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AN INVESTIGATION OF THE APPLICABILITY OF
MASLOWS HIERARCHY THEORY AND THE
PORTER-LANDERSHED OF MOTIVATION,

THE PURDUE UNIVERSITY AND
AGRICULTURAL ENGINEERING COLLEGE, 1979

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AN INVESTIGATION OF THE APPLICABILITY
OF MASLOW'S NEED HIERARCHY THEORY AND
THE PORTER-LAWLER MODEL OF MOTIVATION

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Management

by

Karen Kathryn Arnold
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ABSTRACT

The objective of this study was to determine for female academicians the applicability of two popular motivational models: Maslow's need hierarchy theory and the Porter-Lawler model of motivation. The sample upon which this study is based consisted of 186 female faculty members of the Louisiana State University System located on the Baton Rouge, New Orleans, Shreveport, and Alexandria campuses. The instrument used to gather the data for this study was the Porter-Lawler questionnaire. Correlational coefficients and t-tests were used to determine the existence of statistically significant relationships.

In the first part of this study, four hypotheses were formulated and tested to determine if need satisfaction and need importance were related in the manner specified by Maslow. The results did not support the central idea underlying Maslow's theory. This central idea is that need importance as a motivator of behavior is related to the satisfaction of a prior need level in a predetermined five-level hierarchy. Instead, support was gathered for the operation of what might be termed a bi-level, or, two-level hierarchy. The results suggest that higher-level needs emerge as important when lower-level needs are satisfied and when people are given the opportunity to fulfill higher-level needs. This finding runs parallel with the most...
current research on the applicability of Maslow's need hierarchy theory. Furthermore, statistically significant results suggest that satisfaction of physiological, security, and social needs is related to the diminished importance of those lower-level needs. Contrary to Maslow's theory, satisfaction of higher-level esteem and self-actualization needs was significantly related to decreased importance of those needs.

Additional information was gathered concerning mean importance, fulfillment, and satisfaction of each of the five need categories. Self-actualization needs were viewed by female university faculty as the most important of the five need categories. The least amount of fulfillment and the greatest amount of dissatisfaction was indicated for the physiological and security need categories.

Eight hypotheses were formulated and tested by t-tests to determine the applicability for female university faculty of the following three major portions of the Porter-Lawler model: Need Satisfaction, Role Perceptions, and Pay as a Satisfier.

The Porter-Lawler model specifies the conditions under which performance and satisfaction could expect to be related. The test results yielded no firm support for this section of the model. Where Porter and Lawler predicted significant relationships to exist between effort and performance self-ratings and need fulfillment and satisfaction, none were obtained in the expected direction.

The Porter-Lawler model is designed to call attention to the importance of role perceptions (in general) and inner-directed role
perceptions (in particular) as a variable that translates effort into performance. The predictions derived from the model concerning the relationship between role perceptions and self-rated performance, as well as the relationship of self-rated effort and role perceptions to performance, do not seem to be generally applicable. A ranking of the importance of the role characteristics by the sample revealed that a mixture of inner- and other-directed characteristics was thought to be important for success on the job. The sample ranked the characteristics from most to least important as follows: cooperative, self-confident, adaptable, imaginative, tactful, decisive, agreeable, independent, forceful, cautious.

Finally, the theorized relationship between pay as a satisfier and self-rated effort and performance was tested and supported by statistically significant results. Also tested was the prediction that the importance of pay (value of reward) and pay as a satisfier (perceived effort-reward probability) combine in a multiplicative relationship to determine effort and performance. Test results did not support this prediction.
CHAPTER I

INTRODUCTION

MOTIVATION -- ITS GENERAL ASPECTS

Recognizing the importance of the motivation and behavior of the human element in the workplace, today's organizations are faced with the problem of understanding, predicting, and even controlling the behavior of their employees. According to Professor Leon Megginson, the basic assumptions of behavioral investigations are as follows:

1. In order to control human behavior, we must be able to predict it.

2. In order to predict human behavior, it is essential that we understand the cause and effect relationships.

3. In order to understand the cause and effect relationships, we must have knowledge of human behavior.¹

Basic to an understanding or knowledge of human behavior is the fact that it is goal-oriented. Regardless of whether or not a specific goal is consciously known by the individual, his or her behavior is generally motivated by a desire to attain some goal. According to need theorists,* the motivation of a person, or, the "will to do," depends

*Note: There are other approaches to motivation. One notable approach comes under the heading of behaviorism and the ideas of B. F. Skinner. Adherents to the behavioristic school of thought stress that behavior is what counts. "What" a person does is more important than his or her internal state (needs). The second basic idea is that behavior is caused by external stimuli. As such, changes in the environment can result in changes in behavior. Thus, the emphasis of the behavioristic approach is to reward behavior and to punish or ignore undesired behavior.

¹Professor Leon Megginson, Graduate Management Class Lecture, Louisiana State University, Baton Rouge, Louisiana, Fall, 1974.
on the strength of his motives, or needs. (The terms "motive" and "need" will be used interchangeably throughout this investigation.) As stated by Berelson and Steiner, "a motive is an inner state that energizes, activates, or moves .... and directs or channels behavior toward goals."\(^2\) While environmental factors may influence the development of motives, the motive is internal to the particular human being.

One framework that explains the operation of motives in influencing behavior has been theorized by Abraham Maslow. Maslow's need hierarchy theory has stimulated and influenced much contemporary thought in management. Warren Bennis has commented on the pervasiveness of Maslow's theory as follows: "Most contemporary organization theory, when it does deal with personality, bases its view of man on Maslow's hierarchy of needs theory."\(^3\)

The following is a brief summary of the need hierarchy theory:

There are at least five sets of goals which we may call basic needs. These are briefly ... physiological, safety, love, esteem, and self-actualization ... these basic needs are related to one another, being arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend of itself to organize the recruitment of the various capacities of the organism. The less prepotent needs are minimized, even forgotten or denied. But when a need is fairly well satisfied, the next prepotent need emerges, in turn to dominate the conscious life and to serve as the center of


organization of behavior, since gratified needs
are not active motivators.\(^4\)

Implied in the above statement is the assertion that in motivation
theory \textit{gratification} of needs is as important an activity as is \textit{deprivation}. The assumption here is that gratification of one level of
needs permits the emergence of another higher level and that this
higher level of unsatisfied needs will act to dominate the behavior of
the individual. However, in a revision of the theory, Maslow states
that when the higher levels in the hierarchy are reached a reversal
occurs in the relationship between the satisfaction of needs and their
importance. As stated by Maslow ... "When we examine people who are
predominantly growth-motivated ... gratification breeds increased
rather than decreased motivation, heightened rather than lessened
excitement."\(^5\)

\textbf{MOTIVATION -- ITS IMPORTANCE IN ORGANIZATIONS}

Need theorists propose that needs (a person's internal state)
are the foundation of motivation. The need theory approach also pro-
poses that because motivation, ability, and role perceptions influence
productive performance,\(^6\) it becomes essential to recognize which needs

Hampton, Charles Summer, and Ross Webber, (eds.), Scott, Foresman and

\(^5\) Abraham Maslow, Toward a Psychology of Being, Van Nostrand,

\(^6\) Victor Vroom, Work and Motivation, Wiley, New York, 1964,
pp. 192-210. See also, Leon Megginson, Personnel -- A Behavioral
Approach to Administration, Irwin, Homewood, Illinois, 1972, pp. 650-
652.
predominantly influence worker behavior. As stated by Douglas McGregor in his Theory Y concept,

The essential task of management is to arrange organizational conditions and methods of operation so that people can achieve their own goals best by directing their own efforts toward organizational objectives.7

Thus, assuming that organizational goals have been determined, the task in motivation becomes one of identifying those motives (needs) which workers seek to satisfy.

Many studies have been conducted to investigate the subject of need identification, need fulfillment, and need satisfaction (or lack of it) perceived by managers and workers in their work environment.8

8 For example, see the following:
These perceived opportunities are commonly known as incentives and are influential in eliciting behavior to satisfy needs.

Incentives are visible opportunities which appear to offer the worker the fulfillment of specific drives, needs, or motives. Where the motive determines the need for action within the individual, the incentive provides a means for attainment and encourages and sustains action until fulfillment is achieved.9

However, the incentive ... must be tailored to the motive. If the urgent motive of an individual is, for example, the need for power, the incentive in the form of better working conditions will not draw out the desired act. But, if the promised reward is a promotion with increased authority, the motive can be expected to respond with the appropriate effort to earn the promises of the incentive.10

Therefore, the implications of the above section for management theorists and practitioners in their attempts to induce effort and performance from workers are twofold. First, the individual worker's needs must be identified. Second, incentives which appropriately correspond to those identified needs must be offered. These two statements are the basis for the ensuing motivational process upon which human organizational performance is predicated.

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10. Ibid., p. 206.
PURPOSES OF THE STUDY

This study can be divided into two major parts. The first part will concern itself with one area of the motivational process, namely, needs -- their fulfillment, satisfaction, and importance. Although many studies have been conducted on the level and type of need satisfactions associated with various types of both worker and managerial jobs in many different types of organizations, very few have focused on the possibility of differences in need fulfillment, satisfaction, and importance on the basis of sex in general and on the basis of the sex of university faculty in particular.

Although Maslow's need hierarchy theory is one of the most popular and widely-known theories of motivation, its applicability has come under increased question. However, some writers continue to defend the theory. For example, Keith Davis stated that research has demonstrated that Maslow's need priority model generally seems to apply to managers and professional employees in the United States. Studies show that

11 One notable exception can be found in an article by Charles Hulin and Patricia Cain Smith, "Sex Differences in Job Satisfaction," Journal of Applied Psychology, Vol. 48, No. 2 (1964), pp. 88-92. In their discussion of the results of the study Hulin and Smith state that it is not sex per se that is the crucial factor leading to either high or low satisfaction. "Rather, it is the entire constellation of variables which consistently covary with sex; for example, pay, job level, promotion opportunities, societal norms, etc., that is likely causing the differences in job satisfaction."

12 There are, however, some limitations to Maslow's need priority model. One limitation is that the expression of needs is influenced by the environment. Therefore, an individual's expression of what needs are important to him is influenced by the importance his social system attaches to various needs. Furthermore, those needs which are thought to be most important are usually found to be least satisfied. A second limitation is that people are not always consciously aware of what need (or needs) is motivating their behavior. Finally, and closely related to the last statement, since all needs are interdependent, seldom will an act of behavior be motivated by a single need.
their lower-order physiological, security (safety), and social needs are relatively well-satisfied and that they are seeking fulfillment of higher-order esteem and self-actualization needs.¹³

The purpose of the first major part of this study is to test the applicability of Maslow's need hierarchy theory in general. A closely related and more specific purpose will be to determine: whether a Maslow-type need hierarchy exists for the female university faculty sampled in this study; the degree of importance that the sample places on each of the needs of Maslow's theory; and, the degree to which the needs in the Maslow theory are fulfilled and satisfied on the job.

The purpose of the second major part of this study is to test the applicability of certain hypotheses of the Porter-Lawler motivational model as they relate to female university faculty.

However, before presenting the details and particulars necessary to satisfy the twofold purpose of this study, it is important to look at some of the reasons why research about the behavior of women in organizations is needed.

