very different samples have generally been used--samples which the authors mentioned above would probably say offer greater latitude for individually controlled performance differences. Only two of the expectancy attitude-performance studies utilized production workers (Georgopoulus et al., 1957; Galbraith and Cummings, 1967).

Furthermore, in the Georgopoulus study, self-reports of production were used, while Galbraith and Cummings emphasized that their factory worker sample was characterized by a great deal of individual control over work pace. Thus, it is possible that the apparent superiority of expectancy attitudes as predictors of performance can be attributed to differences in the samples that have been used in the two kinds of attitude-performance research. The question remains whether expectancy attitudes are more directly related to performance differences than satisfaction attitudes for any given sample.

Hypothesis 1: For any given sample, expectancy theory attitudes yield stronger relationships to performance than satisfaction attitudes.

Past expectancy attitude-performance and satisfaction-performance studies have also differed with regard to the nature of the performance criteria used. While both "hard" and "soft" performance data have been widely used in satisfaction-performance studies, the overwhelming majority of expectancy attitude-performance studies have utilized only "soft" performance criteria--very often self-reports of performance. While Hackman and Porter's (1968) investigation of expectancy theory predictions of performance revealed no essential differences in predictive power

when "hard" and "soft" performance criteria were used, two other expectancy theory studies which utilized "hard" performance data (Galbraith and Cummings, 1967; Graen, 1969) yielded some of the least conclusive support for the use of expectancy attitudes as predictors of performance. These results, coupled with the Lawler and Porter (1967a) finding that expectancy attitudes were most closely related to the often used expectancy theory criterion of self-ratings (as opposed to peer and superior rankings), leads one to question whether the apparent superiority of expectancy attitude predictions of performance is, at least partly, a manifestation of the nature of the performance criteria used.

Hypothesis 2: For any given sample, expectancy attitude correlations with performance do not differ significantly when "hard" and "soft" criterion measures of performance are used.

As indicated in the literature review, there is some evidence, although far from conclusive, that Maslow's higher order needs (Herzberg's motivators) bear a somewhat stronger relationship to performance differences than his lower order needs (Herzberg's hygiene factors). It was also indicated in the literature review that different authors offer different interpretations for this finding. Some authors offer an interpretation couched in a satisfaction

$\longrightarrow$ performance causality. In their opinion, the higher order needs are most strongly related to performance differences simply because they have stronger motivating influences. On the other hand, those who advocate the use of expectancy attitudes offer an interpretation which is rooted in a performance $\longrightarrow$ satisfaction causality. They believe that the strength of higher order need satisfaction-performance relationships can be attributed to the fact that satisfaction of these needs is generally more directly felt as a result of performance. In taking this position, they prefer to categorize the higher order needs as intrinsic needs and the lower order needs as extrinsic needs. Preference for such categorization is a reflection of their belief that because higher order need satisfaction is generally intrinsic to one's own behavior (self-provided), it is more likely to bear a relationship to performance than lower order need satisfaction which is extrinsic to one's own behavior (provided by others). Hypothesis 3 serves as a test of the above reasoning.

Hypothesis 3: Performance is more directly related to degree of intrinsic need fulfillment than to degree of extrinsic need fulfillment.

The same theoretical framework embodied by expectancy theorists to account for any support for hypothesis 3--namely, that: (1) need fulfillments are best thought of as resulting from one's own

performance and (2) intrinsic need fulfillments are most directly affected by one's own behavior--has led these same theorists to further hypothesize that degree of intrinsic need fulfillment is more directly related to beliefs about future performance-reward associations (expectancies) than is degree of extrinsic need fulfillment. The reasoning behind the following hypothesis as to the determinants of expectancy attitudes entails carrying the above mentioned ideas one step further. The reasoning is as follows: Because intrinsic need fulfillment is more directly controlled by one's own behavior than extrinsic need fulfillment and because, in general, need fulfillment is more a result of, than a cause for, behavior, degree of intrinsic need fulfillment is perceived as being more contingent upon one's own behavior (performance). Therefore, degree of intrinsic need fulfillment more strongly determines perceived future performance-reward associations (expectancies) than does degree of extrinsic need fulfillment.

Hypothesis 4: Expectancy attitudes are more directly related to degree of intrinsic need fulfillment than to degree of extrinsic need fulfillment.

The two preceding hypotheses suggest that one should be able to account for strong need fulfillment-performance relationships in terms of equally strong need fulfillment-expectancy attitude

relationships. Hypothesis 3 predicts that performance differences are most strongly related to intrinsic need fulfillments. Hypothesis 4 predicts that expectancy attitude differences are most strongly related to intrinsic need fulfillments. Thus, on the basis of these two hypotheses, it should be expected that intrinsic need fulfillments will be strongly related to both performance and expectancy attitude differences while extrinsic need fulfillments will be weakly related to both performance and expectancy attitude differences--thereby suggesting a correspondence between strength of need fulfillment-performance and strength of need fulfillment-expectancy attitude relationships.

Hypothesis 5: Using concurrent measures, to the extent that the fulfillment of a need is related to performance, it is also related to expectancy attitudes.

While the above hypothesis is suggested by hypotheses 3 and 4, it also draws support from more basic expectancy theory formulations. According to the advocates of expectancy theory:

1. Expectations about future performance-need fulfillment relationships are a reflection of perceptions about current performance-need fulfillment relationships. Generally, to the extent that a performance-need fulfillment relationship is perceived to presently exist, it is similarly expected to exist in the future.

2. As a consequence, beliefs about the degree to which future satisfactions will be related to on-the-job performance

> (expectancies) are most dependent on the fulfillment of those needs which are presently perceived as being strongly related to performance differences.

Assuming that people accurately perceive the degree to which their present need fulfillments are related to performance, statement two above can be restated:

> As a consequence, beliefs about the degree to which future satisfactions will be related to on-the-job performance (expectancies) are most dependent on the fulfillment of those needs which are presently strongly related to performance differences.

Thus, by making this one assumption, expectancy theory notions as to the basic nature of expectancy attitudes further suggest the relationship outlined in hypothesis 5--that strong need fulfillment-performance relationships will be accompanied by strong need fulfillment-expectancy attitude relationships. However, when viewed as the product of this line of reasoning, results with regard to this hypothesis are seen as yielding information about the construct validity of expectancy attitudes.

