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An alternative method test of motivator-hygiene theory

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AN ALTERNATIVE METHOD TEST OF
MOTIVATOR-HYGIENE THEORY

A Thesis
Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
University of Nebraska at Omaha

by
Larry Neil Long
August, 1979
Accepted for the faculty of the Graduate College, University of Nebraska, in partial fulfillment of the requirements for the degree Master of Arts, University of Nebraska at Omaha.

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August 10, 1979
Dedicated to my wife

CYNTHIA M. LONG

for her sacrifice, understanding and support without which the author's graduate education would have been infinitely more difficult if not altogether impossible.
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Abstract

Reliance on one method coupled with nonsupportive results from studies employing alternate methods have led critics to assert that Motivator-Hygiene Theory is "method-bound". The present study used an alternate method to test the theory. Two groups (n = 30/group) of clerical employees completed questionnaires. One group dealt with satisfying situations, and the other group dealt with dissatisfying situations. The independent variable manipulation of the satisfaction-dissatisfaction dimensions was achieved through different directions to respondents. The respondents' task involved briefly describing in writing past job situations which arose directly from specific factors in the questionnaires. The dependent measure was the number of motivator factors generating situations and the number of hygiene factors generating situations. Results supported Motivator-Hygiene Theory. These findings have implications regarding job satisfaction and refute the "method-bound" criticism of the theory.
Motivator-hygiene (M-H) theory, initially reported in *The Motivation to Work* (Herzberg, Mausner & Snyderman, 1959), has had considerable impact in the area of human motivation research. Empirical investigation of the theory has produced a large following of proponents as well as a significant number of critics and has created a major controversy within the field of Industrial and Organizational Psychology. M-H theory is a major content theory of job satisfaction. Locke (1976) states that:

Since satisfaction is an emotional response, the meaning of the concept can only be discovered and grasped by a process of introspection, that is, an act of conceptual identification directed to one's mental contents and processes. However, job satisfaction may be defined... as a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences. (p. 1300)

Traditionally, job satisfaction is viewed as the overall feeling a person has about his job. Presumably, this feeling is made up of both job-related and environment-related factors, the interaction of which causes a condition of satisfaction-dissatisfaction to be experienced. Satisfaction, or positive feelings about the job, and dissatisfaction, or negative
feelings about the job are conceptualized as opposite ends of a single bi-polar continuum; the midpoint of which is a condition of neutrality where the individual is neither satisfied nor dissatisfied (Figure 1). Dissatisfaction is thus the opposite or obverse of satisfaction.

The traditional model is based on the notion that depriving an individual of any factor or combination of them, such as pay, satisfactory interpersonal relations, responsibility, advancement or good working conditions moves the person towards the negative end of the continuum, unless the presence of other factors counterbalances the lack. Adding or improving a factor or combination of them is thought to cause movement towards the positive end.

In contrast to the conventional bi-polar approach is Herzberg's Motivator-Hygiene theory. The results of a content analysis of critical incidents (CI) taken from responses in semistructured interviews with 203 accountants and engineers, led Herzberg et al. (1959) to suggest that the factors producing feelings of job satisfaction were separate and distinct from those factors producing feelings of job dissatisfaction. Since the factors are separate, depending on which feeling is being affected, Herzberg (1964) concluded that the two feelings are not the obverse of each other, and that job satisfaction and job dissatisfaction are best represented as two uni-polar continua as illustrated in Figure 2.
Figure 1. Conventional Continuum

Figure 2. Herzberg's Model

DISSATISFACTION
NEGATIVE FEELINGS

SATISFACTION
POSITIVE FEELINGS

NO SATISFACTION
DISSATISFACTION

SATISFACTION
NO DISSATISFACTION
The factors which promote satisfaction are referred to as motivators, and the factors which contribute to dissatisfaction are called hygienes. In general, motivators are those characteristics which satisfy an individual's needs for self-actualization and self-realization in his work. These revolve around the need to develop in one's occupation as a source of personal growth. Motivators are intrinsic factors in that they seem to relate to the actual content of the job and are seen as operating on a continuum with end points of no satisfaction and satisfaction. The factors in this group include achievement, recognition, advancement, responsibility, interesting work, and growth (Herzberg, 1966, 1968).

Hygiene factors, on the other hand, tend to represent extrinsic environmental factors descriptive of the job context. These factors are seen as operating on a distinct and different continuum with end points of dissatisfaction and no dissatisfaction. The factors here include company policy, supervision, interpersonal relationships, working conditions, status, and security. Salary is included in this group but is a confounded factor since it is so often tied to advancement or recognition (Herzberg, 1974).

As motivator and hygiene factors are viewed as operating on two distinct continua, the absence of motivators is thought to cause a condition of "no satisfaction" to be experienced; however, this absence does not contribute significantly to dissatisfaction. Similarly, the presence of hygiene factors
causes a condition of "no dissatisfaction", but does not contribute significantly to satisfaction.

The fundamental prediction of M-H theory has been successfully replicated in well over 100 investigations (Herzberg, 1974), and thus, may be the most replicated study in contemporary Industrial and Organizational Psychology. However, because these studies have largely utilized the CI technique used by Herzberg, the theory has been criticized as being "method-bound" (Dunnette, Campbell & Hakel, 1967; Vroom, 1964).

Intuitively, M-H theory has great appeal. If the theory has general validity we ought to be able to demonstrate it, and replicate the findings in a variety of contexts. According to the principle of multiple operationalism (Garner, Hake & Eriksen, 1956; Webb, Campbell, Schwartz & Sechrest, 1966), a hypothesis is validated only if it is supported by two or more different methods of testing, where each method contains specific idiosyncratic weaknesses, but where the entire collection of methods permits the elimination of all alternative hypotheses.