NEED FOR THE STUDY

The rapid influx of women into the United States work force has gained speed since World War I. This rapid growth can be seen in the

¹³For example, see Maison Haire, Edwin Ghiselli, and Lyman Porter, "Cultural Patterns in the Role of the Manager," Industrial Relations, Vol. 2, No. 2 (February, 1963), pp. 94-117, reporting a survey in eleven countries covering about twenty-eight hundred managers.

See also, Lyman Porter, "A Study of Perceived Need Satisfactions in Bottom and Middle Management Jobs," op. cit.


labor force participation rates (labor force as percent of population) for the years 1920, 1970, and 1976. The year 1976 was included because the sample on which this study was based was part of the 1976 labor force.

In 1920, twenty-three percent, or 8.2 million working age women were in the work force and held jobs in such areas as nursing, teaching, and food services. By comparison, in 1970 the percentage of working age American women (that is, women aged 16 and above) who were working or were looking for work had risen to 42.6 percent. Translated into numbers, this means that 31 million American women aged 16 or above were working or looking for work in 1970. This figure represented over 38 percent of the total work force in 1970.14

In 1976* figures from the Bureau of Labor Statistics revealed that there were 38.6 million working age women who were working or looking for work. This figure represented nearly 48 percent of all working age women and 43.8 percent of the total United States labor force.15 As Newsweek states, "... women are serging into the offices, stores, and factories of America at a rate higher than in the World War

*Note: As of the end of the second quarter of 1978, half of all women 16 years and over (nearly 42 million) were working or seeking employment. This was the first time the labor force participation rate of women had reached the 50 percent mark. As of June, 1978, women comprised 42 percent of the total United States work force.


"II days of Rosie the Riveter." Newsweek further quotes, 

'This may turn out to be the most outstanding phenomenon of our century,' says Columbia University economist Eli Ginzberg, chairman of the National Commission for Manpower Policy. 'Its long-term implications are absolutely unchartable.'

Apparently this surge in the ranks of the female work force has surprised even labor statisticians. For example, a June, 1970 article in the Monthly Labor Review estimated that in 1980 thirty-seven million working age American women would be working or looking for work and that these thirty-seven million would comprise 43 percent of the total work force. A quick review of the figures in the preceding paragraph reveals that these projections for 1980 were met and surpassed in 1976.

What are the reasons behind this rapid influx of women into the work force? It should be stated that there are many reasons and that they are complex. A review of many articles on the subject has allowed this writer to divide the reasons into four major interdependent categories: judicial-legislative, economic, societal trends, and intrinsic.

JUDICIAL-LEGISLATIVE FACTORS

Recent antidiscrimination laws and subsequent interpretations of those laws have made it possible for women to seek entry into the labor force. However, this was not always the case. The earliest of the federal provisions against sex discrimination began with the...

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17 Ibid.
passage of the 1871 Civil Rights Act. In the first sex discrimination case to reach the United States Supreme Court under this section, Bradwell v. Illinois, the Court upheld the refusal of the Supreme Court of Illinois to allow women to practice law (that is, to license women as attorneys). In a concurrence with the Court's decision Justice Bradley wrote:

'Man is, or should be, woman's protector and defender. The natural and proper timidity and delicacy which belongs to the female sex evidently unfit it for many of the occupations of civil life. The constitution of the family organization, which is founded in the divine ordinance, as well as in the nature of things, indicates the domestic sphere as that which properly belongs to the domain and functions of womanhood. The harmony, not to say identity, of interests and views which belong, or should belong to the family institution is repugnant to the idea of a woman adopting a distinct and independent career from that of her husband.'

More recent federal legislation and court interpretations have been more favorable to women in their quest of employment. Supporters of women's employment rights point to two landmark laws during the 1960s as opening the way for women's progress. The first was the Federal Equal Pay Act of 1963. This amendment to the Fair Labor Standards Act of 1938 guaranteed equal pay for equal or similar work.

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18 For those who may be interested, two sections of this 1871 act are applicable here. As currently interpreted, one section dealing with the nonfederal public section forbids invidious employment discrimination on any ground, including sex. The second section covers private employment and forbids conspiracies affecting another's employment which arise out of an animus against a class to which that "another" belongs.

Thus, employers subject to the Fair Labor Standards Act were forbidden to discriminate in regard to wages on the basis of sex. The second of the two landmark laws was the Civil Rights Act of 1964 which created the Equal Employment Opportunity Commission and forbade discrimination in any employment activity on the basis of race, color, sex, religion, or national origin in Title VII. In addition to these two acts of the early 1960s, two other important acts were passed in 1972 dealing with sex discrimination. The Education Act (Title IX) was amended to forbid sex discrimination in federally-assisted education. The 1972 Revenue Sharing Act banned discrimination in programs funded by federal "block grants."

In addition to the legislative activity during the 1960s and early 1970s, President Lyndon Johnson issued Executive Order 11246 in 1965. As amended by Executive Order 11375 in 1967 this order expressly prohibited discrimination by federal contractors and subcontractors, and required companies with federal contracts of $50,000 or more and at least 50 employees to develop affirmative action programs to correct discriminatory practices (that is, to remedy the underrepresentation of minorities and women). Executive Order 11246 was further strengthened in 1971 by Revised Order 4 which specifically stated the kinds of affirmative action programs that were necessary: recruiting, hiring, promotion, training policies, goals, and timetables.

Equally as important as legislative actions and executive orders are the interpretations of those laws and orders by the courts since

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20 It is interesting to note that the introduction of the word "sex" into the legislation was considered a humorous addition by the male members of the Congress which debated the bill.
it is those interpretations that affect how they will apply in day-to-day operating situations. The decisions rendered under the Equal Pay Act may have far-reaching effects on job structuring and pay practices throughout the country. For example, a Federal District Court in Dallas held that an all-male job of hospital orderly was equal to the all-female job of nurse's aid. Courts elsewhere have followed this principle causing hospitals in many parts of the country to pay their nurse's aids at a rate equal to that of their orderlies.21 One particularly significant decision was made under the Equal Pay Act by the Third United States Circuit Court of Appeals in the case of Wheaton Glass Company. The court ruled that Wheaton Glass Company had to pay $250,000 in back wages to its female employees. The rationale for this decision was that women who perform the same general work as men should receive the same pay.22 More specifically:

Jobs must be only 'substantially equal,' not 'identical,' to permit job comparisons under the act; there must be a rational explanation for the amount of wage differential, and it is the employer's burden to provide it; and the employer's past history, if any, of unequal pay practices is an important factor in determining whether there is a violation of the act.23

In 1973 the Equal Employment Opportunity Commission (the enforcement arm of the Civil Rights Act of 1964) signed a consent decree with American Telephone and Telegraph in which the phone company agreed to pay $38 million in back pay and wage increases to thousands of women and

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22 Leon Megginson, op. cit., p. 405.
23 Moran, op. cit., p. 33.
minority employees "whose progress might have been delayed" by past employment practices.

ECONOMIC FACTORS

In addition to judicial-legislative factors, women's lives are being affected by economic forces. Economic pressures brought about by inflation, as well as the desire of most Americans for high standards of living have made a second income within many families very important. In most cases this second income is used to purchase goods and services that are actual necessities. In other cases this second income is used to purchase the "new necessities" of life: private education, leisure homes, luxury vacations.

The impact of economic forces on women's decisions to enter the work force has been supported by a number of research studies. Myrdal and Klein analyzed the motivation of married women to seek employment. In considering why married women work, these authors presented evidence to support their contention that economic need might accurately be refined and stated as the discrepancy between real and desired family income, with desired income being contingent on the things that money could buy.24

In a review of information on women workers and on the supply and demand of women workers, Kreps analyzed the willingness of women to change the nature of their activities from home work to market

work. According to Kreps:

How many of them elect to take jobs (or, stated differently, what it takes to induce any given number to take jobs) depends upon their evaluation of the two sets of advantages: the home set, consisting of more time for leisure, hobbies, and community activity; economies reaped through full attention to home management; freedom of schedule; and the market set, including earnings and fringe benefits; job status; associations available in the work place; interest in the work itself.26

Based on the evidence cited by Kreps the overriding consideration for most women in their decision to enter the work force was the need for income.

In another study of demand and supply of women in a local job market, Smith27 obtained data from a sample of 27 firms within a 7-mile circle and from a random sample of 272 employed women living in the same 7-mile circle. Responses to questions relative to allocation of earnings supported the importance of economic needs as one reason for employment. Although only one-third of the women came from households where theirs was the only pay check, more than 60 percent said that the biggest share of their earning went for necessities with food and rent being the most frequently mentioned items of expenditure.

26 Ibid., p. 64.
27 Georgina M. Smith, Help Wanted—Female: A Study of Demand and Supply in a Local Job Market for Women, Institute of Management and Labor Relations, Rutgers--The State University, New Brunswick, New Jersey, 1964. It should be noted that Smith's conclusions pertain to the demand for women workers between 1953 and 1961 and the characteristics of the supply of women workers for that time period.
Current figures from the Bureau of Labor Statistics also support economic need as one of the factors influencing the growth in the female labor force. As was stated by Northwestern University sociologist and director of its program on women, Arlene Kaplan Daniels, "Women now work because they have to." A quick glance at Table I will give a breakdown by marital status of the composition of the 1976 female work force. As can be seen, a little over 42 percent of the 1976 female work force is composed of women who are either single, or who no longer have husbands (that is, widowed, separated, divorced). Another 26 percent are married to men who earn less than $10,000 a year. This picture of economic necessity is further strengthened by the dual factors of recession and inflation. During past recessions women usually left the labor force so as to allow men to take those jobs that were available. According to labor economist Myra Strober at the Stanford Graduate School of Business, that did not occur this time. Instead, the two-worker family is becoming a permanent reality. One reason is because even during the recovery, unemployment among adult males has remained high, and as such many families rely on the wife's earnings. Secondly, 40 percent of all working women are their family's sole wage earners or earn the bulk of the family income. Finally, real disposable earnings have been rapidly eroded in recent years by a high rate of inflation. As such, many families have been

28 Michael Ruby, op. cit., p. 69.
29 Ibid.
<table>
<thead>
<tr>
<th>MARITAL STATUS</th>
<th>PERCENT OF FEMALE WORK FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE</td>
<td>23.3</td>
</tr>
<tr>
<td>WIDOWED, DIVORCED, SEPARATED</td>
<td>19.0</td>
</tr>
<tr>
<td>MARRIED:</td>
<td>57.7</td>
</tr>
<tr>
<td>1. Husband Earning under $7,000</td>
<td>14.6</td>
</tr>
<tr>
<td>2. Husband Earning $7,000-$10,000</td>
<td>11.4</td>
</tr>
<tr>
<td>3. Husband Earning more than $10,000</td>
<td>31.7</td>
</tr>
</tbody>
</table>

forced to turn to two incomes in order to simply maintain past living standards. Newsweek states:

According to a study of 1970 data, only 46 percent of all jobs in the economy paid enough to sustain the average family at a 'reasonable' level --- and since then, real income hasn't increased very much.31

SOCIETAL TRENDS

A third major factor influencing women's participation in the labor force is that of shifting societal trends. Any discussion of societal trends must make mention of the relationship between women's two sets of roles: at home and at work. With the transfer of production of goods and services from the home to the factory, office, and shop, women have experienced difficulty in combining two major activities of life: economic and reproductive. Prior to the Industrial Revolution and the ushering in of the factory system women could weave broadcloth for the marketplace while caring for young children at home. The activities relevant to the domestic sphere and those of the economic sphere could be substantially carried out under one roof. However, with industrialization masses of girls and women, like men, sought work for wages in the new factories. As a result, the place of economic activity and the place of domestic activity could no longer be one and the same.32

Traditionally, the socially-defined role of women has placed primary emphasis upon the care of children and husbands, and homemaking.