Two additional hypotheses are introduced in order that the construct validity of expectancy attitudes may be further examined. The first of these hypotheses, which is closely related to hypothesis 5, follows:

Hypothesis 6: To the extent that the current fulfillment of a need predicts future performance, it is also related to current expectancy attitudes.

While the predictive nature of this hypothesis makes it totally different from hypothesis 5, the argument for its support is similarly firmly founded in conceptions about the basic nature of expectancy attitudes. Briefly, the argument can be stated: Because expectancy attitudes are beliefs about the degree to which personal satisfactions are dependent on performance and, as such, are important motivators of future performance, it should be expected that those need fulfillments which most closely bear a relationship to current expectancy attitudes will also be most closely related to future performance differences. That is, to the extent that fulfillment of a need is related to perceptions about the degree to which satisfaction is contingent on performance, fulfillment of that need will also be related to future performance. Hypothesis 6 simply states this argument in converse order. It is purposely stated in this form in order to dramatize the fact that support for the above argument will not only provide additional evidence for the construct validity of expectancy attitudes, but will also provide:

1. Additional evidence for the utility of expectancy attitudes as predictors of performance.

2. Evidence for the contention that need fulfillment predictions of future performance can be accounted for in terms of expectancy attitudes. Such evidence suggests an alternative to the satisfaction $\longrightarrow$ performance causality which is often utilized to explain relationships between present satisfaction and later performance.

As a construct, expectancy attitudes about future performance-reward associations should also be found to moderate current performance-reward associations. The following hypothesis is designed to test this contention.

Hypothesis 7: Stronger performance-need fulfillment relationships exist for those individuals who indicate high performance-satisfaction expectancies than for those individuals who indicate low performance-satisfaction expectancies.

Support for this hypothesis is expected on the basis of the following reasoning: Since expectancy attitudes are theorized to be perceived future performance-reward associations which are formulated on the basis of perceptions about current performance-reward associations, and since it is assumed that perceptions of current performance-reward associations are fairly accurate, expectancy attitudes should be found to moderate present performance-reward relationships. That is, persons possessing high expectancy attitudes should be found to yield stronger performance-reward relationships than persons possessing low expectancy attitudes. Furthermore, hypothesis 4 suggests that high and low expectancy groups more greatly differ with regard to performance-intrinsic need fulfillment relationships than performance-extrinsic need fulfillment relationships. If, in fact, intrinsic need fulfillments

have a greater influence on expectancy attitudes than extrinsic need fulfillments, it should be found that performance-intrinsic need fulfillment relationship differences will result in greater expectancy attitude differences.

While there is apparent justification for using expectancy rather than satisfaction attitudes as predictors of on-the-job performance, as previously stated, satisfaction attitudes have proved useful for purposes of predicting turnover. Furthermore, there is reason to believe that, on direct comparison, satisfaction attitudes will better predict turnover than expectancy attitudes. Expectancy attitudes are designed to tap the extent to which satisfaction is perceived to be contingent on performance, while satisfaction attitudes simply measure the satisfaction level of the worker. Since it is easy to conceive of a generally satisfied employee who has low expectancy attitudes, and since feelings of overall satisfaction are related to turnover (as shown by previous research), it seems plausible to assume that expectancy attitudes are less directly related to turnover than satisfaction attitudes.

Hypothesis 8: Satisfaction attitudes are better predictors of turnover than expectancy attitudes.

Support for this hypothesis will not only provide additional evidence for expectancy attitude construct validity, but will also show that

job satisfaction attitudes should not be totally abandoned--that they are still the best attitude measures we have for predicting at least one job related behavior.

METHOD

Subjects

The bulk of the data for this study came from responses to the Michigan State University "You and Your Job" attitude survey questionnaire. In 1968, this questionnaire was distributed to 4,162 employees of six medium-sized manufacturing companies in the Midwest. Two thousand seven hundred and fifty-five employees returned usable questionnaires. Those respondents who answered more than 80 percent of the questionnaire items considered relevant to the present study were retained as subjects (N = 2,683). Various sub-groups of these subjects were utilized in the different analyses.

Data

As previously mentioned, the primary source of data for this study was the "You and Your Job" questionnaire. Twenty-five items from this questionnaire, all of which required responses on a five-point Likert scale, were utilized as measures of need fulfillment, job satisfaction, performance and expectancy. Responses to the following items were used as measures of:

A. Need Fulfillment

(N1) To what extent do you feel the work you are doing is important?

(N2) To what extent are you recognized and appreciated for doing good work?

(N3) To what extent are you trusted by the people you work with?

(N4) To what extent do you feel you are liked by the people you work with?

(N5) To what extent does your job provide you with steady work and steady wages?

(N6) To what extent does your work help the welfare of others?

(N7) To what extent are you able to decide how to do your job?

(N8) To what extent do superiors and subordinates in this company have trust and confidence in each other?

(N9) To what extent does your job provide you with a feeling of accomplishment?

(N10) To what extent are you able to learn new skills and gain experience on your job?

(N11) How much does your supervisor know about his job?

(N12) How much responsibility do you have on your job?

(N13) How much trust and confidence do you have in your supervisor?

(N14) In general, how much influence do you have on decisions which affect your job?

(N15) How much trust and confidence do you have in the people in your work group?

(N16) How much of a real interest does the company (top management) have in the welfare and happiness of those who work here?

(N17) How fair is your pay?

(N18) How good (safe, clean, pleasant) are your physical working conditions?

(N19) How good are your chances for promotion in this company?

(N20) How challenging is your job?

B. Job Satisfaction

(S1) How much do you actually enjoy performing the day-to-day activities that make up your job?

(S2) How much do you look forward to coming to work each day?

C. Performance

(Quality) How high is the quality of the work you turn out?

(Effort) How often do you really want to work hard at your job?

D. Expectancy (Perceived performance $\longrightarrow$ reward association)

(Expectancy) How much do you feel your personal satisfactions are related to how well you do your job?

Responses to each item were coded such that the most favorable response received a value of "5" and the least favorable response received a value of "1."