Studies testing M-H theory with methods other than Herzberg's technique have produced inconsistent results (e.g., Armstrong, 1971; Ewen, 1964; Gordon, 1965; Gruenfeld & Weissenberg, 1970; Hinrichs & Mischkind, 1967; Hulin & Smith, 1967; Lahiri & Srivasta, 1967; Schwab & Heneman, 1970; Wernimont, 1966; Wolf, 1967). In general, the more the method varies from that used in the 1959 study, the more likely the conclusions vary also (Hinton, 1968). However, these studies have received criticism
for methodological flaws, misinterpretation of results and misunderstanding of M-H theory (Grigaluinas & Herzberg, 1971; Grigaluinas & Wiener, 1974; Whitsett & Winslow, 1967). The present study tests M-H theory using a method designed to ameliorate the methodological and conceptual criticisms leveled at earlier studies employing alternative methods to Herzberg's technique.
The M-H theory of motivation was inferred from a study of need satisfactions and the reported motivational effects of these satisfactions. The study consisted of an intensive analysis of the experiences and feelings of two hundred engineers and accountants in nine different companies. The technique used was an adaptation of the critical incident method described by Flanagan (1954). Brayfield (1960) referred to the study as a combination of the critical incident technique, retrospective patterned interview, and content analysis.

The investigators interviewed each person individually. Each worker was asked to describe, in detail, times when he felt exceptionally good or exceptionally bad about his job. They were also questioned about the reasons for their feelings, and whether their feelings had affected their performance, their personal relationships, and their well-being. Finally, the sequence of events that served to return the workers' attitudes to "normal" was elicited. The recorded interview data were broken down into "thought units", each of which related to a single event or condition that led to a feeling, or a description of a single event. These statements were then classified into categories such as achievement, recognition, responsibility, supervision, company policy, etc. Various comparisons between the "high" job-attitude and "low" job-attitude sequences were then made; the results of which led Herzberg to his two-factor theory.
Herzberg's results have been replicated numerous times by investigations using the critical incident method (e.g., Fairman, 1974; Friedlander & Walton, 1964; Johnson & Swanson, 1975; Lodahl, 1964; Meyers, 1964; Saleh, 1964; Schwartz, Jenusaitis & Stark, 1963; Schwartz, 1959). However, critics assert that the support the theory receives from these studies is simply a result of an artifact involved in this method. Although it is beyond both the intention and scope of the present investigation to discuss causality; that is, whether performance leads to attitudes or the reverse; the major aspects of the "method-bound" criticism deserve attention.

The first important criticism involves the utilization of Herzberg's categorization procedure. The coding is not completely determined by the rating system and the data, but requires, in addition, interpretation by the rater (House & Widgor, 1967). If the respondent offers an evaluation of, for example, a supervisor's behavior, no interpretation by the rater is required. However, if the subject merely describes the supervisor's behavior, an evaluation by the rater is necessary. This necessity for interpretations of the data by a rater may lead to contamination of the dimensions so derived. Thus, the dimensions in the situation could quite possibly reflect the rater's hypothesis concerning the compositions and interrelations of dimensions rather than the respondent's own perceptions. A more objective data gathering method designed to minimize this possibility seems necessary in subsequent attempts to validate M-H theory.
The second major criticism of Herzberg's method involves the extent to which the people being interviewed had both the ability and the desire to report accurately on the conditions which made them satisfied or dissatisfied with their jobs. To the degree that this is not so, then the results may only reflect the "set" people carried into the interview situation. The major objection is that when a person is asked to tell something good, he is apt to attribute the causes of these to his own accomplishments and achievements (content items). This would be caused by the tendency to want to appear socially desirable, or to "look good", in the eyes of others. Similarly, when someone is asked to tell about an unpleasant or dissatisfying work experience, he is more apt to blame others for this (content items) than he is to blame himself (Vroom, 1964).

Herzberg (1966) in response to this criticism argues that employees who wish to make themselves look good are much more prone to say that they are unhappy because they do not have responsibility, are not getting ahead, have uninteresting work, see no possibility for growth and do not receive recognition than to say that their supervisor is unfriendly, the administration is poor, the working conditions are bad, their fellow workers are unsociable, etc. (p. 130)

As neither position has been documented with empirical data the issue is still in question. However, if Herzberg's results can be replicated using different methods, the "method-bound"
criticism will receive effective refutation and thus, the question of the effect of social desirability in the critical incident technique will become relatively unimportant.
Problems with Alternative Methodologies

Studies employing methods other than the CI technique to test M-H theory generally report nonsupportive results. Examination of these studies reveals three areas of contention: (a) the testing of hypotheses which do not fit into the conceptual framework of M-H theory; (b) the use of experimental methodologies which fail to achieve psychologically meaningful separation of the two feeling states; and (c) the collection of irrelevant data (Grigaluinas & Herzberg, 1971; Grigaluinas & Wiener, 1974; Whitsett & Winslow, 1967).

A valid model is expected to accrue support from varied methods. However, differences in methodologies and divergence from the logic of the original model have caused different operationalizations of M-H theory to be used in many studies. These differences in operationalizations cause points of contention to be raised where this author questions the appropriateness of a study for testing the model, or where the methodology is inadequate to test the model. Although King (1970) identified five different versions of M-H theory from Herzberg’s writings, the following analysis will be based on the original and most prevalent model of M-H theory as detailed in the initial segment of this treatise.

The Problem of Testing Illogical Hypotheses

In order to test a theory adequately, the theory is assumed and hypotheses consistent with the theory are logically derived. The theory is then accepted or rejected based on the
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tests of the hypotheses, not by its truth or falsity. Thus, it is of vital importance that hypotheses be logically derived from, and fit into the conceptual framework of, the theory itself. However, several studies have tested hypotheses that are not consistent with M-H theory.

**The 'overall' job satisfaction concept.** A consistent source of misinterpretation regarding M-H theory involves the use of overall job satisfaction measures to test the theory. This is erroneous as the theory does not make statements about overall job satisfaction. Since the theory postulates two sets of separate factors for two qualitatively distinct feeling states, it seems apparent that job attitudes must be looked at twice; once to see if the needs fulfilled by the motivator factors are met, and again to see if the needs fulfilled by the hygiene factors are met (Whitsett & Winslow, 1967).