31 Michael Ruby, op. cit.
Other activities were then considered in terms of the extent to which they would impinge on fulfilling those primary responsibilities. As such, in the past women have for the most part been restricted to the societal roles relevant to being a wife and mother. However, changing attitudes toward marriage and family life are affecting and expanding women's roles beyond their traditionally-defined boundaries. Declining birthrates and increased emphasis on smaller-sized families have made it easier for larger numbers of women to work. Over the last decade the nation's birth rate fell from 19.4 per thousand to 14.8 per thousand. This influence is reflected in the fact that during these same ten years the number of women in the work force between the ages of 20 and 34 increased by the largest percentage for any age group during that period: 14 percent. Time-and-labor-saving devices such as electric vacuums, dishwashers, frozen foods, and micro-wave ovens, to mention only a few throughout the kitchen and home, have given women more free time to seek paid employment outside the home. Furthermore, the fact that the economic value of home work is not included in the Gross National Product is also a factor in decisions of whether or not to enter the work force. The research of Kreps (cited earlier) supports this point. Kreps found that married women seem to respond positively to wage incentives. She indicated that the advantages of market work over household work is linked to the value of the latter. Unfortunately, at the present time the precise value of home work from household to household is unknown. Further complicating work force entry

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33 Michael Ruby, op. cit.
34 Ibid.
decisions is the exclusion of the value of home work in the GNP, giving it a market value of zero. In making decisions, families may undervalue home work though according it some value. Kreps concluded that regardless of how it is valued, the economic advantage of work in the market place is perceived as greater than work in the household. 35

According to the editor of Working Woman, Beatrice Buckler,

"As recently as ten years ago, a woman had to defend her position if she wanted to work. Now you only have to go out and ask the nearest housewife what she does and she'll answer, 'Just a housewife.' There's been a tremendous change in attitude." 36

And, as was stated in a recently published organizational behavior text, Human Relations in Business:

Raising children and housework to many women is unrewarding as a full-time or single area of activity. Some women have expressed the opinion that being a housewife is a low-prestige role and is not commensurate with their educational attainment. They reject superficial social activities as a means of utilizing their time and capabilities which might be put to more productive use. 37

Finally,

Most women today and in the foreseeable future will still have to fill a considerable domestic work role, and most are no longer satisfied by this role alone. Women, like men, seek work for satisfaction of the psychological needs of self-actualization, achievement, and social contact, in addition to pay; for many, these needs are no longer met by the exclusive domestic work role. 38

35 Kreps, op. cit.
36 Ruby, op. cit.
38 Agassi, op. cit., p. 291.
As can be seen then, changing attitudes toward marriage, family life, and family size are affecting women's roles. In addition, the increasing numbers of divorces, which have brought many women to the realization that they must now support both themselves and their dependents, mean that larger numbers of women will be searching for new commitments and responsibilities beyond those of the traditionally exclusive domestic roles.

INTRINSIC FACTORS

A final major factor affecting the growth of women's participation in the work force will be classified here as intrinsic and stems from a changing self-concept and the emergence of an internal commitment to work. Of all the reasons why women are working (or seeking work) in greater numbers than ever before, this one is probably the most difficult to substantiate. However, some evidence does exist to support this point. For example, in a 1974 article psychologist Daniel Yankelovich stated that the general emphasis today on personal self-realization is having a strong effect on women. He labels this as the "psychology of entitlement" and asserts that it is affecting the workplace. According to Yankelovich, women are strong believers in the psychology of entitlement, and they expect the work place to provide them with the opportunity for personal self-realization. Support for this view has been provided by the results of a nationwide probability sample of 539 working women and 933 working men in which the researchers

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Crowley, Levitin, and Quinn asked the question, "If you were to get enough money to live as comfortably as you would like for the rest of your life, would you continue to work?" Fifty-seven percent of the women indicated that they would continue to work as compared to seventy-four percent of the men. Analysis of the responses demonstrated most of the sex differences resulted from responses by married women. A comparison of the responses given by single women and men to this same question revealed no significant difference in the percentage who said they would continue to work in the absence of economic need.

Crowley, Levitin, and Quinn explain the low frequency of "yes" answers from married women as follows:

> We suggest that married women in our society have well-defined alternatives to work -- the roles of wife and mother, which provide great psychological rewards. Men and single women do not have such alternatives. Even so, we consider it remarkable that half of the wives in this sample would work without economic need, and thereby rejecting the pressures to be wives and mothers only.\(^4\)

Similar evidence supporting women's desire to work in the absence of economic necessity was reported by Shea\(^5\) in a longitudinal study of a national sample representative of women 30-44 years of age relative to labor market experience. Among the variables investigated were work attitudes, satisfaction, and job attachment, and the findings of the study support the importance of intrinsic job satisfactions as a factor in employment. More specifically, three-fifths of employed

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\(^4\) Crowley, Levitin, and Quinn, *op. cit.*

\(^5\) Ibid., p. 95.

white women and two-thirds of employed black women surveyed indicated that even if they were to receive enough money to live comfortably without working they would continue to work. The researchers labeled this variable "commitment to work" and found that its strength varies depending upon the characteristic of the sample under consideration. For example, "commitment to work" tends to be stronger among non-married than married women, among those without preschool-age children, among those in professional, technical, and managerial occupations, and among those with permissive attitudes towards the employment of women with children. Most of the working women surveyed expressed positive attitudes toward work with less than 10 percent expressing any degree of job dissatisfaction. Job satisfaction was found to be positively associated with occupational level and within major occupational groups, with hourly rate of pay. Greater job satisfaction was found among full-time workers than among part-time workers.

A closely related extension to the concepts of "commitment to work" and intrinsic job satisfaction is that work be self-actualizing. Crowley, Levitin, and Quinn investigated the commonly-held assumption that women are not particularly interested in meaningful work since their other social roles enable them to satisfy the need for self-actualization and personal gratification. In testing the validity of this assumption Crowley, Levitin, and Quinn asked workers to rate "the importance of the opportunity to develop one's special abilities through work," "the importance of the opportunity to do the things that

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Crowley, Levitin, and Quinn, op. cit., p. 95.
one does best," and "the importance of interesting work." As was
stated by the researchers, "Men and women in our sample indicated
approximately equal concern about meaningful work."\textsuperscript{44}

As was mentioned at the beginning of this section on intrinsic
factors, a changing self-concept among women is also affecting their
participation in the work force. Evidence concerning a new self-concept
for women has been provided by Professor O. Jeff Harris\textsuperscript{45} in his survey
of 150 male and female undergraduate students. In formulating his
study, Dr. Harris cited literature\textsuperscript{46} which indicated that women should
expect to encounter problems with their self-confidence and self-esteem
as they enter into and participate in the work force. In particular,
previous literature on this topic points to men being perceived both by
others as well as by themselves as being self-confident, whereas women
are stereotyped both by others as well as by themselves as being
insecure and lacking in self-confidence. Furthermore, these percep­tions
are frequently directly linked to behavior. Dr. Harris's

\textsuperscript{44}Ibid.
\textsuperscript{45}O. Jeff Harris, "Is Self-Concept a Limiting Managerial Factor
for Women?" in Toward Renewal in Management Thought and Practice, Pro­ceedings of the Southern Management Association, Dennis Ray and Thad
Green, (eds.), Mississippi State University (November, 1978), pp. 42-44.
\textsuperscript{46}Some of the sources cited by Dr. Harris include:
Paul Rosencrantz, Susan Vogel, Helen Bee, Inge Broverman, and
Donald Broverman, "Sex-Role Stereotypes and Self-Concepts in College
(June, 1968), pp. 287-295.
Sandra Bem, "Fluffy Women and Chesty Men," Psychology Today,
Vol. 9, No. 4 (September, 1975), p. 60.
Martha Boddez, "An Analysis of the Self-Concept and the Impact
of Success-Failure Upon the Self-Concept of Junior High Students,"
St. Louis University Research Journal, Vol. 4, No. 4 (December, 1973),
p. 528.
investigation of the possibility of differences between males and females in the areas of self-perception and perception of others produced findings counter to those of previous studies. The results showed that in no area in the categories of self-perception of others did women rate significantly lower than men and that in several areas female perceptions (self and others) were significantly higher.

In discussing these findings, Dr. Harris states:

While it is possible that this sample might not be universally typical, there may be some important explanations for the fact that the women's scores in the sample were equal or higher in many areas than those of the men. In their earlier study, Rosencrantz, et. al. indicated that women were not, in fact, inferior, but were suffering from a cultural lag. It is possible that the cultural lag has now been overcome and today's woman has actually come to see herself as equal to men in confidence and ability. Self-concepts, in other words, may be changing significantly.  

In summary then, for economic, judicial-legislative, societal, and intrinsic reasons, women are entering the work force in greater numbers than they have in the past. At the same time, very little is known about what actually motivates women at work. In this writer's opinion, there is a great imbalance between what is known about why women are entering the labor force and their "at work" motivation. Much of that which has been written concerning the motivation of women at work can be termed and has been termed "mythology" and "stereotyping" by organizational behavioralists and personnel specialists. For example, consider the following representative quotes:

47Harris, op. cit., p. 44.
Despite the facts shown in the statistics, many myths still surround women workers. 48

We believe there is a great deal of myth in both the popular and scientific views about male-female differences 49 ... We must conclude from our survey of all the data that many popular beliefs about the psychological characteristics of the two sexes have little or no basis in fact. 50

The approach, an examination of the mythology of sex discrimination, is based on the view that mythologies—a body of related myths—reflect past cultural or societal norms. At the peak of their acceptance, myths are seldom recognized as such. They are taken as facts and reality by their contemporaries. Only when new realities replace the old ones are old 'realities' recognized as myths. Thus, myths simply reflect past beliefs, attitudes, and, in general, standards of behavior. 51

It would appear that management theorists and practitioners need something more concrete than mythology to guide them in their efforts to motivate the rapidly growing ranks of women at work. This study will attempt to make this kind of much-needed contribution by examining the motivation of women at work through the formulation, testing, and evaluation of hypotheses relevant to Maslow's need hierarchy theory and the Porter-Lawler motivational model. Before stating those hypotheses, however, it is important to set forth the general methodological framework within which this study will be conducted. The following section does just that.

49 Eleanor Maccoby and Carol Jacklin, "What We Know and Don't Know about Sex Differences," Psychology Today, Vol. 8, No. 7 (December, 1974), p. 109.
50 Ibid., p. 112.
GENERAL METHODOLOGICAL ASPECTS OF THE STUDY

RATIONALE

Since this study is concerned with the applicability of Maslow's need hierarch theory and the Porter-Lawler motivational model, it was decided to utilize a methodology similar to that used by Porter and Lawler in Managerial Attitudes and Performance. As such, it becomes important to distinguish between experimental and correlational studies.