As a means of measuring post-questionnaire performance, percent of production standard data were collected. In 1969, one of the companies which had participated in the 1968 "You and Your Job" survey began implementing a measured day rate system in its plants. Implementation of this plan required that the plants begin collecting, among other things, a weekly measure of each employee's percentage of standard produced on his primary job. Records of this measure, which takes into account all production restrictions not under the control of the individual, provided the raw data used in arriving at a measure of post-questionnaire performance for the present study. More specifically, post-questionnaire performance was measured in the present study by taking the average percentage of standard rating an employee received over the 20 week period beginning January 1, 1970, and ending May 23, 1970. This measure, which will be referred to as Hardperf, was obtained for 246 employees, all of whom had returned usable "You and Your Job" questionnaires in 1968.

Turnover data were collected from the same company that provided the post-questionnaire performance data. Collection of the data consisted of determining who among the 1,705 employees in the company who had participated in the 1968 "You and Your Job" survey voluntarily separated from the company during the two year

period following the survey. Retirement was not considered voluntary withdrawal.

Selection of Extrinsic and Intrinsic Need Fulfillment Items

The determination of which need fulfillment items were measures of extrinsic and intrinsic rewards was made on the basis of expert judgments. A written statement containing Porter and Lawler's definitions of extrinsic and intrinsic rewards was given to each of eight faculty members and graduate students in the Department of Psychology at Michigan State University. They were then instructed to independently judge for each need fulfillment item whether responses to that item reflected the perception of an extrinsic or intrinsic reward. The instructions further specified that they were to indicate those items for which they were unable to reach a decision. Those items which were placed in the same category (excluding the "undecided" category) by six or more of the judges were selected as measures of extrinsic and intrinsic need fulfillment. The following items met this criterion: (See Appendix A for specific instructions used and results obtained.)

Extrinsic need fulfillment items:

(E1) To what extent are you recognized and appreciated for good work?

(E2) To what extent are you trusted by the people you work with?

(E3) To what extent do you feel you are liked by the people you work with?

(E4) How good (safe, clean, pleasant) are your physical working conditions?

(E5) How fair is your pay?

(E6) How much does your supervisor know about his job?

(E7) To what extent does your job provide you with steady work and steady wages?

(E8) How good are your chances for promotion in this company?

(E9) To what extent do superiors and subordinates in this company have trust and confidence in each other?

(E10) How much of a real interest does the company (top management) have in the welfare and happiness of those who work here?

Intrinsic need fulfillment items:

(I1) To what extent do you feel the work you are doing is important?

(I2) To what extent does your work help the welfare of others?

(I3) To what extent does your job provide you with a feeling of accomplishment?

(I4) How challenging is your job?

An alpha internal consistency reliability coefficient of .78 was found for the extrinsic items. The intrinsic items yielded an alpha of .72.

Construction of Composite Indices

Responses to certain groups of items were combined in an attempt to obtain more general measures of certain variables. General indices of extrinsic need fulfillment (Extrinave) and intrinsic need fulfillment (Intrinave) were obtained by computing an individual's mean responses to the extrinsic and intrinsic need fulfillment items. In addition, general indices of performance (Perfave) and satisfaction (Satave) were obtained by computing an individual's mean responses to the satisfaction (S1, S2) and performance (Quality, Effort) items.

An obtained alpha of .82 for the two satisfaction items suggests that Satave represents the mean score on a relatively homogeneous satisfaction scale. On the other hand, Perfave values appear to be more representative of mean scores on a multifactor scale of performance. An alpha of only .30 was obtained for the two performance items.

A correlation of .542 was found between Extrinave and Intrinave values. Values on Satave were found to correlate .541 with values on Extrinave and .578 with values on Intrinave.

Analysis Procedures

Correlational techniques were employed in all analyses. Analysis of the individual hypotheses entailed correlating the

following variables and making the following comparisons among variables:

Hypothesis 1: For any given sample, expectancy theory attitudes yield stronger relationships to performance than satisfaction attitudes.

A. Using the total sample of 2,683, satisfaction attitudes (values on Satave) and expectancy attitudes (values on Expectancy) were correlated with concurrent performance (values on Quality, Effort, and Perfave). Differences in the strengths of the satisfaction-performance and expectancy attitude-performance correlations were tested for significance (one-tailed tests).

B. Using the post-questionnaire performance data sample (N = 246), post-questionnaire performance (values on Hardperf) was correlated with both satisfaction attitudes and expectancy attitudes. Correlational differences were tested for statistical significance as in A above.

Hypothesis 2: For any given sample, expectancy attitude correlations with performance do not differ significantly when "hard" and "soft" criterion measures of performance are used.

Using the post-questionnaire performance data sample (N = 246), expectancy attitudes were correlated with both "hard"

performance measures (values on Hardperf) and "soft" performance measures (values on Quality, Effort, Perfave). Expectancy attitude correlations with the "hard" and "soft" performance measures were tested for significant differences (two-tailed tests).

Hypothesis 3: Performance is more directly related to degree of intrinsic need fulfillment than to degree of extrinsic need fulfillment.

Performance (values on Quality, Effort, and Perfave) was correlated with both degree of extrinsic need fulfillment (values on Extrinave) and degree of intrinsic need fulfillment (values on Intrinave). The performance-Intrinave and performance-Extrinave correlations were tested for statistically significant differences (N = 2,683, one-tailed tests).

Hypothesis 4: Expectancy attitudes are more directly related to degree of intrinsic need fulfillment than to degree of extrinsic need fulfillment.

Expectancy attitudes were correlated with both degree of extrinsic need fulfillment and degree of intrinsic need fulfillment and a determination was made of whether or not the two correlation coefficients significantly differed in size (N = 2,683, one-tailed test).

Hypothesis 5: Using concurrent measures, to the extent that the fulfillment of a need is related to performance, it is also related to expectancy attitudes.

Using the total sample (N = 2,683), individual need fulfillments (values on N1 through N20) were correlated with performance (values on Quality, Effort, and Perfave), and the resultant correlation coefficients were then rank ordered, according to size, from smallest (rank = 1) to largest (rank = 20). Individual need fulfillment item-expectancy attitude correlations were similarly computed and rank ordered. Thus, for each individual need fulfillment item, two ranks were obtained--one reflecting its degree of relationship with performance and one reflecting its degree of relationship with expectancy attitudes. The degree of correspondence between these two sets of rank orders was then examined by computing a rank order correlation (N = 20) and testing for significance.

Hypothesis 6: To the extent that the current fulfillment of a need predicts future performance, it is also related to current expectancy attitudes.

Examination of this hypothesis involved procedures identical to those used in testing hypothesis 5. Only the nature of the sample used (post-questionnaire performance group) and the performance

measure used (Hardperf) distinguish the examination of this hypothesis from the examination of hypothesis 5.