M-H theory views job feelings as bi-dimensional phenomena rather than one 'overall' feeling state. Motivator factors are considered the primary determinants of satisfaction, while hygiene factors are thought to be the major determinants of dissatisfaction. Therefore, predictions involving a distinction between high and low 'overall' satisfaction are not consistent with the conceptual framework of M-H theory. As Friedlander (1964) concluded: "Since there are strong indications that satisfaction and dissatisfaction are not negatively related poles of a single continuum, it is probable that one is not justified in converting (by combining) two constructs into a single scale or a single construct" (p. 391). Research which
makes predictions based on measures of overall job satisfaction force the theory to make inferences involving opposite ends of the single construct of overall job satisfaction. Thus, results of such studies are not relevant for reaching conclusions concerning the theory.

A widely quoted study by Hinrichs and Mischkind (1967) exemplifies the research which falls into this category. Their report begins with the statement: "Briefly stated, the (M-H) notion proposes that two distinct sets of factors account for overall job satisfaction..." (p. 191). The authors went on to predict that people high in overall satisfaction, when asked to specify things that influence them in positive and negative ways concerning their job, would mention in both cases primarily motivator factors, whereas people low in overall job satisfaction would mention in both cases primarily hygiene factors. This hypothesis implies that motivator factors account primarily for variance on the satisfaction portion of the overall satisfaction-dissatisfaction continuum and that hygiene factors account primarily for variance on the dissatisfaction end of the continuum. Research examining interrelationships among motivator factors, hygiene factors and measures of overall job satisfaction represents a conceptual approach which is separate and distinct from that expounded by M-H theory. Results derived from such research cannot be used to adequately test M-H theory because the theory clearly postulates that job
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satisfaction and dissatisfaction are separate psychological states which should not be operationalized as opposite ends of a single continuum.

Other studies which derive hypotheses from statements about overall job satisfaction include Armstrong (1971), Ewen, Smith, Hulin and Locke (1966), Graen (1968), Gruenfeld and Weissenberg (1970), Kosmo and Behling (1968), Levine and Weitz (1968), Weissenberg and Gruenfeld (1968), and Wolf (1967). Since these studies test hypotheses which do not fit into the conceptual framework of M-H theory, it is not surprising their results have been nonsupportive of the theory.

The 'importance' of job factors concept. A second error of theoretical interpretation in testing M-H theory is the assumption that motivator factors should be rated as more important than hygiene factors when an individual evaluates a job. Advocates of this position assume that (a) since motivator factors lead to job satisfaction, they should be rated as more important; and that (b) since hygiene factors are primarily the determinants of job dissatisfaction, they should be rated as less important. There is nothing in M-H theory to warrant such assumptions. To the extent that the theory can be applied to this question, it would state that feelings of dissatisfaction are just as 'important' as feelings of satisfaction. Both motivators and hygienes, if present, can be determinants of a job being evaluated as good, as well as both, if absent, can
be determinants of a job being evaluated as bad (Grigaluinas & Weiner, 1974). Consequently, motivators and hygienes are equally 'important' for any given job.

The problem here involves confusion between the importance of job factors and predictions from M-H theory. The theory would predict that motivator factors would be mentioned as most prominent in situations leading to satisfaction, whereas hygiene factors should be most prominent in dissatisfying job situations. These predictions however, have nothing to do with how important one factor is when compared to another. Thus, although comparisons between motivator and hygiene factors are warranted when based on different satisfying or dissatisfying situations, these comparisons are unwarranted when they are based only on the relative 'importance' of the two factors.

This general error in interpretation has been made by Hinton (1968), and Hulin and Smith (1967). Hinton gave subjects the 14 Herzberg factors with their definitions and asked them to rank order the factors according to the importance the factors held for them personally. Likewise, Hulin and Smith (1967), being primarily concerned with the general issue of how people evaluate jobs, made the mistake of equating 'good' with 'satisfaction', and 'bad' with 'dissatisfaction'.

These interpretations of the theory are not consistent with the conceptual framework originally postulated by Herzberg. Thus, again, it is not surprising that these studies do not support the two factor theory in that they are testing hypotheses that cannot logically be derived from the theory.
The Problem of Separating the Feeling States

Related to the issue of testing illogical hypotheses is the question of bi-dimensionality of job attitudes and feelings. Research subsumed under this heading violated M-H theory in the sense that the methods employed do not achieve psychologically meaningful separation of the two feeling states. Since the existence of a qualitative difference between the feelings of satisfaction and dissatisfaction is the essence of M-H theory, research which does not measure the two feeling states independently becomes inadequate for testing the theory.

Ewen, Smith, Hulin and Locke (1966). These researchers used 793 male employees varying greatly in job level, age, educational background, experience, and place of employment, as their sample to test Herzberg's theory. In the study the authors formulated and tested four hypotheses, each of which was a different combination of predictions of the behavior of motivator and hygiene factors as related to overall job satisfaction. As has been previously discussed, the use of the overall job satisfaction concept invalidates this study with regard to testing M-H theory. However, closer examination of the methodology reveals another important deficiency in this study. The authors used as their criterion the General Motors (GM) Faces Scale which has been used in the past to measure overall job feelings. The scale is "a one-item graphic scale, consisting of six faces varying from a large smile to a large frown" (Ewen et al., 1966, p. 547). Each subject was asked
to check the face which most closely represented the feelings held toward their job-in-general. The score on this one item was then used as the sole criterion measure for the entire study.

Although the hypothesis proposed by Ewen et al., (1966) is certainly worthy of empirical investigation, it should not be used as evidence to invalidate M-H theory. At question here is the existence of a dual continuum concept. The Ewen et al. methodology does not make any attempt to separate the two feeling states which form the basis of M-H theory. Instead, this study forces subjects into making a choice based on a single bi-polar continuum. If the authors wished to question and investigate the dual versus uni-continuum concept they should address this issue directly. Their methodology could prove useful in investigating this question, however, it has little relevance for testing the validity of M-H theory. In light of this discussion it is not surprising Ewen et al. concluded that their results supported neither the traditional nor the Herzberg theory.