Experimental studies usually have the experimenter produce change in one variable in order to observe the effects on a second variable. Cause and effect relationships can be established through experimental investigations. However, the big disadvantage with experimental studies in the field is the difficulty of securing cooperation by organizations in order to produce changes in variables and in order to control extraneous variables.

Correlational studies do not involve any experimenter-induced changes on a variable to observe its effects on a second. Rather, they focus on the relationship between the two variables. Probably the biggest limitation of correlational studies is their inability to directly prove the existence of the cause and effect relationships that are stated in a given conceptual model. However, these types of studies can demonstrate whether two variables tend to be related at a fixed point in time. Thus, if a close relationship between variables is demonstrated as predicted, support would exist for the model, but a

cause and effect relationship would not be established. However, if the model predicts that a relationship between variables exists but no such relationship were to be found, then it is possible for a correlational study to disprove past of the model. In summary then, correlational studies can disprove but can never prove that a causal relationship exists. Rather, the value of correlational studies is that if they demonstrate that a relationship between variables exists, then a later experimental study can be designed to investigate why this relationship does exist.

With the above factors in mind it seemed that the purpose of this investigation could best be served by a correlational study: an approach making it possible to view a number of attitude variables relative to performance. Insofar as testing the predictions of the Porter-Lawler model are concerned, this is the crucial factor.

Since this study concerns attitude variables, the research instrument possibilities centered on either interviews or questionnaires. Since this investigator has had no formal interview training and could possibly bias the results as a result of improperly conducted interviews, a questionnaire was decided upon. Further support for a questionnaire was given by both the nature and size of the sample under consideration: the entire female faculty of four out of five of the campuses of the Louisiana State University System in Baton Rouge, New Orleans, Alexandria, and Shreveport. A further advantage of questionnaire usage was that it would allow for a more heterogeneous sampling than would be possible through interviews. In addition, this broader sampling would help insure that the attitude and performance data gathered would not be peculiar to a particular department or campus.
but rather would be generalizable to female faculty in the Louisiana State University System. Finally, in an attempt to obtain the most honest answers possible, it was felt that complete anonymity should be assured to each member of the sample. Questionnaires seem to be more conducive to anonymity than do face-to-face interviews.

THE QUESTIONNAIRE — ATTITUDE MEASURES AND JOB BEHAVIOR MEASURES

The data for this investigation was obtained through the administration of a multi-section questionnaire. A complete copy of the questionnaire that was sent to the sample can be found in Appendix I. Permission for use of the questionnaire was secured in writing from Lyman Porter as evidenced by the letter in Appendix III of this paper.

The attitude measures are drawn from the "Pay Questionnaire" and the "Need Satisfaction and Role Perception Questionnaire." The behavior measures are drawn from the "Self-Rating Form." Specifically, the questionnaire contains sections relevant to the following five areas:

Need Satisfaction The need satisfaction section contains 19 items which are related to Maslow's need hierarchy. For each of these items both the degree of satisfaction with that item and the importance of that item to the individual will be measured.

Role Perceptions The purpose of the role perception section is to obtain information concerning the type of role behavior considered by the respondents to be required for success on the job.

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53 See Appendix I and Appendix II of Managerial Attitudes and Performance, pp. 185-193.
54 See Appendix III of Managerial Attitudes and Performance, p. 194.
Pay as a Satisfier  The questions concerning pay as a satisfier will investigate the respondents' attitudes toward money as a motivator of performance.

Self Rating  This section of the questionnaire asks the respondent to rate herself relative to other female faculty members on the basis of: amount of effort expended on the job, productivity on the job, and quality of job performance. The topic of this study, faculty attitudes and performance, played a large part in the determination of the type of measure of job performance to be used in the investigation. Other than publications as an objective measure of one aspect of performance "productivity" records that would enable an objective evaluation of faculty performance typically do not exist. In addition, the problem of measuring performance is further compounded by the fact that faculty members are expected to be productive in the teaching and research areas and on committee and administrative assignments as well. To rely solely on publications then would be only a partial measure of performance. As such, the decision was made to use self-ratings of job performance. The underlying assumption for this decision was that a faculty member is in a reasonable position to evaluate her own performance in the teaching, research, publication, committee, and administrative areas, and that these areas represent a more complete measure of job performance. Finally, this study employed global ratings (quality of job performance) as did the Porter-Lawler study. While composite ratings on a number of specific traits could have been used, Porter and Lawler feel that global performance ratings can be reliable and valid measures of behavior.
Before leaving this section, an additional comment needs to be made on the job behavior measures (self-ratings). As can be seen, only self-ratings of effort, productivity, and performance are being used in this study, whereas in the original Porter-Lawler investigation, both self-ratings and superior rankings were used. The assumption here is that the individual is often in a better position to evaluate her job performance relative to others than is her superior. This, however, should by no means be construed to suggest that superior's rankings of job behavior are unimportant. Quite the opposite is suggested, for it is on the basis of these rankings that promotions, tenure, terminations, and salary increases are made. Nevertheless, self-ratings gain importance from the individual's standpoint since they are used to determine how adequate their rewards are as compared with their contribution to the organization. In other words, returns are measured against perceived inputs. Thus, self ratings are an important area that affect both satisfaction and performance.

Table II presents the correlation coefficients and their levels of significance among the three self-rated measures of job performance.

55 Using Pearson product-moment correlation coefficients among the self- and superior rankings of job behavior measures, Porter and Lawler found a substantial, though far from perfect, relationship between the self-ratings of effort and performance. This finding, however, is in accordance with the model since effort is only one factor that influences performance. Abilities and role perceptions also influence performance.

On the other hand, the relationship between the self-ratings of performance and the superiors rankings of performance was very low (r=.03). Another low relationship was discovered between the self-ratings of effort and the superiors' rankings of effort (r=.20). Porter and Lawler explained that the cause of these low relationships could be found in differences in superior and subordinate role perceptions about what constituted good job performance.
TABLE II
RELATIONSHIPS AMONG MEASURES OF JOB PERFORMANCE

<table>
<thead>
<tr>
<th></th>
<th>Self-Rating of Productivity</th>
<th>Self-Rating of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Rating of Job Performance</td>
<td>(.0001)*</td>
<td>(.0001)*</td>
</tr>
<tr>
<td></td>
<td>.7549</td>
<td>.6849</td>
</tr>
<tr>
<td>Self-Rating of Productivity</td>
<td></td>
<td>(.0001)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.7163</td>
</tr>
</tbody>
</table>

* p<.01
N = 186

These correlations indicate a high degree of relationship among the three self-ratings. Thus, as indicated, faculty members who rate themselves as having high job performance also rate themselves as having high productivity and high effort. It is interesting to note that of the three correlations, the one between performance and effort is the lowest. This is consistent with the Porter-Lawler model. As indicated by the model, depicted on page 98, the relationship between effort and performance is moderated by role perceptions and also by abilities. Thus, at the earliest stages of this investigation the data is consistent with what one would expect from the model. In other words, based on a correlation coefficient of .6849, a less than perfect relationship exists between effort and performance.

**Demographic Data** Demographics will help in the statistical analysis of the data.

**DESCRIPTION OF RESEARCH SITES**

This study was carried out on four of the five campuses of the Louisiana State University System: Louisiana State University in Baton Rouge, University of New Orleans, Louisiana State University in Shreveport, and Louisiana State University in Alexandria.

Louisiana State University in Baton Rouge (LSU), in addition to offering a four-year undergraduate program in a wide range of majors, also offers a substantial graduate program in both the master's and doctoral degree areas. Final enrollment figures of the Fall Semester, 1976 revealed a total student enrollment of 24,596 students.

The University of New Orleans first opened its doors to students in September of 1958 and by the 1961-62 academic year was operating as
a full four-year, degree-granting university. Since that time it has added a number of master and doctoral degree programs. Final enrollment figures for the Fall Semester, 1976 revealed a total student body of 14,047.

Louisiana State University in Shreveport began its first session in September of 1967 by offering basic freshman courses. By 1974 junior and senior-level courses were included in the curriculum. At the present time many Bachelors degree curricula are available in the Colleges of Business Administration, Education, Liberal Arts, Sciences, and General Studies. Also offered at the Shreveport campus are two-year associate degree programs. Final enrollment figures for the Fall Semester, 1976 revealed a total student enrollment of 3,095.

Louisiana State University in Alexandria was established to offer a two-year basic program of college instruction. The first freshman class was admitted in September of 1960. The Fall Semester, 1976 enrollment figures showed a total student population of 1,506.

**SAMPLE AND PROCEDURE**

The questionnaire used in this investigation was distributed to 418 female faculty at the four campuses described above. This represents all of the female faculty currently employed by the four campuses of the Louisiana State University System as listed in the 1976-1977 Staff-Student Directories. These directories are published once a year in the Fall Semester by each of the universities. From this total, one hundred eighty-six (186) usable questionnaires were returned, yielding a total response rate of 44.49 percent. The faculty positions represented in this study included instructor, assistant professor,
associate professor, full professor, and special lecturer. Table III presents the response rates for each of the four campuses surveyed. Table IV presents the characteristics of the respondents.

Of course, the sample used in this study cannot be said to represent the attitudes of all female faculty members currently employed in universities. As such, any conclusions will be confined to the sample under consideration. However, consideration of the following factors will indicate that the sample does represent a reasonable cross-section of female faculty. First, the sample was drawn from both large and small campuses which vary in their offerings from two-year degree programs to doctoral programs and from every department in which a female faculty member is employed. Secondly, the trend in hiring practices is for universities to seek faculty inputs from all over the country and to shy away from hiring their own graduates. Finally, it was hoped that the response rates obtained from the four campuses would guarantee an adequate sampling of female faculty. See Table III.