Hypothesis 7: Stronger performance-need fulfillment relationships exist for those individuals who indicate high performance-satisfaction expectancies than for those individuals who indicate low performance-satisfaction expectancies.

Subjects who indicated the perception of a moderate to weak performance-satisfaction relationship (yielded coded responses of 1, 2, or 3 on Expectancy) were placed in the low expectancy group (N = 536). The high expectancy group was formed by randomly selecting approximately one-half of the persons among the original sample who indicated the perception of a strong performance-satisfaction relationship (yielded coded responses of 5 on Expectancy). Selection was randomized by selecting from among those persons who indicated the perception of a strong performance-satisfaction relationship (N = 1,172) only those whose identification numbers ended in an odd integer (N = 593). Performance-need fulfillment item correlations were computed for both groups and then compared for significant differences (one-tailed tests).

Hypothesis 8: Satisfaction attitudes are better predictors of turnover than expectancy attitudes.

Satisfaction attitudes and expectancy attitudes were correlated with voluntary withdrawal and the correlation coefficients were tested for a significant difference (one-tailed test). Naturally, this hypothesis was examined using the sample comprised of those persons for whom turnover data were obtained (N = 1,705).

Hypothesis 7 was tested for statistical significance by transforming the obtained Pearson R's into Fisher Z's, computing the difference between the two Z's in standard error of difference units (which generates a new Z value), and testing the resultant Z value for significance.

The T test developed by Hotelling (1940) was used in testing the statistical significance of results for hypotheses 1, 2, 3, 4, and 8. This test is specifically designed for the comparison of correlations of two variables X_2 and X_3 with the same third variable X_1 (Comparison of r_{12} and r_{13}) and takes into account the relationship between r_{12} and r_{13}. The formula is as follows:

$$T = (r_{12} - r_{13}) \frac{(N - 3)(1 + r_{23})}{2(1 - r_{23}^2 - r_{12}^2 - r_{13}^2 + 2r_{23}r_{12}r_{13})}$$

While this test assumes that r_{12}, r_{13}, and r_{23} are all computed on the same sample, this assumption was not perfectly met in the present analyses. Because of the nature of the computer program used, each correlation coefficient in the present study was computed using only those people within the sample for whom complete data were available on the two variables being correlated. This resulted in small variations as to the samples on which r_{12}, r_{13}, and r_{23} were computed. However, because these variations were not systematic and because they were of such a small magnitude, it was doubted that they would affect the expected values of the correlation coefficients. It was therefore concluded that Hotelling's T test was an appropriate means of testing the above mentioned hypotheses. Furthermore, in the computation of Hotelling's formula, the smallest of the three N's was always used (see formula) in an attempt to insure a modest T estimate.

RESULTS AND DISCUSSION

Hypothesis 1

Examination of this hypothesis for the total sample of 2,683 yielded the results presented in Table 1.

Table 1

Summary of expectancy attitude-performance and satisfaction attitude-performance correlational differences for the total sample

Performance Measure	Satave	Expectancy	t
Quality	.192	.226	1.61
Effort	.445	.303	7.41*
Perfave	.418	.339	4.12*

* $p < .001$

As can be seen, no statistically significant correlational differences were found in the predicted direction. Furthermore, the results obtained with the Effort and Perfave performance measures completely contradict those predicted by the hypothesis. Satisfaction

attitude correlations with these two measures were significantly larger ($p < .001$) than expectancy attitude correlations. The magnitude of these opposite-than-predicted correlational differences (.14 and .08) suggests that their significance is more than just the artifact of a large sample size. Thus, results for this sample not only fail to support the hypothesis, but suggest the opposite--that, in general, satisfaction attitudes bear a stronger relationship to performance differences than expectancy attitudes.

Further examination of Table 1 suggests that certain of the satisfaction-performance correlations are unusually large. Vroom (1964) reported a median satisfaction-performance correlation of .12 (N = 20 studies) for those studies in which satisfaction was correlated with self-reports of performance. The Satave-Perfave and Satave-Effort correlations of .418 and .445 are substantially larger than this median value. The nature of the satisfaction measure used in the present study may at least partially account for these unusually large correlations. Mean responses to the following two items comprised the Satave measure:

(S1) How much do you actually enjoy performing the day-to-day activities that make up your job?

(S2) How much do you look forward to coming to work each day?

Examination of these items, especially S1, seems to indicate that the Satave measure used in the present study reflects performance motivation to a greater extent than is typical of a satisfaction measure. Assuming this to be true, it should be expected that scores on this measure would more strongly correlate with performance than scores on a more typical satisfaction measure.

If the above speculation is correct, it is quite probable that the failure to find results supportive of hypothesis 1 for this group was at least partly due to inflated satisfaction-performance correlations resulting from the use of an atypical satisfaction measure. This argument gains added impetus from the fact that the results obtained for this sample reveal expectancy-performance correlations in the 20's and 30's (see Table 1)--which seems to indicate that the lack of support found for the hypothesis cannot be attributed to unusually small expectancy-performance correlations.

The implication of all this is that the testing of hypothesis 1 did not really involve the comparison of the two attitude variables it was designed to compare--expectancy attitudes versus satisfaction attitudes (as traditionally measured)--and that instead expectancy attitudes were compared with attitudes reflecting both satisfaction and performance motivation. It is therefore felt that additional

testing of hypothesis 1 should be conducted using a more traditional satisfaction measure before any conclusions are reached about the relative efficiency of satisfaction versus expectancy attitudes as predictors of performance.

Testing this hypothesis for the post-questionnaire performance data sample (N = 246) yielded Satave-Hardperf and Expectancy-Hardperf correlations of -.035 and -.015. Obviously, these results also fail to confirm the hypothesis.

As previously stated, Hardperf, the performance measure used in this testing of the hypothesis, was an index of worker performance during the 20 week period which began approximately 18 months after the "You and Your Job" questionnaire had been administered. Thus, for this analysis the attitudinal (Satave and Expectancy) and performance (Hardperf) measures represented two different points in time, separated by about 18 months. The extremely small magnitude of the Satave-Hardperf and Expectancy-Hardperf correlations reported above suggests that an interval of 18 months was too long--that expectancy and satisfaction attitude variation over time precluded them from being of any value for predicting performance a year and a half later. When, as in this case, neither of two variables show any relationship to a third variable, it cannot be expected that they will significantly differ in

their relationship with that third variable. Thus, it should not be concluded that the results for this group provide sufficient evidence for the rejection of hypothesis 1. Once again, additional research is called for.