Hulin and Smith (1967). These authors started with the correct assumption of the bi-dimensionality underlying the feelings of satisfaction and dissatisfaction, and then attempted to devise a procedure which would achieve a meaningful separation of the two feeling states. These investigators also used the GM faces scale, this time consisting of five faces with varying smiles, a neutral face, and five faces with varying frowns. In order to qualitatively separate the feelings of
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satisfaction and dissatisfaction, Hulin and Smith broke the scale at the neutral point and obtained on paper two scales with a common end point (neutral) in each. Presumably, the 'smiling' scale was to measure satisfaction and the 'frowning' scale was to measure dissatisfaction. However, it is doubtful that two qualitatively different scales can be attained by simply breaking a uni-dimensional scale into two parts. To be at least formally consistent with M-H theory, the end points should consist of faces representing satisfaction—no satisfaction and dissatisfaction—no dissatisfaction, rather than satisfaction—neutral and dissatisfaction—neutral.

Hulin and Smith's results further emphasize that psychologically meaningful separate measurement of the two feeling states requires more than merely dividing a uni-dimensional scale into two halves. All but two of the subjects assigned to respond to the 'dissatisfaction' scale actually checked only the top two faces out of the possible five. Thus, it seems evident that when the subjects were asked to rate their feeling of dissatisfaction, they could scarcely do so; indicating the possibility of a rating problem operating which may have made this particular scale useless. Simply providing a person with a verbal label indicating a feeling state and asking him to rate himself with regard to it does not necessarily provide a psychologically meaningful datum. This procedure then, does not seem to be a viable alternative technique for measuring meaningfully and independently the two separate feeling states of satisfaction and dissatisfaction.
Lahiri and Srivasta (1967). These authors made a somewhat different attempt at separate measurement of the two feeling states. They presented subjects with 26 job factors consisting of 13 motivators and 13 hygienes. The subjects were instructed to: "Think of a time when you felt exceptionally good about your job.... The following are some of the factors which may have contributed to your feeling of satisfaction at that time. Indicate by checking the extent to which each factor contributed to your feeling of satisfaction on the scales given below" (p. 256). Below each factor was a five-point scale upon which the check mark was to be placed. For measuring dissatisfaction, the instructions were identical, except that 'dissatisfaction' was substituted for 'satisfaction' and 'bad' was replaced by 'good'. The same 26 factors were presented for rating. The mean scores of each job factor in each situation were used in analyzing the data, and were presented in tabular form. Comparisons between the mean motivator scores and the mean hygiene scores for each situation were then made.

This study, however, contains a serious methodological flaw which renders its results inadequate for testing M-H theory. Lahiri and Srivasta forced their subjects into ascribing inappropriate factors to their job feelings by having them rate both motivator and hygiene factors on both dimensions of satisfaction and dissatisfaction. If M-H theory is assumed as correct, this is impossible since motivator factors underlie satisfaction and hygiene factors underlie dissatisfaction.
Thus, the resultant ratings are meaningless in terms of M-H theory and, therefore, the data generated cannot be used to test the theory.

This raises the issue of forcing choices from respondents. One of the major advantages of Herzberg's method was that the factors emerge out of the data rather than being determined a priori. This criticism of forcing choices by respondents has often been leveled at research employing data gathering methods other than the critical incidents technique. Therefore, studies attempting to test M-H theory must use methods in which care is taken not to predetermine or bias results by forcing respondents to make irrelevant choices.

The Problem of Irrelevant Data

The third major problem with research employing alternate methods to test M-H theory is the analysis of irrelevant data. Several studies, nonsupportive of M-H theory, employ methods which have been accused of producing irrelevant data (Grigaliunas & Herzberg, 1971). This is due mainly to methodologies which force irrelevant ratings.

Wernimont (1966) obtained responses from 50 accountants and 82 engineers in self-descriptions of past satisfying and dissatisfying job situations. He constructed two forced-choice checklists, each made up of 50 pairs of items with each pair consisting of one motivator and one hygiene item. The pairs of items were equated for social desirability and one set of 50 was written in a positive tone and the other in a negative
tone. Each subject was asked to describe briefly some situation that had occurred on his job which made him feel very happy with his job. He was then asked to check the one statement in each of the 50 positive pairs of statements which best described how he felt in that situation. This process was then repeated for a past very unhappy, negative situation with the 50 negatively worded pairs of items.

Wernimont seems to have achieved psychologically meaningful separate measurement of the two feeling states in that he does look at job attitudes twice; once in dealing with satisfying situations and again in dealing with dissatisfying situations. However, Wernimont runs afoul of the problem of irrelevant rating of items. That is, it is inconceivable that all 50 items could have been relevant to the incident described. Herzberg, in his original study, obtained an average of only 1.84 different factors for each of his sequences, and most successful replications do not significantly deviate from this average (Grigaliunas & Wiener, 1974). Because each respondent had to choose one statement from each of the fifty pairs of statements, it is apparent that some of the items chosen might have little or nothing to do with the given specific situation. Therefore, since the individual would be forced to choose between two statements neither of which would be relevant to the situation he had just described, the data generated become irrelevant for adequate testing of M-H theory. Because of these conditions it is not surprising that Wernimont's results were nonsupportive of Herzberg's theory.
The Issue of Orthogonality

Several researchers (Burke, 1966; Dunnette et al., 1967; Ewen et al., 1966; Graen, 1966a, 1966b; Hinrichs & Mischkind, 1967; Hulin & Smith, 1967; Lindsay, Marks & Gorlow, 1967; Malinovsky & Barry, 1965; Schwab & Heneman, 1970) have declared M-H theory to be invalid as their results have shown that the motivator and hygiene factors are not totally independent. However, in these studies it seems that anything less than perfect prediction indicated "lack of confirmation" for M-H theory. Besides the possibility of these imperfect predictions being caused by errors of measurement inherent in any psychological procedure, it should be noted that none of the studies which support M-H theory suggest that motivator and hygiene factors are truly orthogonal. These studies merely indicate that a "significant majority" of the variables responsible for satisfaction are motivator factors, and that a "significant majority" of the variables responsible for dissatisfaction are hygiene factors (Nevotti, 1970). Indeed, it has been pointed out that in at least one factor (salary), motivators and hygienes are confounded. This may be due to the fact that salary is often linked to achievement and recognition (Herzberg, 1966). Thus, the fact that the two types of factors may not be completely independent should not be construed as evidence invalidating the theory. However, as this question has not been put to empirical test, further research explicitly investigating the orthogonality of the job factors seems necessary before any final conclusions concerning this issue can be formulated.
Purpose of this Research

M-H theory has been criticized as being "method-bound" due to lack of support by studies employing alternate methods, and to certain aspects of the critical incidents technique. The problems encountered by this technique include possible bias in the coding procedure and the possibility of social desirability influencing the set people carry into the interview situation. In light of these criticisms, and to satisfy the principle of multiple operationalism, it seems necessary that M-H theory be validated by replicating Herzberg's results using a method which contains significant modifications to the original technique. The alternate methods proposed up until now, have contained errors in design and logic which may be responsible for the general lack of support for Herzberg's findings reported in these studies.