DESCRIPTION OF DATA ANALYSIS METHODS

As was stated earlier, one of the purposes of this study is to investigate the applicability of Maslow's need hierarchy theory. Four hypotheses designed to test this theory of the relationship between need satisfaction and need importance will be stated. The statistical method that will be employed to test these hypotheses is a correlation coefficient. Correlational studies focus on the relationship between two variables at a fixed point in time. While correlational coefficients cannot prove whether a cause-and-effect relationship exists between the variables being investigated, they can demonstrate both
<table>
<thead>
<tr>
<th>Campus</th>
<th>Number of Questionnaires Sent</th>
<th>Number of Questionnaires Returned Per Campus</th>
<th>Percentage of Questionnaires Returned Per Campus</th>
<th>Number of Questionnaires Returned as Percentage of Total Sent (418)</th>
<th>Number of Returned Questionnaires as Percentage of Total Returned (186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana State University</td>
<td>192</td>
<td>85</td>
<td>44.27%</td>
<td>20.33</td>
<td>45.70</td>
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<tr>
<td>University of New Orleans</td>
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<td>57</td>
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<td>30.64</td>
</tr>
<tr>
<td>Louisiana State University in Shreveport</td>
<td>38</td>
<td>23</td>
<td>60.53%</td>
<td>5.50</td>
<td>12.37</td>
</tr>
<tr>
<td>Louisiana State University in Alexandria</td>
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<td>21</td>
<td>52.50%</td>
<td>5.02</td>
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</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>418</strong></td>
<td><strong>186</strong></td>
<td></td>
<td><strong>44.49%</strong></td>
<td><strong>44.49%</strong></td>
</tr>
</tbody>
</table>

Response Rate: 44.49%
### TABLE IV

**CHARACTERISTICS OF RESPONDENTS**

<table>
<thead>
<tr>
<th>RESPONDENTS (N)</th>
<th>186</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisiana State University</td>
<td>85</td>
</tr>
<tr>
<td>University of New Orleans</td>
<td>57</td>
</tr>
<tr>
<td>Louisiana State University in Shreveport</td>
<td>23</td>
</tr>
<tr>
<td>Louisiana State University in Alexandria</td>
<td>21</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>MEAN AGE (YEARS)</th>
<th>39.30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MARITAL STATUS</th>
<th>Number</th>
<th>Percentage of Total Respondents (186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>65</td>
<td>34.94</td>
</tr>
<tr>
<td>Separated, Divorced</td>
<td>22</td>
<td>11.83</td>
</tr>
<tr>
<td>Married with Dependents</td>
<td>64</td>
<td>34.42</td>
</tr>
<tr>
<td>Married without Dependents</td>
<td>35</td>
<td>18.82</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>EDUCATIONAL ATTAINMENT</th>
<th>Number</th>
<th>Percentage of Total Respondents (186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor's Degree</td>
<td>1</td>
<td>.54</td>
</tr>
<tr>
<td>Some Graduate Work Beyond Bachelor's</td>
<td>12</td>
<td>6.45</td>
</tr>
<tr>
<td>Master's Degree</td>
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</tr>
<tr>
<td>Some Graduate Work Beyond Master's</td>
<td>73</td>
<td>39.25</td>
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<tr>
<td>Doctoral Degree</td>
<td>51</td>
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</tr>
<tr>
<td>Post-Doctoral Work</td>
<td>11</td>
<td>5.91</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100.00</td>
</tr>
</tbody>
</table>

| MEAN TIME IN PRESENT UNIVERSITY POSITION (YEARS) | 5.80 |
| MEAN TOTAL TIME WITH THE UNIVERSITY (YEARS)     | 7.66 |
| MEAN ANNUAL UNIVERSITY SALARY BEFORE TAXES     | $13,417.00 |

Cont'd
<table>
<thead>
<tr>
<th>POSITION TITLE</th>
<th>Number</th>
<th>Percentage of Total Respondents (186)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor</td>
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<td>41.41</td>
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<td>Assistant Professor</td>
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<td>Associate Professor</td>
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<tr>
<td>Full Professor</td>
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<tr>
<td>Special Lecturer</td>
<td>9</td>
<td>4.84</td>
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<tr>
<td>Other</td>
<td>4</td>
<td>2.15</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100.00</td>
</tr>
</tbody>
</table>
whether the variables are related to one another, as well as the degree, or strength, of that relationship.

The second major purpose of this study is to investigate the relationships specified in the Porter-Lawler motivational model. As such, the statistical method to be employed should be one that will determine whether consistent and statistically significant relationships exist between the attitude and performance data.

While correlational coefficients could be used in the Porter-Lawler part of the study, they do pose some disadvantages in testing attitude and performance relationships. Correlational coefficients require that both variables be scaled to equal interval scales. (As can be seen in Appendix I, the scales for "Pay as a Satisfier" and "Role Perceptions" differ from those of "Need Satisfaction" and the "Self-Rating Form.".) Secondly, correlational coefficients do not readily lend themselves to graphic presentations. Porter and Lawler believed, however, that graphic presentations would be needed to present the results of the attitude-performance investigation.

The above disadvantages can be eliminated through the selection of a different statistical method: that of dividing the sample into high and low groups on the basis of one variable and then comparing these high and low group scores on a second variable. This high-low comparison method, therefore, does not require that both variables be scales on equal-interval scales. In addition, this method facilitates graphic communication of the relationships between the variables. As pointed out by Dr. Lesikar,
Because reports frequently must communicate complex and voluminous information, you are likely to have difficulty making words do the job. In statistical analysis, for example, you are likely to get your reader lost in a maze of data as you tell the report's story in words. ... Frequently, in such cases you will need to use pictures of one kind or other to help communicate your information.\footnote{Raymond Lesikar, Business Communication -- Theory and Application, Irwin, Homewood, Illinois, 1976, p. 365.}

In utilizing the high-low comparison method, the greater the difference between the groups on the second variable, the stronger is the relationship between the variables. In this study the groups were split into highs and lows on the basis of the top and bottom one-third of the scores on one variable. Thus, in testing a proposed relationship between variables, one variable will be the criteria (for example, performance) upon which the group is split into its top one-third and bottom one-third. The second variable in the relationship is the factor (for example, satisfaction) upon which the high and low groups are to be compared to determine if any significant difference exists between them. As in the case of the original Porter-Lawler study, "By looking at the top third and bottom third it was hoped that two clearly different groups would be obtained."\footnote{Porter and Lawler, Managerial Attitudes and Performance, \textit{op. cit.}, p. 53.} The performance and effort self ratings and the number of respondents reporting those self ratings are shown in Table V. On the basis of the responses obtained, self ratings of 1, 2, 3, 4, 5 were designated "bottom third." Self-ratings of "7" were designated "top third." A self rating of "6" on either variable was omitted from the analysis.
<table>
<thead>
<tr>
<th>Self-Rating</th>
<th>PERFORMANCE</th>
<th></th>
<th>EFFORT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>1.61</td>
<td>4</td>
<td>2.15</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0.00</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>0.54</td>
<td>5</td>
<td>2.69</td>
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<tr>
<td>4</td>
<td>9</td>
<td>4.84</td>
<td>10</td>
<td>5.37</td>
</tr>
<tr>
<td>5</td>
<td>34</td>
<td>18.28</td>
<td>27</td>
<td>14.52</td>
</tr>
<tr>
<td>6</td>
<td>88</td>
<td>47.31</td>
<td>65</td>
<td>34.95</td>
</tr>
<tr>
<td>7</td>
<td>51</td>
<td>27.42</td>
<td>75</td>
<td>40.32</td>
</tr>
<tr>
<td>Total</td>
<td>186</td>
<td>100.00</td>
<td>186</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean Self-Rating | 5.88 | 5.96
Variance          | 1.10 | 1.55
Thus, as can be seen in Table V, a total of 47 observations comprise the bottom third performance designation, whereas 51 observations comprise the top third. The bottom third mean performance rating is 4.51. The mean performance rating for the top third is 7.00. Insofar as the effort variable is concerned, the bottom third is comprised of 46 observations, while the top third is comprised of 75 observations. The bottom third mean performance rating is 4.22. The mean effort rating for the top third is 7.00.

The statistical test used to determine the significance of the difference between the mean scores of the high and low groups was a "t-test." The larger the t-value, the stronger the relationship existing between the two variables upon which it is based. The t-test investigates the absolute differences between the two means in comparison with the standard error. This statistical test is based on the assumption that the two samples come from the same universe and that there is no difference between the two means (that is, the difference between the means is equal to 0). This hypothesis is called the null hypothesis. It states that any relationship, or difference, existing between the variables being tested is purely chance; in other words, the relationship, or difference, found is merely due to sampling. The null hypothesis is then tested (by means of t-tests) to find out whether it is true or not. If the assumption is found to be false, then the sample results are considered to be statistically different and the null hypotheses is rejected.

Tests of significance are subject to Type I and Type II errors. A Type I error (alpha) is the probability of rejecting an hypothesis
when in fact it is true. The probability of making a Type I error is the level of significance, or risk, to be employed. The level of significance is stated in advance and is usually selected from the 0.10, 0.05, or 0.01 levels of significance. Type I errors can be limited by properly choosing a level of significance. The level of significance to be used in this study is $\alpha = 0.05$. In other words, if the null hypothesis is rejected, there is a 95 percent level of confidence that this was the correct action. There would then be only a 5 percent probability that the hypothesis should have been accepted; that is, was "true." A Type II error (beta) is the probability of accepting an hypothesis when in fact it is false.
CHAPTER II

THE APPLICABILITY OF MASLOW'S NEED HIERARCHY THEORY

As was mentioned in the "Introduction" section of this study and will be continued here, one of the most popular theories of human motivation was proposed by Abraham Maslow in 1943. He identified five sets of needs -- physiological, safety, love (social), esteem, and self-actualization -- and theorized that man's attempts to satisfy those needs were the basis for motivation. More specifically, Maslow's theory rests on the following propositions:

1. All human needs are arranged in a hierarchy of "prepotency" (urgency of drive) ranging from the most basic physiological needs to safety, love (social), esteem, and self-actualization needs. According to Maslow, only unsatisfied needs motivate behavior. And, relatedly, once a need is relatively well-gratified, it no longer actively motivates behavior. Thus, once the most basic needs are satisfied the potency, or importance, of those needs diminishes and the next higher level of needs will emerge to dominate behavior. Maslow's hierarchy is shown in Figure 1.

Movement along the hierarchy can take place in either an upward direction, as just described, or a downward direction if a lower-level need has been threatened. For a person who breathes regularly and adequately, the need for oxygen ceases to be a dominant motivator. However, if that person becomes trapped in a smoke-filled room, his

---

Figure 1. Maslow's Need Hierarchy

- Physiological
- Safety
- Social
- Esteem
- Self-Actualization
needs for companionship, esteem, and self-actualization are minimized and the need for oxygen to breathe becomes his dominant motivator. As was suggested by Maslow: man lives by bread alone -- when there is no bread.59

2. All humans are continually wanting creatures. As such, all needs are never completely satisfied. Once a need is satisfied its prepotency decreases and another need arises to replace it. This is a constantly on-going process and serves to motivate people to satisfy their needs. In a later writing Maslow modified the prepotency concept for people who are predominantly growth-motivated.60 For these people, as higher-order esteem and self-actualization needs are gratified, their prepotency increases.

3. As can be seen in Figure 2, the categories of needs are interdependent and overlapping. Since one need doesn't completely disappear when another emerges, all needs tend to be partially satisfied in each area.

Each of Maslow's five need categories are briefly described below in the theorized order of their prepotency.61

Physiological Needs. Physiological needs are those necessary to sustain life on both a short-run and long-run basis. They include the need for food, water, air, sleep, elimination, temperature regulation, and mating.


Figure 2. Interdependent Relationship of Need Levels

Once a need is relatively well-satisfied, it ceases to act as a dominant motivator of behavior and the next need level emerges to dominate behavior. However, since one need doesn't completely disappear when another emerges, all needs tend to be partially satisfied in each area.

Safety (Security) Needs  Once the physiological needs are fairly well-satisfied, the next higher need level, safety, emerges to dominate behavior. This category includes the desire for protection against danger, threat, and deprivation; the desire for stability, predictability, order, and economic security; and, preference for the familiar rather than the unfamiliar.

Social (Love) Needs  Social needs become active motivators of behavior when both the physiological and safety needs are relatively well-satisfied. Social needs include belonging, association, acceptance by others, and giving and receiving friendship and love.