Hypothesis 2

The testing of this hypothesis yielded the results contained in Table 2.

Table 2

Summary of expectancy attitude correlational differences with "soft" and "hard" performance data for the post-questionnaire performance data sample

	Hardperf	Quality	Effort	Perfave
Expectancy	-.015	.261[a]	.397[b]	.408[c]

[a] Significantly different from Expectancy-Hardperf r ($t = 3.23$, $p < .01$)

[b] Significantly different from Expectancy-Hardperf r ($t = 4.92$, $p < .01$)

[c] Significantly different from Expectancy-Hardperf r ($t = 5.16$, $p < .01$)

Contrary to prediction, expectancy attitude correlations with "hard" and "soft" performance measures were found to significantly differ. All three "soft" measures of performance (Quality, Effort, and

Perfave) rendered significantly stronger correlations with Expectancy than did the "hard" performance measure of Hardperf. Thus, no support was found for the hypothesis.

As was the case for hypothesis 1, these results are suspect due to a methodological weakness in the procedure used to test the hypothesis. As previously indicated, all three "soft" performance measures were obtained from responses to the "You and Your Job" questionnaire. Also as previously indicated, the Hardperf measure of "hard" performance was obtained by gathering percentage of standard data for the period beginning approximately 18 months after the administration of the "You and Your Job" questionnaire. Thus, the "hard" and "soft" performance measures employed in the testing of this hypothesis represented two different time periods. Consequently, in testing this hypothesis, when Expectancy-"soft" performance correlations were compared with the Expectancy-"hard" performance measure correlation, more than just "hard" versus "soft" performance measure correlations with expectancy attitudes were being compared. Predictive versus concurrent performance measure correlations with expectancy attitudes were also being compared. Since the examination of this hypothesis was confounded in this way, one can only conclude that further research is needed before a definitive statement can be made about this hypothesis' tenability.

Hypothesis 3

Strong support was found for this hypothesis. As indicated in Table 3, all three performance measures yielded significantly larger correlations with scores on Intrinave than Extrinave.

Table 3

Summary of performance-intrinsic need fulfillment and performance-extrinsic need fulfillment correlational differences

Performance Measure	Intrinave	Extrinave	t
Quality	.294	.189	5.91*
Effort	.340	.235	6.02*
Perfave	.409	.277	7.84*

* $p < .001$

As a means of further examining this hypothesis, individual performance-extrinsic need fulfillment item and performance-intrinsic need fulfillment item correlations were also computed. Using these correlations, average performance-extrinsic need fulfillment item and performance-intrinsic need fulfillment item correlation coefficients were calculated using the r to Fisher's Z transformation for averaging Pearson r's (Guilford, 1956). While

there is no way of testing for the statistical significance of the differences in these average r's, examination of Table 4 reveals a trend that further suggests the tenability of this hypothesis.

Table 4

Average performance-intrinsic need fulfillment item and performance-extrinsic need fulfillment item correlations

Performance Measure	Average r with Intrinsic Need Fulfillment Items	Average r with Extrinsic Need Fulfillment Items
Quality	.23	.12
Effort	.25	.13
Perfave	.31	.17

As revealed in the table, the average performance-intrinsic need fulfillment item correlation is greater than the average performance-extrinsic need fulfillment item correlation for all three measures of performance. Appendix B contains the specific performance-need fulfillment item correlations which were averaged and shows that the variance among the performance-extrinsic need fulfillment item and performance-intrinsic need fulfillment item correlations was of sufficiently small magnitude to premit their being averaged.

The results obtained for this hypothesis strongly suggest that the distinction made between intrinsic and extrinsic needs, as defined by certain expectancy theorists, is of some merit. Using their criteria for need classification, fulfillment of the intrinsic needs was in fact found to bear a more direct relationship to performance differences than was fulfillment of the extrinsic needs. Unfortunately, because correlational techniques were employed in the testing of this hypothesis, no additional conclusions can be reached regarding the dominant causality (satisfaction $\longrightarrow$ performance versus performance $\longrightarrow$ satisfaction) underlying these results. Results for this hypothesis are also consistent with the Maslow and Herzberg categorizations.

Hypothesis 4

Less conclusive support was found for this hypothesis. Intrinave-Expectancy and Extrinave-Expectancy correlations were found to be .394 and .341. Although these correlations significantly differ in the predicted direction ($t = 3.41$, $p < .001$), the actual magnitude of this difference is very small ($\approx .05$). This suggests that the statistical significance of this difference is largely an artifact of the large sample size used ($N = 2,683$). Thus, the existence of this one statistically significant difference does not

warrant the conclusion that support was found for the hypothesis. However, upon using the previously described r to Fisher's Z transformation technique for averaging Pearson r's, the average intrinsic need fulfillment item-Expectancy correlation was found to be .29, and the average extrinsic need fulfillment item-Expectancy correlation was found to be .20. (See Appendix C for the specific need fulfillment item-Expectancy correlations averaged.) While these average r's cannot be tested for a statistically significant difference, the consistency of trend reflected in these results and the small, but significant, difference found between the Intrinave-Expectancy and Extrinave-Expectancy correlations suggests that from a theoretical standpoint, at least (as to the determinants of expectancy attitudes), the overall support for this hypothesis is encouraging.

The results for this hypothesis have even greater implications when viewed in conjunction with the support found for hypothesis 3. Results for hypothesis 3 showed intrinsic need fulfillments to be most directly related to performance. Results for this hypothesis show intrinsic need fulfillments to be most directly related to expectancy attitudes. Assuming the underlying causality implied in the theoretical generation of this hypothesis to be correct (need fulfillments $\longrightarrow$ expectancies), the combined

support found for these two hypotheses would seem to lend preliminary support for the existence of a performance ⟶ satisfaction causality. There is little reason to expect that those need fulfillments which are most directly related to performance will also be most directly related to expectancies about future performance-reward relationships unless the need fulfillment-performance relationships represent differential performance ⟶ satisfaction causalities (accurately perceived) which in turn lead to differential expectancies about future performance-reward associations. Of course, the plausibility of this argument rests entirely on the correctness of the assumed need fulfillment ⟶ expectancy causality. Preferably, future research will incorporate methodologies capable of providing insight into the tenability of this assumption.