The major criticisms of alternate methodologies include: (a) violation of the theory by testing illogical hypotheses derived from the concepts of overall job satisfaction and the importance of job factors; (b) violation of the theory in that some methods do not achieve psychologically meaningful separation and measurement of the two feeling states; (c) the problem of irrelevant data being generated due to irrelevant rating of items and forcing choices from the respondents; and (d) the issue of the orthogonality of the two types of job factors.

The purpose of this thesis, then, is to validate M-H theory by replicating Herzberg's results using a significant
modification to the critical incidents technique, designed to eliminate possible bias in the coding procedure as well as the problem of social desirability. To accomplish this the method developed must rectify the errors in design and logic made by previous investigations using data collection methods other than that of Herzberg et al. (1959). If the results of this investigation are supportive of Herzberg's theory, then the study can be offered as: (a) validation of M-H theory consistent with the principle of multiple operationalism; (b) evidence for the refutation of the "method-bound" criticism; and (c) evidence that other studies were nonsupportive of Herzberg's results due to methodological errors in design and logic rather than any inherent defect in the theory itself. In addition, this study will examine and analyze the issue of the orthogonality of the two types of job factors.
The present study employs a method which contains significant deviations from the critical incident technique to test M-H theory. Participants were divided into two groups. One group dealt only with satisfying situations, the other with dissatisfying situations. If Herzberg's theory is correct, it should be easier for the participants to think of satisfying job situations involving motivator factors than it would be for them to think of satisfying situations involving hygiene factors. Conversely, it should be easier for participants to think of dissatisfying job situations involving hygiene factors than it would be for them to think of dissatisfying situations involving motivator factors.

Hypothesis I. The group dealing with satisfying situations (a) will select a significantly greater number of motivator than hygiene factors, and (b) will select a significantly greater number of motivator factors than will the dissatisfaction group.

Hypothesis II. The group dealing with dissatisfying situations (a) will select a significantly greater number of hygiene than motivator factors and (b) will select a significantly greater number of hygiene factors than will the satisfaction group.

In addition, another question peripheral to the principle hypotheses is examined: Are the job factors orthogonal? It is expected that the two kinds of factors will not be completely
orthogonal. However, motivator factors should be associated with satisfaction and hygiene factors with dissatisfaction with only a small degree of overlap. If the two types of factors were truly orthogonal they would be statistically independent. However, many researchers (Burke, 1966; Dunnette et al., 1967; Ewen et al., 1966; Graen, 1966a, 1966b; Hinrichs & Mischkind, 1967; Hulin & Smith, 1967; Lindsay, Marks & Gorlow, 1967; Malinovsky & Barry, 1965; Schwab & Heneman, 1970) have shown the two types of factors to be statistically related. Hence, statistical independence is not expected here.
Method

Overview of the Design

Data were collected primarily by means of a questionnaire administered by the author to secretarial and clerical employees. The questionnaire was two pages long and required 15 to 20 minutes to complete. The independent variable manipulation involved the particular feeling state invoked during the questionnaire administration. One group of respondents dealt only with felt satisfaction emanating from satisfying work situations. A second group of respondents dealt only with felt dissatisfaction emanating from dissatisfying work situations. The dependent variable was the number of motivator and the number of hygiene factors associated with each feeling state.

Sample

Respondents were 71 secretarial and clerical employees of three Eastern U. S. corporations. Respondents were assigned to groups on the basis of a coin flip. When the number of respondents in one group equalled one half of the total number of respondents available at the particular administration site, assignment to that group ceased. The remaining respondents were then assigned to the other group. The final sample consisted of two groups of 30 respondents each. Of the original 71 respondents eight were discarded because of incomplete or incorrectly filled out questionnaires. One was discarded because of familiarity with the research area under
investigation, and two others were randomly picked from the "Dissatisfaction" group to be discarded to equalize the final sample. The "Satisfaction" group consisted of 8 males and 22 females with a mean age of 22.8 years. Mean total job experience was 6.7 years with a mean of 1.83 years in their present job. The "Dissatisfaction" group consisted of 4 males and 26 females with an average age of 24.1 years. Mean total job experience was 8.1 years with a mean of 2.12 years in their present job.

Instrument

The data for this study were obtained by means of a questionnaire. The job factors chosen for this study included five motivator factors and five hygiene factors. The motivator factors were advancement, recognition, work itself, responsibility and achievement. The hygiene factors were company policy and administration, supervision, working conditions, interpersonal relations and salary. These 10 factors were selected because they have been the major determinants of job satisfaction and job dissatisfaction in the majority of successful replications of the Herzberg et al. (1959) study.

Pairing each motivator factor with each hygiene factor resulted in 25 motivator-hygiene pairs. Pilot testing indicated that respondents were having trouble completing all 25 pairs. It was decided to give each subject a random sample of five of the 25 pairs. The 25 pairs were labeled with a two digit code beginning with 11 and ending with 35.
a table of random numbers five of the 25 pairs were chosen. These five pairs made up the first questionnaire form (See Appendix A). Five more pairs were then randomly chosen from the remaining 20 pairs to make up the second questionnaire form. This procedure was followed until all 25 pairs had been included on five different questionnaire forms.