Esteem  Esteem needs dominate behavior only after the lower-level physiological, safety, and social needs are reasonably gratified. This category can be divided into two areas: self-esteem and esteem of others. Self-esteem needs include self-confidence, self-respect, competence, independence, and freedom. Satisfaction of these needs leads to feelings of self-confidence, worth, strength, capability, adequacy, and of being useful and necessary in the world. The lack of opportunity to satisfy these needs results in feelings of inferiority, weakness, and helplessness. The esteem of others includes the desire for reputation or prestige, status, recognition, attention, importance, and appreciation.

Self-Actualization  Only after all of the other need categories have been satisfied will self-actualization needs emerge. "What a man can be, he must be. This need we may call self-actualization."

Ibid., p. 34.
Self-actualization needs include the realization of one's potentialities, self-fulfillment, continued self-development, and being creative in the broadest sense of the term. It involves a desire to become more and more what one has the potential to be.

HYPOTHESES

Based on Maslow's need priority model the first hypotheses of this study can be stated as follows:

HYPOTHESIS I: The strength (importance) of a given need level will be positively related to the satisfaction of the prior need level.

In other words, higher-level needs emerge only as lower-level needs are satisfied. For example, satisfaction of safety needs should lead to the emergence of the importance of social needs. And, according to the priority concept, esteem needs become active motivators of behavior only after social needs have been relatively well-satisfied.

Subsequent to the publication of Maslow's need priority model, many social scientists advocated the idea of self-actualizing work. However, they have been criticized as prescribing to all workers those values that are more appropriate for higher occupational and status levels. In fact, Frank Friedlander has stated that,

> implicit in these prescriptions are poten value judgments which, with their strong emphasis on individual dignity, creative freedom, and self-development, bear all the earmarks of academic origin.63 (The under-scoring is this writer's addition.)

However, it is precisely this criticism as well as others of a similar vein that provide the basis for a second hypothesis.

HYPOTHESIS II: University faculty with satisfied lower-level needs (physiological, security, social) occupying positions offering opportunity to fulfill higher-level needs (esteem and self-actualization) on the job will consider these higher level needs to be important on the job.

Maslow's theory of motivation as first stated in 1943 suggested the strength (importance) of a given need would decrease following its satisfaction. However, Maslow later modified his theory for people who are predominantly growth-oriented. For these people, gratification does not lead to decreased importance, but instead to increased motivation. As such, Maslow's original theory and its revision provide the basis to formulate two more hypotheses:

HYPOTHESIS III: Satisfaction of lower-level physiological, security, and social needs will lead to decreased importance of those needs.

HYPOTHESIS IV: Satisfaction of higher-order esteem and self-actualization needs by university faculty will not lead to decreased importance of those needs, but rather, the strength (importance) of those needs will tend to remain constant.

ATTITUDE MEASURES

Lyman Porter and Edward Lawler III are two of the foremost researchers in the area of need fulfillment, satisfaction, and importance in organizations. Therefore, it was decided to gather the data needed to test the four above hypotheses by using the Porter and Lawler "Need Satisfaction" and "Satisfaction with Pay" questionnaires and to modify them slightly to survey university faculty. The Porter and

---

Lawler questionnaire is an adaptation of Maslow's theory and covers four different types of needs: security, social, esteem, and self-actualization. The essential feature of this questionnaire is that the items have been preclassified into one of four types of needs. Maslow's fifth category of needs, physiological, was not included in the Porter and Lawler "Need Satisfaction" questionnaire. Their rationale for excluding the physiological needs from the questionnaire was "since these needs are presumably so adequately satisfied for any managerial person, questions concerning them would appear irrelevant and unnecessary to the respondent." However, as a result of changing economic conditions surrounding academic personnel, it was decided to include two questions covering the physiological needs category. They were drawn from Robert Schaffer's "Need Satisfaction in Work Scales" and are comparable in structure to those of Porter and Lawler. Finally, this questionnaire will include two additional items that Porter and Lawler considered to be specific to more than one need category and as such are listed separately.

The categories of needs and the two additional items are listed below and are arranged in hierarchical order from lowest (most prepotent) to highest (least prepotent). These need items will be randomly arranged in the actual questionnaire sent to the sample.

---

See also, Lyman Porter, "Job Attitudes in Management: I." op. cit.

67 Lyman Porter, "A Study of Perceived Need Satisfactions in Bottom and Middle Management Jobs," op. cit., p. 3.

I. PHYSIOLOGICAL NEEDS

1. The feeling that my income from the university allows me to adequately house and clothe myself and my family.

2. The feeling that my income from the university allows me to adequately feed myself and my family, and to adequately meet our medical and dental needs.

II. SECURITY NEEDS

1. The feeling of security in my university position.

2. The opportunity, in my university position, to get all the help and guidance I need.

III. SOCIAL NEEDS

1. The opportunity, in my university position, to give help and assistance to other people.

2. The opportunity, in my university position, to develop close friendships.

IV. ESTEEM NEEDS (SELF-ESTEEM AND ESTEEM OF OTHERS)

Self-Esteem

1. The feeling of self-esteem a person gets from being in my university position.

2. The opportunity, in my university position, to do work that is challenging and yet is easy enough for me to do a decent job at it.

3. The opportunity for independent thought and action in my university position.

Esteem of Others

1. The prestige of my university position within the university.

2. The prestige of my university position outside the university (that is, the regard received from others not in the university).

3. The authority connected with my university position.
V. SELF-ACTUALIZATION NEEDS

1. The opportunity for personal improvement and development in my university position.

2. The feeling of worthwhile accomplishment in my university position.

3. The opportunity available to me in my university position for participation in determining methods and procedures.

4. The opportunity, in my university position, for participation in the setting of goals.

5. The feeling of self-fulfillment a person gets from being in my university position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities).

VI. NON-SPECIFIC ITEMS

1. The pay for my university position.

2. The feeling of being informed in my university position.

For each of the above nineteen items, each member of the sample will be asked the following questions and will be requested to indicate her response on a 7-point Likert-type rating scale as follows:

The opportunity, in my university position, to develop close friendships:

a. How much is there now? 1 2 3 4 5 6 7 (Min) (Max)

b. How much should there be? 1 2 3 4 5 6 7

c. How important is this to me? 1 2 3 4 5 6 7

A check on "1" on a given rating scale means there is a minimum amount and a check on a "7" means there is a maximum amount of that item (as perceived by the respondent). Using the responses on these rating scales, three areas will be measured: need fulfillment, need satisfaction, and need importance.
To measure need **fulfillment**, the response to question (a), **HOW MUCH IS THERE NOW?**, for each of the nineteen items will be used. The higher the value, the greater the perceived need fulfillment of the respondent.

The operational definition of need **satisfaction** will be the difference between the degree of fulfillment and the degree of expectation with respect to a given need. It is a deficiency measure. Therefore, the measure of need satisfaction will be obtained by subtracting the response from question (a), fulfillment, from the response to question (b), expectation (**HOW MUCH SHOULD THERE BE?**) for each of the nineteen items. Higher values indicate greater perceived need dissatisfaction, or, the smaller the degree of satisfaction. According to Porter, the indirect derivation of measuring perceived need satisfaction has two advantages:

The subject is not asked directly concerning his satisfaction. Therefore, any tendency for a simple "response set" to determine his expression of satisfaction is probably reduced somewhat. It is more difficult, although by no means impossible, for the respondent to manipulate his satisfaction measure to conform to what he thinks he "ought" to put down versus what he actually feels to be the real situation. Secondly, this method of measuring need fulfillment is a more conservative measure than would be a single question concerning simple obtained satisfaction. ... In effect this method asks the respondent, "how satisfied are you in terms of what you expected from this particular position?".

To measure need **importance**, the response to question (c), **HOW IMPORTANT IS THIS TO ME?**. for each of the nineteen items will be used. In this area higher values indicate greater need importance.

---

69 Porter, "Job Attitudes in Management: I." op. cit., p. 378.
Scores for an individual respondent for each category of needs will be obtained by averaging the response to each of the items in a given category as shown at the beginning of this section.

It should be mentioned here that the Porter and Lawler method of measuring satisfaction, as explained above, has had a great deal of exposure and yet has not been accompanied by a great deal of criticism. Suffice it to say here that no "improved" measure of satisfaction has been offered by the critics. In fact, in an article entitled "Measurement and Meaning of Job Satisfaction," John Wanous and Edward Lawler review nine operational definitions of job satisfaction and demonstrate that it is possible to validly measure people's satisfaction with different aspects of their jobs. In their discussion they conclude that, "As far as the measurement of satisfaction is concerned, the data suggest that there is no one best way to measure it."71

TESTS OF HYPOTHESES AND RESULTS

Hypothesis I  The first hypothesis was formulated to investigate the relationship between the satisfaction of one level of needs and the strength, or importance, of the next higher level of needs. Specifically, it is hypothesized that the strength (importance) of a given need level will be positively related to the satisfaction of the prior need level; or, the satisfaction of one level of needs is related to the emergence of the importance of the next higher level of needs.

71 Ibid., p. 104.
In order to test this hypothesis it will be necessary to use a category average to represent the strength score (need importance) and the satisfaction score for each of the five needs for the total respondents. The category average for need satisfaction was calculated by adding the satisfaction scores for each of the needs considered and then dividing by the number of questions covering that particular need category. A similar procedure was used to determine the category average for the need importance scores. The number of questions asked for each need category are as follows:

- Physiological: 2
- Security: 2
- Social: 2
- Esteem: 6
- Self-Actualization: 5

The results are presented in Table VI. If the data supports the hypothesis one would expect negative correlational coefficients for the need satisfaction category under consideration and the next higher level of need importance. In other words, as the satisfaction of one level of needs increases, the importance of the next higher level should also increase. While this latter sentence might seem contradictory with the expectation of negative correlational coefficients, it is not. Methodologically, increases in satisfaction were measured by movement from higher valued numbers to lower valued numbers. Satisfaction is a deficiency measure.

As can be seen in Table VI the only negative correlation generated was between physiological satisfaction and security importance.
TABLE VI

CORRELATIONS BETWEEN NEED SATISFACTION AND NEED IMPORTANCE FOR THE TOTAL RESPONDENTS** (N = 186)

<table>
<thead>
<tr>
<th>NEED SATISFACTION</th>
<th>Physiological</th>
<th>Security</th>
<th>Social</th>
<th>Esteem</th>
<th>Self-Actualization</th>
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<tr>
<td>Physiological</td>
<td>(.0028)</td>
<td>(.4541)</td>
<td>(.7403)</td>
<td>(.5766)</td>
<td>(.4164)</td>
</tr>
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<td></td>
<td>.21765*</td>
<td>-.05522</td>
<td>.02446</td>
<td>.04120</td>
<td>.05994</td>
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<td>Security</td>
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<td>.24402*</td>
<td>.15051</td>
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<td>Social</td>
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<td>(.0033)</td>
</tr>
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<td></td>
<td>.15873</td>
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<td>.20853*</td>
<td>.24259*</td>
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<tr>
<td>Esteem</td>
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<td>(.0011)</td>
<td>(.3552)</td>
<td>(.0001)</td>
<td>(.0001)</td>
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<td>.23715</td>
<td>.06817</td>
<td>.42170</td>
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<tr>
<td>Self-Actualization</td>
<td>(.0369)</td>
<td>(.1201)</td>
<td>(.6145)</td>
<td>(.0016)</td>
<td>(.0001)</td>
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<td>.11436</td>
<td>-.03717</td>
<td>.23008</td>
<td>.27496*</td>
</tr>
</tbody>
</table>

**To aid in interpretation: The methodology of this study was such that a positive correlation means that high satisfaction is associated with low importance.