Hypothesis 5

The results obtained for this hypothesis, based on the responses of the total sample of 2,683, are presented in Table 5. As indicated by the magnitude of the rho coefficients, results consistent with the hypothesized correspondence between strength of need fulfillment-performance relationships and strength of need fulfillment-expectancy attitude relationships were found. However, caution must be taken in interpreting these results. In all

Table 5

Rho correlations between strength of need fulfillment item-performance correlations and strength of need fulfillment item-Expectancy correlations

Rank Order of:	Rho Correlation with Rank Order of Need Fulfillment Item-Expectancy Correlations
Need Fulfillment Item-Quality Correlations	.564*
Need Fulfillment Item-Effort Correlations	.840*
Need Fulfillment Item-Perfave Correlations	.794*

* $p < .01$ (N = 20 pairs)

probability, the hypothesized correspondence reflected in these results can, to some extent, be attributed to expectancy attitude-performance relationships. As indicated in Table 1, moderate expectancy attitude correlations were found with the three performance measures. The existence of these moderate correlations suggests that to a certain extent the strength of relationship found between a need fulfillment item's correlation with performance and its correlation with expectancy attitudes can be attributed to the common variance of the performance and expectancy attitude measures. This, in turn, suggests that the degree of correspondence

between the ranks of these two sets of correlations for the 20 need fulfillment items (as reflected in the rho's of Table 5) can, to a certain extent, also be attributed to the common variance of the performance and expectancy attitude measures. To what extent is not known, although it would appear to be minimal since the commonly shared variance of the performance and expectancy attitude measures never exceeded approximately 10 percent. Nevertheless, because the degree to which this was actually the case is not known, the supportive results found for this hypothesis must be interpreted with caution.

The correspondence between need fulfillment-performance and need fulfillment-expectancy attitude relationships suggested by the combined results for hypotheses 3 and 4 is further suggested by the results for this hypothesis. As previously stated, the presence of this correspondence appears to be most consistent with a performance $\longrightarrow$ satisfaction causality. Thus, support for this hypothesis further intimates the existence of a performance $\longrightarrow$ satisfaction causality.

The results for this hypothesis also provide preliminary support for the contention that, as a construct, expectancy attitudes should be related to the fulfillment of a need to the extent that the fulfillment of that need is related to present performance (assuming

that people accurately perceive performance-need fulfillment relationships). The large rho coefficients obtained for this hypothesis provide evidence for such construct validity.

Hypothesis 6

No support was found for this hypothesis. A rho rank-order correlation of .302 (N = 20, not significant) was found between individual need fulfillment item-Hardperf correlations and individual need fulfillment item-Expectancy correlations. Thus, contrary to prediction, the extent to which a need fulfillment predicts future performance was not found to correspond with the extent to which that need fulfillment is related to expectancy attitudes.

The lack of support found for this hypothesis warrants the conclusion that evidence for the construct validity of expectancy attitudes was not demonstrated. To the extent that the fulfillment of a need is related to future performance, fulfillment of that need should also be related to perceptions about the degree to which satisfaction is dependent upon performance (expectancy). Therefore, as a construct, expectancy attitudes should be expected to be most strongly correlated with those need fulfillments which best predict future performance. Results for this hypothesis failed to reveal this trend.

The lack of support found for this hypothesis in the present analysis does not warrant the conclusion that the hypothesis should be rejected. As previously mentioned with regard to hypotheses 1 and 2, the time interval separating attitude and Hardperf measurements was approximately 18 months--too lengthy a period for purposes of satisfaction or expectancy attitude performance prediction. Examination of the individual need fulfillment item-Hardperf correlations in Appendix D seems to indicate that the 18 month time interval was also too long for purposes of individual need fulfillment predictions of performance. Not only are all the need fulfillment item-Hardperf correlations very small (correlations range from -.08 to +.13), but 8 of the 20 correlation coefficients are negative.

As a consequence of these small need fulfillment item-Hardperf correlations, in testing this hypothesis the rank order of essentially zero order individual need fulfillment item-Hardperf correlations was correlated with the rank order of individual need fulfillment item-Expectancy correlations. Under these conditions it could hardly be expected that a significant rho correlation would be obtained. The original theoretical postulation, which states that expectancy attitude-need fulfillment correlations are largest for those need fulfillments which best predict performance, assumes

that meaningful variations in need fulfillment predictions of performance exist. If meaningful variations do not exist, as was the case in the present analysis, it does not make theoretical sense to expect that the rank order of need fulfillment-Expectancy correlations will correspond with the rank order of need fulfillment-performance correlations. Under these circumstances, rank ordering of the need fulfillment-performance correlations represents nothing more than the ranking of needs, all of which are nonpredictive of performance. Expectancy attitudes are not expected to yield systematic correlational differences with need fulfillments that vary only with regard to how well they do not predict performance.

The above discussion implies that additional examination of this hypothesis is needed before a more definite statement can be made about its accuracy.

Hypothesis 7

Hypothesis 7 predicted that high and low expectancy groups would significantly differ with regard to the strength of performance-need fulfillment relationships, with the strongest performance-need fulfillment relationships being found for the high expectancy group. As a means of testing this hypothesis, differences in high and low expectancy group performance-need fulfillment correlations were

examined. Tables 6, 7, and 8 contain the results that were obtained. Upon examination of these tables it becomes obvious that no support was found for the hypothesis. Only 31 of the 66 correlational differences computed were found to be in the predicted direction, and only 4 of these predicted differences were statistically significant. On the other hand, of the 35 opposite-than-predicted correlational differences obtained, an equal number were found to be statistically significant.

It was also suggested (p. 46) that expectancy group comparisons involving performance-intrinsic need fulfillment relationships would yield the greatest support for this hypothesis. The results contained in Tables 6, 7, and 8 also failed to confirm this finding. Although 5 of the 15 correlational differences involving intrinsic needs were found to be significant, only 2 of these significant differences were in the predicted direction.