In each questionnaire there were also included a series of 11-point graphic rating scales. Each scale had end points representing 0 and 100% of the extent which that factor contributed to the feeling of satisfaction or dissatisfaction. Through the use of these rating scales, the problem of forcing choices from the respondents is controlled and the issue of the orthogonality of the job factors can be examined, as will be explained. The first questionnaire form is presented in Appendix A.

Procedure

Of the two groups of respondents, one group dealt only with satisfying situations and the other dealt only with dissatisfying situations. In this way, data concerning each of the two feeling states were gathered independently. Thus meaningful separation and independent measurement of the two feeling states occurred, alleviating one of the major problems encountered by previous research.

The investigator met with one group at a time. At the beginning of each session an introductory and explanatory statement was read to the group (See Appendix B). Respondents
were then given a descriptive data form and a factor definition sheet. The former (see Appendix C) was used to collect demographic type information. The factor definition sheet (see Appendix D) contained definitions of each factor. The respondents were directed to fill out the descriptive data form and then put the form aside. Their attention was then directed towards the factor definition sheet. They were asked to read the definitions and become thoroughly familiar with this information. The respondents were also told they could refer to this sheet at any time during the experiment, and that not all the factors would appear on their questionnaire.

Questionnaires were then distributed. The questionnaire forms were distributed in sequential order. The first respondent in each group received the first questionnaire form. The second respondent received the second questionnaire form. The seventh respondent received the first questionnaire form and so on until all respondents had a questionnaire.

Directions for the completion of the questionnaire were then given:

During the rest of the study you will be asked to think of various times when you have felt satisfied with your present job either recently or any other time. Below each pair, briefly describe in writing a satisfying situation which has occurred on your job which developed from one of the two factors. Circle the factor upon which the incident described was based. Remember, for
each pair think of a satisfying situation which has arisen on your job based on one of the two factors in that pair. The final step in each item is to decide the extent to which each of the items contributed to your feeling of satisfaction at that time. This is done by placing X's in the boxes between the numbers and the words on each of the scales below each pair. There should be an X placed on every scale; and the sum of the two X's in any pair must equal 100%. If the factor circled was completely responsible for your feeling, place an X in the 100% box under that factor and place an X in the 0% box under the other factor. If however, the factor circled was responsible for only part of the feeling—say 80%—mark an X in the 80% box under the circled factor and mark an X in the 20% box under the other factor. Remember, the two boxes marked should add to 100% for each pair.

Each step in the directions was briefly repeated and the respondents were then provided a conservative example. See Appendix E for a detailed description of this example. The "Dissatisfaction" group received the same directions with the word 'dissatisfaction' replacing the word 'satisfaction' at the appropriate places.

At this point the respondents were asked if they had any questions and then were allowed to complete the questionnaire.
After completing the questionnaire they received a brief explanation of the focus of the study, told they would receive feedback regarding results, and were thanked for their cooperation.
Reliability

An estimate of the reliability of the responses within groups was made through the calculation of K-R 20 reliability coefficients for each group. The "Satisfaction" group had a K-R 20 coefficient of $r_{tt} = .77$ while the "Dissatisfaction" group had a coefficient of $r_{tt} = .69$. Although these coefficients are not very high, confidence may still be placed in the results from this questionnaire with regard to total motivator and total hygiene factor relationships. Guilford and Fruchter (1973) state that "all the internal-consistency formulas that depend upon a single administration of a test, probably underestimate the reliability of a test" (p. 418). Therefore, given the moderate reliability estimates reported, it is likely that the total motivator and total hygiene factor relationships inferred from the questionnaire are reliable enough to warrant further analyses.

Tests of Hypotheses

Table I presents the mean number of factors chosen by the respondents. Table II summarizes the tests of hypotheses. As shown in Table II all hypotheses were supported. The results clearly indicate that the respondents, when asked to choose factors based on feelings of satisfaction with their jobs, chose motivator factors significantly more often than they chose hygiene factors. Conversely, when the respondents were
Table I
Mean Number of Factors Chosen

<table>
<thead>
<tr>
<th>Factor</th>
<th>Motivator</th>
<th>Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATISFYING</td>
<td>2.93</td>
<td>2.07</td>
</tr>
<tr>
<td>DISSATISFYING</td>
<td>1.63</td>
<td>3.37</td>
</tr>
</tbody>
</table>

Table II
Summary of Tests of Hypotheses

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Comparison</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ia</td>
<td>2.93 - 2.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.23*</td>
</tr>
<tr>
<td>Ib</td>
<td>2.93 - 1.63</td>
<td>1.80*</td>
</tr>
<tr>
<td>IIa</td>
<td>3.37 - 1.63&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.86**</td>
</tr>
<tr>
<td>IIb</td>
<td>3.37 - 2.07</td>
<td>1.69*</td>
</tr>
</tbody>
</table>

<sup>a</sup>These comparisons were made using Fisher's t for differences between correlated pairs of means.

*<sup>p</sup> < .05

**<sup>p</sup> < .01
asked to choose factors based on feelings of dissatisfaction they chose hygiene factors significantly more often than they chose motivator factors. Further, the "Satisfaction" group chose significantly more motivators than did the "Dissatisfaction" group; and the "Dissatisfaction" group chose significantly more hygienes than did the "Satisfaction" group.

Issue of Orthogonality

The question of orthogonality of the job factors was to be analyzed using the data generated by the rating scales. However, the failure of a large percentage of the respondents to complete the rating scales correctly prevented the gathering of enough data to make such analysis meaningful.

From an interocular analysis ("eyeballing" the data), it appeared that the factors were not, in fact, independent. There seemed to be a marked tendency for the secondary factor of a pair to receive at least a 10% rating. In view of the general difficulty respondents had in completing the rating scales, the data that were generated are highly questionable. However, only 7.64% of the usable rating scale responses were made in the 100%—0% categories. Thus, it may be that the factors are not totally independent, but this conclusion must be regarded as tentative until the question is addressed with adequate experimental procedures.
Discussion

The results of this study unequivocally support M-H theory. The satisfying situations group (a) chose a significantly greater number of motivator factors than they did hygiene factors, and (b) chose a significantly greater number of motivator factors than did the dissatisfying situations group. The dissatisfying situations group (a) chose a significantly greater number of hygiene factors than they did motivator factors, and (b) chose a significantly greater number of hygiene factors than did the satisfying situations group.