NOTE: Hypothesized relationships are underlined.
Levels of significance are indicated in parentheses.

* p<.01

The data presented in Table VI indicate that Maslow's theorized relationship between the satisfaction of one need level and the strength of the next higher need level is not supported. The only relationship in the expected direction was that between physiological satisfaction and security importance. However, the correlation was extremely low and was not significant.
(r = -.0552). However, the low value obtained was not statistically significant (p = .4541). The remaining 3 correlational relationships between satisfaction and importance were positive. Two of these three relationships, social satisfaction-esteem importance (r = .2425, p = .0008) and esteem satisfaction-self-actualization importance (r = .2793, p = .0001) reached high levels of statistical significance. This indicates that contrary to Maslow's theory, upon which Hypothesis I was based, the importance of a given need level does not increase (emerge) following the satisfaction of a prior need level. Taken as a whole, the data do not offer support for Hypothesis I.

**Hypothesis II** The second hypothesis investigates the relationship between satisfaction of lower-level needs and the importance of higher-level needs. It is hypothesized that university faculty with satisfied lower-level needs (physiological, security, social) occupying positions offering opportunity to fulfill higher-level needs (esteem, self-actualization) on the job will consider these higher level needs to be important on the job.

In order to test this hypothesis it is first necessary to determine which of the faculty have met the two criteria set forth in the hypothesis: satisfied lower level needs and occupation of positions offering the opportunity to fulfill higher order needs. As such, those positions offering the opportunity to fulfill higher-order needs was determined by using the means of esteem fulfillment (4.18) and self-actualization fulfillment (4.16) for all of the respondents (N = 186). Any person's score above the average for either esteem fulfillment or self-actualization fulfillment was taken to indicate
that their position offered opportunity for fulfilling higher-order needs on the job.

In order to determine those faculty with satisfied lower-level needs a category average was used to represent the three satisfaction scores of each of the lower-level physiological, security, and social needs. The mean of the category average (1.79) for the satisfaction of lower-order needs served as the cut-off point in determining those faculty with satisfied lower-level needs. Thus, a respondent having a satisfaction score equal to or less than the mean of the category average signalled their having satisfied lower-level needs. (Note: Measures of satisfaction in this study are deficiency scores, and the lower the score, the greater the satisfaction.)

Of the 186 respondents, seventy-seven (77) met the dual criteria of satisfaction of lower-level needs and occupation of positions offering the opportunity to fulfill higher-level needs.

One other category average score needed to be determined in order to test the second hypothesis: the category average for the importance of the higher-level needs for the entire sample (186). The mean of the category average importance score (5.83) of the higher-level needs served as the identifying point for classifying these needs as important (1) or unimportant (0). Therefore, any respondent having an importance score equal to or greater than the mean of the category average importance score identified them as having considered those higher-level needs to be important.

Of the 77 observations meeting the dual criteria set forth above, fifty-three (53) indicated that they considered their higher-level
needs to be important and twenty-four (24) indicated that higher-level needs were unimportant.

With this information it was then possible to test the second hypothesis. This was done by means of a test of proportions, which is based on a 50 percent probability that a respondent would consider higher-level needs to be important or unimportant. A test of the null hypothesis was used to determine if the difference between the proportions of the two samples was zero. A "t" statistic was employed in this test. If \( t < -1.96 \) or \( t > 1.96 \) (\( p < .05 \)), the null hypothesis was to be rejected. If \( -1.96 \leq t \leq 1.96 \), the null hypothesis would be accepted, signifying that there is no significant difference between the proportions of the two samples.

A computed t-value of 3.54 was obtained (\( p < .01 \)). As such, the null hypothesis was rejected and Hypothesis II was supported. This hypothesis investigated the relationship between the satisfaction of lower-level needs and the importance of higher-level needs. Specifically, the hypothesis stated that university faculty with satisfied lower-level needs (physiological, security, social) occupying positions offering opportunity to fulfill higher-order needs (esteem, self-actualization) on the job will consider these higher-level needs to be important on the job.

**Hypothesis III** The third hypothesis explores the relationship between the satisfaction of each of the lower-level needs and the corresponding strength, or importance, of those needs. A negative relationship has been hypothesized. This hypothesis stated that the satisfaction of each of the lower-level physiological, security, and
social needs will lead to decreased importance of those needs.

To test this hypothesis a category average will be used to represent both the strength score (need importance) and the satisfaction score for each of the three lower-level needs for the total respondents. The satisfaction score for each of the physiological, security, and social need categories will then be correlated with its respective strength score.

The results are shown in Table VII. If the data supports Hypothesis III, positive correlational coefficients should be generated for the relationship between each of the three lower-level need satisfaction scores and their respective importance. As can be seen, positive correlations were obtained for all of the hypothesized relationships tested in Hypothesis III. The positive correlations indicate that as each of the needs becomes satisfied; that is, moves from higher levels of dissatisfaction to lower levels of dissatisfaction, their respective importance or urgency of satisfaction also decreases. These results are in agreement with Maslow's 1943 motivation theory. This theory stated that the importance of a given need would decrease following its satisfaction.\(^\text{72}\)

Specifically, of the three need categories under consideration, security satisfaction correlated highest and positively with security importance \((r = .2344, p = .0013)\). Next, physiological satisfaction correlated positively with physiological importance \((r = .2176, p = .0028)\). And, social satisfaction correlated positively with social

<table>
<thead>
<tr>
<th>NEED SATISFACTION</th>
<th>PHYSIOLOGICAL SATISFACTION</th>
<th>NEED IMPORTANT</th>
<th>SOCIAL SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYSIOLOGICAL</td>
<td>(.0028)</td>
<td>(.4541)</td>
<td>(.7403)</td>
</tr>
<tr>
<td>SECURITY</td>
<td>(.3277)</td>
<td>(.0013)</td>
<td>(.6205)</td>
</tr>
<tr>
<td>SOCIAL</td>
<td>(.0305)</td>
<td>(.0507)</td>
<td>(.0043)</td>
</tr>
</tbody>
</table>

**To aid in interpretation:** The methodology of this study was such that a positive correlation means that high satisfaction is associated with low importance.

**NOTE:** Hypothesized relationships are underlined.

Levels of significance are indicated in parentheses.

* p<.01

The data presented in Table VII indicate that Hypothesis III is supported for each of the three lower-level physiological, security, and social needs.
importance (r = .2085, p = .0043). As indicated by the correlation coefficients, the degree or strength of relationship existing between each of three need satisfaction categories and their respective importance are approximately equal. While the correlational coefficients are low, (indicating the existence of a large amount of unexplained variance between the compared items), it is important to note the levels at which these relationships are statistically significant. The tests of significance used in this study are subject to Type I errors. Type I errors are the probability of rejecting the null hypothesis (which states that no relationship exists between the items compared) when in fact it is true. The probability of making a Type I error is the level of significance employed. This was previously stated as \( \alpha = .05 \). For example, the relationship between security satisfaction and security importance is significant at the p = .0013 level. This falls well within the 0.05 acceptable level of significance. In other words, there exists only a 0.13 percent probability of an error in saying that a relationship exists between security satisfaction and security importance when it doesn't.

**Hypothesis IV** The fourth and final hypothesis formulated to test the applicability of Maslow's hierarchy investigates the relationship between each of the two higher level needs and their respective strengths. It was proposed that, in accordance with Maslow's revised theory\(^73\) the satisfaction of each of the higher-order esteem and self-actualization needs by female university faculty will not lead to

\(^73\)Maslow, *Toward a Psychology of Being*, op. cit.
decreased importance of those needs, but rather, the strength (importance) of those needs will tend to remain constant.

The data analysis methods employed to test Hypothesis IV are the same as those used to test Hypothesis III. The category average of the satisfaction scores for each of the higher-order esteem and self-actualization needs for all of the respondents were correlated with their respective strength (importance) scores. If the correlations support Hypothesis IV, the coefficients will be close to zero.

The results are presented in Table VIII. As can be seen, positive correlations were obtained for the relationships tested in Hypothesis IV. These positive correlations indicate that as each of the needs becomes satisfied; that is, moves from higher levels of dissatisfaction to lower levels of dissatisfaction, their respective importance, or urgency of satisfaction, also decreases. Of the two need categories under consideration esteem satisfaction correlated highest with esteem importance \((r = .4217, p = .0001)\). The correlation between self-actualization satisfaction and self-actualization importance was \(r = .2749\) at a level of significance of \(p = .0001\). These results support neither Hypothesis IV, nor Maslow's revised theory from which the hypothesis was derived. Instead, the relationships obtained, along with their high levels of statistical significance \((p<.01)\), offer support for Maslow's 1943 theory that the satisfaction of a given need is related to a decrease in the strength, or importance, of that need. In fact, of the five relationships tested in Hypotheses III and IV some of the highest positive correlations between a specific need category and its relative strength were obtained for the esteem and
TABLE VIII

CORRELATIONS BETWEEN THE SATISFACTION OF ESTEEM AND SELF-ACTUALIZATION NEEDS AND THEIR RESPECTIVE IMPORTANCE**(N = 186)

<table>
<thead>
<tr>
<th>NEED SATISFACTION</th>
<th>Esteem</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esteem</td>
<td>(.0001)*</td>
<td>(.0001)*</td>
</tr>
<tr>
<td></td>
<td>.42170</td>
<td>.27936</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>(.0016)*</td>
<td>(.0001)*</td>
</tr>
<tr>
<td></td>
<td>.23008</td>
<td>.27946</td>
</tr>
</tbody>
</table>

**To aid in interpretation: The methodology of this study was such that a positive correlation means that high satisfaction is associated with low importance.

NOTE: Hypothesized relationships are underlined.
Levels of significance are indicated in parentheses.

* p<.01

The data presented in Table VIII indicate that Hypothesis IV (based on Maslow's revised theory) is not supported for either of the two higher-level esteem and self-actualization needs.
self-actualization categories.

Thus, on the basis of the findings presented for Hypotheses III and IV, there appears to be no difference between higher and lower-level need categories insofar as the relationship between satisfaction of a need and its respective importance is concerned. For all five need categories highly statistically significant (p<.01) positive correlations were obtained for the satisfaction of a particular need and its ensuing importance. Taken together, the findings for Hypothesis III and IV offer support for Maslow's 1943 theory.