Examination of the expectancy groups compared in the analysis of this hypothesis appears to provide some insight into why the results were not more conclusive. It will be recalled that the low expectancy group was created by combining those respondents who yielded coded responses of 1, 2, or 3 on the expectancy item, and the high expectancy group was created by choosing a random sample of those respondents who yielded coded responses of 5 on

Table 6

Summary of need fulfillment-Quality correlational differences for high and low expectancy groups

Need Fulfillment Measure	r with Quality for High Expectancy Group (N = 536)	r with Quality for Low Expectancy Group (N = 593)	Difference*
N2	.096	.079	.017
N3	.121	.165	.044a
N4	.084	.160	.076a
N5	.095	.150	.055a
N7	.172	.171	.001
N8	.045	-.050	.095
N10	.135	.061	.074
N11	-.012	-.042	.030
N12	.229	.163	.066
N13	.002	-.010	.012
N14	.111	.140	.029a
N15	-.036	.040	.076a
N16	-.091	.015	.106a**
N17	-.003	.038	.041a
N18	.045	.091	.046a
N19	.064	.048	.016
N1 (I1)	.235	.201	.034
N6 (I2)	.199	.160	.039
N9 (I3)	.152	.068	.084
N20 (I4)	.229	.127	.102**
Intrinave	.277	.178	.099**
Extrinave	.104	.106	.002a

* Note: Differences designated with letter "a" in opposite than predicted direction.

** $p < .05$

Table 7

Summary of need fulfillment-Effort correlational differences for high and low expectancy groups

Need Fulfillment Measure	r with Effort for High Expectancy Group (N = 536)	r with Effort for Low Expectancy Group (N = 593)	Difference*
N2	.185	.172	.013
N3	.157	.122	.035
N4	.132	-.013	.145***
N5	.139	.173	.034a
N7	.084	.138	.054a
N8	.088	.132	.044a
N10	.115	.150	.035a
N11	.140	.077	.063
N12	.144	.267	.123a**
N13	.182	.142	.040
N14	.161	.175	.014a
N15	.139	.053	.086
N16	.158	.120	.038
N17	.129	.153	.024a
N18	.141	.151	.010a
N19	.067	.097	.030a
N1 (I1)	.148	.225	.077a
N6 (I2)	.137	.231	.094a
N9 (I3)	.151	.307	.156a***
N20 (I4)	.156	.293	.137a**
Intrinave	.203	.362	.159a***
Extrinave	.230	.223	.007

* Note: Differences designated with letter "a" in opposite than predicted direction.

** $p < .05$

*** $p < .01$

Table 8

Summary of need fulfillment-Perfave correlational differences for high and low expectancy groups

Need Fulfillment Measure	r with Perfave for High Expectancy Group (N = 536)	r with Perfave for Low Expectancy Group (N = 593)	Difference*
N2	.191	.172	.019
N3	.178	.191	.013a
N4	.143	.088	.055
N5	.155	.215	.060a
N7	.169	.193	.024a
N8	.090	.066	.024
N10	.166	.147	.019
N11	.091	.086	.005
N12	.243	.296	.053a
N13	.126	.100	.026
N14	.182	.203	.021a
N15	.079	.063	.016
N16	.169	.091	.078
N17	.088	.127	.039a
N18	.126	.161	.035a
N19	.089	.098	.009a
N1 (I1)	.246	.289	.043a
N6 (I2)	.220	.252	.032a
N9 (I3)	.200	.261	.061a
N20 (I4)	.254	.273	.019a
Intrinave	.316	.361	.045a
Extrinave	.224	.224	.000

* Note: Differences designated with letter "a" in opposite than predicted direction.

the expectancy item. Examination of the resultant constituency of the low expectancy group reveals that it was less representative of low expectancies than had been desired. The vast majority of its members (429 out of 536 or roughly 80 percent) yielded coded responses of 3 on the expectancy item. A coded response of 3 represents neither a high nor low expectancy. It is a neutral response indicative of a medium expectancy. Thus, the low expectancy group used in the present analysis more closely represented what should have been labeled a medium expectancy group. This, in turn, suggests that the inconclusive nature of the results obtained for this hypothesis can be at least partly attributed to the fact that only moderately divergent expectancy groups were compared in its analysis.

Hypothesis 8

A correlation of -.168 was found between satisfaction and turnover. A significantly smaller correlation of -.094 was found between expectancy attitudes and turnover ($t = 2.81$, $p. < .01$). Thus, as predicted, satisfaction attitudes were found to better predict turnover than expectancy attitudes.

Support for this hypothesis provides additional evidence for the construct validity of expectancy attitudes. Perceived

on-the-job performance-satisfaction contingencies should be expected to be less directly related to turnover than general levels of satisfaction. This was found to be the case.

CONCLUSIONS

The primary purpose of this study was to further examine the construct of expectancy attitudes. Hypotheses 1 and 2 were analyzed as a means of directly testing the contention that expectancy attitudes bear a more direct relationship to on-the-job performance than satisfaction attitudes. Hypothesis 3 was examined to evaluate the plausibility of the intrinsic versus extrinsic need fulfillment distinction as defined by expectancy theory advocates--a distinction which plays a quite significant role in expectancy theory formulations. Hypothesis 4 was examined with the purpose of providing some insight into the accuracy of theorizing about the determinants of expectancy attitudes. In testing hypotheses 5 and 6, it was hoped that meaningful evidence could be obtained concerning theorized associations between need fulfillment-performance and need fulfillment-expectancy attitude relationships. Hypothesis 7 was tested in order to provide information concerning the relationship between expectancy level and strength of performance-need fulfillment associations--information which is equally relevant to the issue of expectancy attitude construct validity. Finally, hypothesis 8,

which examined the relative utility of satisfaction and expectancy attitudes as predictors of turnover, was tested to gather additional evidence of a construct validation nature.

What conclusions can be drawn from the results obtained? The nonsupportive results found for hypotheses 1 and 2 do not permit meaningful conclusions. Too many previously mentioned methodological weaknesses could have contributed to these results. The question remains, therefore, whether the relatively greater strength of the expectancy attitude-performance versus satisfaction attitude-performance associations reported in the literature can in any way be attributed to the predominant use of management samples and/or "soft" performance measures. Obviously, better controlled and designed research is needed in order to resolve these still unanswered issues of great importance.

Similarly, the nonsupportive results found for hypotheses 6 and 7 do not allow for categorical statements about evidence for expectancy attitude construct validity. The use of too lengthy a time period appears to have precluded the meaningful testing of hypothesis 6. The failure to obtain predicted results for hypothesis 7 may well have been due to the fact that only moderately divergent expectancy groups were compared. Thus, the results found for these two hypotheses in the present study do not permit one to make

definitive statements about their plausibility. Once again, additional research is called for.