The results clearly indicate that when asked to choose factors contributing to feelings of satisfaction with their jobs, respondents in general chose motivator factors. Conversely, when asked to choose factors contributing to feelings of dissatisfaction, respondents chose hygiene factors. There does indeed seem to be two sets of factors operating here on two different sets of needs.

One set of needs relates to the human characteristic to experience psychological growth. The stimuli that induce growth in the organizational setting are found in the job content as evidenced by the selection of motivator factors as contributing to feelings of satisfaction. The other set of needs relates to man's animal nature to avoid pain from the environment, plus all the learned drives which become conditional to the basic biological needs (Herzberg, 1968). These
needs are reflected in an organizational setting in the job context or environment as evidenced by the selection of hygiene factors as contributing to feelings of dissatisfaction. Motivator factors were the primary cause of satisfaction, and hygiene factors the primary cause of unhappiness on the job.

Since this study used methods other than the critical incidents technique employed by Herzberg, it provides evidence that M-H theory is not "method-bound". Thus, this study validates M-H theory consistent with the principle of multiple operationalism (Garner et al., 1956; Webb et al., 1966). This study also provides evidence that the nonsupportive results of other studies employing alternate methods may have been due to methodological weaknesses rather than to any inherent defect in the theory itself.

Previously, different methods have tended to yield different results. However, most of the researchers who declare that Herzberg's conclusions are a function of his method do not attempt to explain the consistency with which it yields these results. In view of the concerted effort made to keep the present study free from problems which have historically plagued tests of M-H theory using alternate methods, the supportive results obtained attest to the basic soundness of the theory and are in line with the results of a substantial amount of previous literature. The instrument and procedure of this study contained various aspects which were key factors in controlling the errors made by previous research in this area.
The use of two groups, each dealing with only one of the two feeling states, allowed data concerning each of the two feeling states to be gathered independently from one another. Therefore, separate measurement of the feeling states occurred and one of the major problems with previous research in this area is alleviated.

Another problem which has plagued studies investigating M-H theory is the problem of irrelevant data being generated due to the occurrence of irrelevant rating of items. The respondents in this study were required to generate a job situation directly from one of the two factors making up each item. Because all rating done for a particular item involved a job situation generated directly from one of the two factors in the item, there is no irrelevant rating of items throughout the study. This aspect of the study represents an important methodological advancement which seems instrumental in preventing the irrelevant rating of items from occurring in studies of this type.

Further, the inclusion of a possible 0 rating for each factor prevents the respondent from being placed into a position where he is forced to make a choice regardless of the situation. The inclusion of a 0 rating point allows the respondent to indicate that a particular factor had absolutely no impact in determining his feeling at that time. In this way, the freedom of choice contained in Herzberg's original
study is retained and respondents are not forced into making any choices they would prefer not to deal with.

The problem of violating the theory by testing illogical hypotheses involving the concepts of overall job satisfaction and the importance of job factors becomes a moot question in this study. As the hypotheses have been formulated directly from Herzberg's original statement of M-H theory (Herzberg et al., 1959), the concepts of overall job satisfaction and the importance of job factors simply remain unmentioned. Therefore, the problem of testing an illogical hypothesis is alleviated in this study by dealing only with logical hypotheses formulated directly from M-H theory.

M-H theory's ultimate utility may be that it makes statements about the nature of man. It says that he operates on two equally important basic needs; the need to grow and the need to avoid pain. The essence of the theory is that the two needs are served by independent and different groups of factors. Both sets of needs must be met; however, an overemphasis on hygienes, to the exclusion of motivators, cannot result in superior performance. Ignoring hygienes and concentrating solely on the motivators will lead to dissatisfaction. Thus, to motivate an individual it becomes necessary to adequately provide him with both factors; hygienes in order to satisfy his animal needs of comfort and safety, and motivators to allow him to develop in his occupation as a source of personal growth.
Limitations of the Study

This study has three limitations. First, the study included a disproportionate number of females in the sample. At each data collection site, the organization allowed interested clerical employees to volunteer to participate in the research. The researcher had little input as to the makeup of the research sample. Random assignment to the two experimental groups was the only process the respondents were subjected to prior to the data collection. However, to the extent that the disproportionate number of females in the sample approximates the ratio of male to female employees in clerical positions, this research is valid for generalizing to the general population of employees in clerical jobs.

The second limitation of this study diminishes the amount of generalization possible however. This limitation is the fact that the sample was drawn from a population of only three firms with solicited respondents for the research. The danger of overgeneralization to the working population in general is obvious. Sampling of additional populations and investigations with still other methods are needed. However, it remains clear that empirical support for M-H theory can be obtained by a method other than the critical incidents technique.

The final limitation is the possibility that the instructions and example provided might have contaminated the sample. Although this possibility exists, the researcher felt it was necessary to provide respondents with a specific example in
order to facilitate their completion of the questionnaire. Nevertheless, future tests of M-H theory should take steps to alleviate this possibility.

There is an obvious need for further research along these lines. Clearly, M-H theory has had a profound impact on the field of Industrial-Organizational Psychology. The theory should be considered on the basis of its merits rather than unquestioningly accepting assertions from its opponents that M-H theory is "dead". It is hoped that this research might stimulate other investigations of M-H theory with methodologies and designs logically derived from the theory. Only in this way will the question of M-H theory's true utility ever be answered.
References


Graen, G. Motivator and hygiene dimensions for research and development engineers. *Journal of Applied Psychology*, 1966, *50*, 563-566. (b)


### Appendix A

#### A Sample Questionnaire

<table>
<thead>
<tr>
<th>1. RECOGNITION</th>
<th>2. COMPANY POLICY</th>
<th>3. SALARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 20 30 40 50 60 70 80 90 100%</td>
<td>10 20 30 40 50 60 70 80 90 100%</td>
<td>10 20 30 40 50 60 70 80 90 100%</td>
</tr>
<tr>
<td>little</td>
<td>some</td>
<td>most</td>
</tr>
<tr>
<td>Amount Contributed</td>
<td></td>
<td></td>
</tr>
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#### SUPERVISION