On the other hand, suggestive evidence was found for the construct validity of expectancy attitudes in the results for hypotheses 3, 4, and 5. Results for hypothesis 3 revealed stronger performance-intrinsic need fulfillment than performance-extrinsic need fulfillment relationships. Hypothesis 4 results showed expectancy attitudes to be more strongly associated with intrinsic than extrinsic need fulfillments. Hypothesis 5 results disclosed a strong association between strength of performance-need fulfillment relationships and strength of need fulfillment-expectancy attitude relationships. When taken in combination these results are highly consistent with, and suggestive of, the performance $\longrightarrow$ need fulfillment $\longrightarrow$ expectancy attitude model. However, because correlational analyses were employed in the present study, no statement can be made about the tenability of the causalities incorporated into this model; namely, that:

1. The relationship between need fulfillment and performance is primarily one of performance $\longrightarrow$ need fulfillment.
2. Expectancy attitudes result from perceived performance $\longrightarrow$ need fulfillment associations.

It cannot, therefore, be concluded that the results for hypotheses 3, 4, and 5 fully substantiate the model. The highly suggestive nature

of these results, however, cannot be denied and this warrants the examination of these causalities in the near future.

The results for hypothesis 8 warrant the conclusion that construct validity of a different sort was also demonstrated in the present study. The fact that turnover was found to be better predicted by satisfaction attitudes than expectancy attitudes is also consistent with expectancy theory formulations.

Finally, results for hypotheses 3 and 8 are additionally noteworthy because of their relevance to issues other than that of expectancy attitude construct validity. The theoretical positions of Maslow and Herzberg, both of which predict stronger relationships between the satisfaction of higher order needs (satisfiers) and performance than between the satisfaction of lower order needs (hygiene factors) and performance were previously discussed, not only because the research bearing on these positions is inconclusive, but also because these positions are closely interwoven with the intrinsic-extrinsic need fulfillment distinction proposed by expectancy theorists. When viewed in terms of the Maslow and Herzberg categorizations the results for hypothesis 3 can be interpreted as indicating support for these positions. Thus, one more study can be added to the "support" side for Maslow and Herzberg. This is especially noteworthy because, unlike prior studies which have

examined these positions, this study was conducted on a predominantly nonmanagement sample. The satisfaction-turnover correlation of .168 obtained in the testing of hypothesis 8 is of additional interest because of its consistency with past research on the prediction of turnover with satisfaction attitudes--research which has shown a modest but consistent relationship between these two variables.

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APPENDICES

APPENDIX A

SORTING INSTRUCTIONS AND

RESULTS OF SORTING

APPENDIX A

SORTING INSTRUCTIONS AND RESULTS OF SORTING

Item Sorting Instructions

Porter and Lawler distinguish between extrinsic rewards and intrinsic rewards. Extrinsic rewards are seen as "desirable states of affairs that a person receives from the action of others," and are so named because they are extrinsic to one's own behavior in the sense that other people provide them. Intrinsic rewards are "rewards intrinsic to one's own behavior, such as a feeling of accomplishment." They are desirable states of affairs provided by the person himself through his own thinking.

Frequently intrinsic rewards will be accompanied by extrinsic rewards, but there is no necessary reason for this to occur. Sometimes the individual will give himself an intrinsic reward even though others do not give him extrinsic rewards, and sometimes others will give him extrinsic rewards even though he himself feels that he has gained nothing intrinsically.

Listed below are twenty questionnaire items designed to measure worker perceptions. For each item indicate whether the respondents are reporting the perception of an extrinsic or intrinsic reward. In those instances where you cannot reach a decision, circle the "undecided" response. However, please utilize this alternative as little as possible. That is, try to use the "undecided" category only when absolutely necessary.

Results of Item Sorting

Item No.	Intrinsic	Extrinsic	Undecided
N1	11111 111		
N2	1	11111 11	
N3		11111 11	1
N4		11111 111	
N5		11111 111	
N6	11111 1	1	1
N7	111	1111	1
N8		11111 11	1
N9	11111 111		
N10	1111	111	1
N11		11111 11	1
N12	1111	111	1
N13	1	11111	11
N14	1111	111	1
N15	11	11111	1
N16		11111 111	
N17		11111 111	
N18		11111 111	
N19	1	11111 1	1
N20	11111 111		

APPENDIX B

PERFORMANCE - NEED FULFILLMENT ITEM CORRELATIONS FOR THE INTRINSIC AND EXTRINSIC NEEDS

APPENDIX B

Table 9

Performance-need fulfillment item correlations for the intrinsic and extrinsic needs

Item	Quality	Effort	Perfave
E1	.162	.193	.232
E2	.217	.134	.223
E3	.192	.072	.168
E4	.074	.134	.139
E5	.058	.142	.132
E6	.038	.121	.109
E7	.190	.158	.225
E8	.102	.123	.148
E9	.047	.108	.104
E10	.097	.172	.177
I1	.277	.249	.340
I2	.219	.195	.264
I3	.202	.278	.312
I4	.195	.281	.307

APPENDIX C

EXPECTANCY-NEED FULFILLMENT ITEM CORRELATIONS FOR THE INTRINSIC AND EXTRINSIC NEEDS

APPENDIX C

Table 10

Expectancy-need fulfillment item correlations for the intrinsic and extrinsic needs

Item	Correlation with Expectancy
E1	.241
E2	.200
E3	.133
E4	.196
E5	.171
E6	.197
E7	.242
E8	.203
E9	.142
E10	.263
I1	.265
I2	.217
I3	.373
I4	.307

APPENDIX D

NEED FULFILLMENT ITEM-HARDPERF CORRELATIONS FOR THE POST-QUESTIONNAIRE PERFORMANCE DATA SAMPLE

APPENDIX D

Table 11

Need fulfillment item-Hardperf correlations for the post-questionnaire performance data sample

Item	Correlation with Hardperf
N1	.123
N2	.097
N3	.068
N4	-.027
N5	.072
N6	.082
N7	.043
N8	-.062
N9	-.045
N10	.077
N11	-.013
N12	.134
N13	-.083
N14	.064
N15	.058
N16	-.056
N17	.057
N18	-.012
N19	-.075
N20	.074