<table>
<thead>
<tr>
<th>10 20 30 40 50 60 70 80 90 100%</th>
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</thead>
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</tbody>
</table>

Amount Contributed

#### ACHIEVEMENT

<table>
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Amount Contributed

#### ADVANCEMENT

<table>
<thead>
<tr>
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<tbody>
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</tbody>
</table>

Amount Contributed
4. RESPONSIBILITY

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</tbody>
</table>

5. WORKING CONDITIONS

<table>
<thead>
<tr>
<th>Amount Contributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>little</td>
</tr>
</tbody>
</table>
Appendix B: Introductory and Explanatory Statement

Let me introduce myself: my name is Larry Long and I am a graduate student at the University of Nebraska at Omaha. I am currently engaged in a research project which requires the assistance of people like yourself. Basically, this research project concerns your feelings about your job.

The first reaction of a person who is asked to participate in such a project is usually "How will it influence my job?" or "What a stupid waste of time!" Knowing this I feel it is only fair to give you a brief explanation of the purpose of the study as well as the manner in which your answers will be treated.

The purpose of this study is to attempt to learn something about what the worker feels about his job. Studies similar to this one have helped management become aware of and better understand the needs and problems of the worker. When management is able to understand the worker the result is improved human relations and a healthier organizational climate.

Although your company is interested in the overall results of this study and has given me permission to contact you, no one individual will be singled out or identified. Your answers to all the questions will be kept absolutely confidential. Neither your supervisor nor the company will ever know what your responses were.
Appendix C: Descriptive Data Sheet

Please fill in the following information and return this sheet with your packet at the end of the session. The information required is for sample description purposes only and answers will be kept completely confidential.

AGE: __________________________

TOTAL JOB EXPERIENCE: __________________________
(total number of years employed by previous and present employers)

TOTAL WORK EXPERIENCE IN PRESENT JOB: __________________________

EDUCATION: __________________________
(indicate terminal level of education)
# Appendix D: Factors and their Definitions

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RECOGNITION:</strong></td>
<td>Any act of recognition to you from any external source (supervisor, management, client, peer, professional colleague, general public), in which some act of notice was involved.</td>
</tr>
<tr>
<td><strong>SUPERVISION:</strong></td>
<td>The competence or incompetence, fairness or unfairness, cooperation or non-cooperation of your supervisors.</td>
</tr>
<tr>
<td><strong>COMPANY POLICY &amp; ADMINISTRATION:</strong></td>
<td>Your experience with the policies and/or administrative procedures of the company.</td>
</tr>
<tr>
<td><strong>RESPONSIBILITY:</strong></td>
<td>Being responsible for your own work or the work of others, or being given new responsibility.</td>
</tr>
<tr>
<td><strong>WORKING CONDITIONS:</strong></td>
<td>The physical conditions of work, the amount of work, or the facilities available for doing your work.</td>
</tr>
<tr>
<td><strong>ADVANCEMENT:</strong></td>
<td>Any perceived or actual change in your present or future position in the company.</td>
</tr>
<tr>
<td><strong>INTERPERSONAL RELATIONS:</strong></td>
<td>Verbalization in an interaction between you and other individuals.</td>
</tr>
<tr>
<td><strong>SALARY:</strong></td>
<td>Your compensation for doing of the job.</td>
</tr>
<tr>
<td><strong>ACHIEVEMENT:</strong></td>
<td>Successful completion of a job, solving problems (solutions), seeing the results of your work, or accomplishing some identifiable goal.</td>
</tr>
<tr>
<td><strong>WORK ITSELF:</strong></td>
<td>The actual doing of your job or the tasks of your job.</td>
</tr>
</tbody>
</table>
Appendix E: Questionnaire Completion Example

In order to complete the questionnaire, you are going to be asked to think of times when you felt exceptionally good/bad about your present job either recently or any other time. For each item, briefly describe in writing such a satisfying/dissatisfying job situation which has arisen from one of the two factors. Circle the factor upon which the incident was based.

For Group One an example of an item could be the pair of factors WORK ITSELF—COMPANY POLICY. Your instructions are to look at the two factors which made up the item and then briefly describe a satisfying job situation which has arisen from one of the two factors. Thus for the pair WORK ITSELF—COMPANY POLICY, a satisfying situation arising from the factor WORK ITSELF could be described as follows: I felt satisfied when I realized that my presentation was going very well and that the customer was very involved in what I was saying. This is the kind of description you should write. Since this situation was derived from the factor of WORK ITSELF you should circle WORK ITSELF on the questionnaire. The final step requires you to fill out the rating scale and involves deciding the extent to which each factor contributed to your feeling of satisfaction. If in this case you decide that the WORK ITSELF factor was totally responsible for your feeling of satisfaction, and that the COMPANY POLICY and ADMINISTRATION factors played no part in your feeling of satisfaction, you should place an
X in the box below 100% on the scale beneath the WORK ITSELF factor. You should also make an X mark in the box below 0% on the scale directly beneath the COMPANY POLICY factor. Remember, every scale should be filled out and the sum of the percentages corresponding to the X's in each pair of scales making up an item must equal 100%.

In Group Two the example will be the same except now the relevant feeling is a dissatisfying situation arising from one of the factors. A dissatisfying incident arising from Company Policy may be described briefly as: I felt very dissatisfied as I was reading the latest company form regarding limiting personal phone calls during business hours. Since this situation was derived from the factor COMPANY POLICY you should circle COMPANY POLICY on the questionnaire. The final step requires you to fill out the rating scale and involves deciding the extent to which each factor contributed to your feeling of dissatisfaction. If you decide that the COMPANY POLICY factor was totally responsible for your feeling of dissatisfaction and that the WORK ITSELF factor played no part in your feeling, then you should place an X in the box below 100% on the scale directly beneath COMPANY POLICY. You should also place an X in the box below 0% on the scale directly beneath the WORK ITSELF factor. Remember, every scale should be filled out and the sum of the percentages corresponding to the X's in each pair of scales making up an item must equal 100%.