DISCUSSION

Published comments concerning the applicability of Maslow's need hierarchy theory have ranged from Keith Davis's

The model seems to apply to managers and professional employees in the United States and England. Studies show that their physiological and security needs are well met and they are seeking higher order needs.74

to Wahba and Bridwell's

Maslow's Need Hierarchy Theory is almost a nontestable theory. The difficulties of testing the theory may be partly due to Maslow's own concept of theory construction and research method. ..... He did not attempt to provide rigor in his writing or standard definitions of constructs. Further, he did not discuss any guides for empirical verification of his theory.75

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to John Miner's

Over all, research has indeed provided little support for the concept of a fixed motive hierarchy which changes in a pre-established scalar fashion as a function of satisfaction patterns.\(^76\)

In the previous sections four hypotheses were formulated to test the applicability of Maslow's need hierarchy theory. Of these four hypotheses, two offer support for it. However, it should be pointed out that the central idea underlying Maslow's theory was not supported. (Note: This central idea was tested in Hypothesis I.) This central concept is that need importance as a motivator of behavior is related to the satisfaction of a prior need level in a predetermined hierarchy. Instead, support was gathered for a two level hierarchy. This seems to run parallel with the most recent writing and research conducted to determine the applicability of Maslow's need theory. \(^77\)

Hypothesis I stated that the importance of a given need level as a motivator of behavior would be related to the satisfaction of a prior need level. It will be recalled that of the four relationships tested between the satisfaction of one need level and the importance of the next higher level only one correlation was obtained in the expected


\(^77\) See, for example, the following:
direction. The only relationship in the expected direction was that between physiological satisfaction and security importance. However, as presented earlier in Table VI, the correlation was low (r = -.0552, n.s.) and it did not reach the .05 level of significance.

Other studies testing the satisfaction-importance concept have obtained results similar to those presented in Hypothesis I. In other words, the results of these studies have likewise not supported the "satisfaction of one need level-importance of the next higher level" concept proposed. For example, the results of a study by Hall and Nougaim designed to test this relationship yielded very low correlations in the expected direction. In fact, many of the predicted correlations were smaller than the nonhypothesized relationships with the importance of each need (except affiliation) correlating more strongly with its own satisfaction than with the satisfaction of any other need. In the Hall and Nougaim study a positive correlation indicates that high satisfaction is related to high importance.

A second study designed to test the satisfaction-importance concept was conducted by Lawler and Suttle. Like the above-mentioned Hall and Nougaim study, the correlational results presented by Lawler and Suttle offer little support for this aspect of Maslow's theory. Of the four relationships tested, (Lawler and Suttle neither measured nor tested any items comprising the physiological category.) the only

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significant correlation in the expected direction was that between security satisfaction and social importance \((r = .21, p<.05)\). In other words, Maslow's theorized relationship concerning satisfaction and the importance of the next higher need level was given limited support, in that when security satisfaction was high, social needs emerged as important.

Clayton Alderfer\(^80\) has proposed an alternative to Maslow's theorized relationship concerning need satisfaction and the importance of the next level on the hierarchy. Known as E.R.G., this alternative theory is based on a three-fold conceptualization of human needs: existence, relatedness, and growth. These needs provide the basic elements in motivation. In contrasting E.R.G. theory with Maslow's theory, there are both differences in need categories and differences in the ways that need satisfaction is related to need importance.

Alderfer explains each of the three categories in the following way:

**Existence needs** include all the various forms of material and physiological desires. Hunger and thirst represent deficiencies in existence needs. Pay, fringe benefits, and physical working conditions are other types of existence needs.\(^81\)

**Relatedness needs** include all the needs which involve relationships with significant other people. Family members are usually significant others, as are superiors, co-workers, subordinates, friends, and enemies.\(^82\)

**Growth needs** include all the needs which involve a person making creative or productive effects.

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81 Ibid., p. 145.

82 Ibid., p. 146.
on himself and the environment........
satisfaction of growth needs depends on
a person finding opportunities to be what
he is most fully and to become what he can.83

These categories are viewed as being simultaneously active and
in Alderfer's view prepotency, or a strict hierarchical ordering, does
not play as major a role as in Maslow's theory. According to
Alderfer's theory, satisfaction of one need level is related posi­
tively to the importance of the next "higher" level and at the same
time is related negatively to the importance of the next "lower" level.
The proposed negative relationship can be explained as follows:
existence needs become important when an individual's relatedness
needs are not being satisfied and, by the same token, relatedness
needs become important to a person whose growth needs are not being
satisfied. Thus, in contrast to Maslow's theory, Alderfer would sug­
gest that a satisfied need can remain a motivator "if it is activated
through serving as a substitute for some other need which itself is
not being satisfied."84

The second major contrast between Maslow's and Alderfer's
theories is that "E.R.G. theory retains the notion of a hierarchy
without requiring it to be strictly ordered."85 This simply means
that by eliminating (de-emphasizing) a strictly ordered hierarchy,
needs can be motivators regardless of whether "lower-level" needs have
been satisfied. This stands in contrast to Maslow's basic concept that

83 Ibid., pp. 146-147.
84 Ibid., p. 154.
85 Ibid.
a certain amount of satisfaction of lower-level needs is necessary before higher-order needs can emerge. Using cross-lagged correlational techniques to test the merits of E.R.G. predictions in contrast to Maslow's theory, Alderfer found very little support for the "satisfaction-next higher level importance" ordered relationship proposed by Maslow. He did, however, find strong support for the predicted negative relationship between the satisfaction of one need level and the importance of the next "lower" level.

From the results of Hypothesis I of the present study and those by Hall and Nougaim, Lawler and Suttle, and Alderfer, can it be concluded that the lack of support for Maslow's central concept renders the theory totally inoperative? The hypotheses tested in these research efforts dealt with only two need categories at a time without studying the satisfaction of lower-level needs (physiological, security, social) as a group and their relationship to the emergence of the importance of higher-order needs (esteem and self-actualization). It is important not to overlook the \textit{a priori} requirement in the functioning of the theory that lower-level needs be relatively well-satisfied before higher-order needs emerge to dominate behavior. Hypothesis II, to be discussed below, deals with that possibility.

From a prior review of the studies cited above, this researcher was able to anticipate that the actual results of the current study might also diverge from Maslow's theorized relationships between the satisfaction and importance of individual need categories. As such, a second hypothesis was specifically formulated to investigate the relationship between the satisfaction of lower-level needs as a group and the importance of higher-level needs. It will be recalled
that Hypothesis II stated that university faculty with satisfied lower-level needs (physiological, security, and social) occupying positions offering opportunity to fulfill higher-level needs (esteem, self-actualization) on the job will consider these higher-level needs to be important on the job. The results presented earlier (t-value) for Hypothesis II support it at a very high level of significance (p<.01). The results suggest that higher-level needs emerge as important when lower-level needs are satisfied and when people are given the opportunity to fulfill higher-order needs. In other words, highly significant support was gathered for a revised two-level hierarchy.* This finding runs parallel to both Maslow's 1968 revised thoughts on his own theory and other studies to be discussed below.

Maslow proposed a two-level hierarchy with his deficiency-growth need categorization. Working on the same principle upon which Hypothesis II was developed, this two-level hierarchy specifies that growth needs do not emerge as motivators of behavior until deficiency needs are relatively well-satisfied. The lower-level deficiency needs include the physiological, security, social, and esteem needs. Once they are sufficiently gratified, the needs of the second, or higher, level emerge to dominate behavior: the growth needs; that is, the need for self actualization.

*Note: It should be noted, however, that there is no general agreement on the categories of needs to be included in each of the two levels.

86 Maslow, Toward a Psychology of Being, op. cit.
Lawler and Suttle\textsuperscript{87} have also proposed a dual-level theory based upon their specific test of Maslow's original theory that human needs are arranged in a multi-level hierarchy. Their longitudinal data (both static and dynamic correlations were used) offered little support for Maslow's five-level hierarchy. However, the analysis did suggest that needs could be arranged in a two-level hierarchy. In the Lawler and Suttle view the lower-level needs are those which are biologically based and include physiological and safety needs. All other needs, social, esteem, and self-actualization, comprise the higher-level needs. For the lower-level, biological, needs a negative relationship exists between satisfaction and importance. In the operation of this two-level hierarchy, lower-level needs would have to be satisfied before higher-level needs emerged. However, Lawler and Suttle acknowledged that no prediction could be made about which higher-level need would emerge next.

J. C. Wofford\textsuperscript{88} also investigated Maslow's a priori requirement that lower-level needs must be satisfied before upper-level needs become active. The results of his investigation offered partial support for a two-level hierarchy in that upper-level needs\textsuperscript{89} were found to be significantly related to job satisfaction for employees whose lower-level needs were satisfied.

\textsuperscript{87} Lawler and Suttle, \textit{op. cit.}, pp. 285-286.

\textsuperscript{88} Wofford, \textit{op. cit.}, pp. 515-516.

\textsuperscript{89} Wofford defined lower-level needs as consisting of "security and maintenance, order and structure, and personal interaction." As can be seen, these lower-level needs correspond to Maslow's security and social needs. Esteem and self-actualization categories correspond to Wofford's upper-level "achievement, personal enhancement, and group achievement." Wofford's investigation neither used nor suggested a need category for Maslow's physiological needs.
One of the first\textsuperscript{90} studies to empirically test the specific workings of Maslow's theory was conducted by Hall and Nougaim.\textsuperscript{91} Their study made use of longitudinal data (both static and dynamic correlations were used) to test for a relationship between lower-level need satisfaction and higher-level importance. The lower-level category was comprised only of security needs, whereas social, esteem, and self-actualization needs represented the high level category. The resulting correlation yielded a value of .25. (Note: No mention was made of a level of significance or whether the correlation reached statistical significance.) It is interesting to note the way that Hall and Nougaim interpreted the results of this correlation. They concluded that the data did not support a two-stage hierarchy. However, since they did find that as the subjects of their study (managers) advanced in their

\footnotesize{\textsuperscript{90}This statement of Hall and Nougaim's being "one of the first" to conduct empirical tests of Maslow's theory is acknowledged in several sources. See, for example, Alderfer, op. cit., p. 143; and, Wahba and Bridwell, op. cit., p. 212.}

While James Clark's 1960 article "Motivation in Work Groups: A Tentative View" stressed the importance of a specific empirical test of Maslow's theory, Clark did not conduct one. From a philosophical point of view it is interesting to consider the deviation that exists between the widespread popularity of Maslow's theory and the surprising lack of empirical investigations. The widespread popularity is evidenced in a 1974 Academy of Management Journal article by M. T. Matteson entitled, "Some Reported Thoughts on Significant Management Literature." Matteson states that among 1,694 total article citations representing the surveyed results of "significant contributions to management literature," Maslow's 1943 article ranked second. Maslow's theory has influenced the writings of such notable organization theorists as Argyris, McGregor, Schein, and Haire. The surprising lack of empirical investigation is demonstrated in two ways. First, it wasn't until the 1960's that specific investigations of Maslow's need hierarchy theory were conducted. Second, the results of these investigations yield little support for Maslow's central concept that the satisfaction of one level of needs is related to the emergence of the importance of the next higher level in a predetermined order.

\footnotesize{\textsuperscript{91}Hall and Nougaim, op. cit.}
organization, their need for security decreased and the needs for affiliation, esteem, and self-actualization increase.

In discussing these results Hall and Nougaim suggested that these changes in needs were not the result of lower-order need satisfaction, but rather could be explained in terms of "developing career concerns....with a career being conceptualized as a series of salient personal issues, which emerge as the person passes through various status boundaries." This simply means that as a person enters an organization or profession for the first time, his primary concern is that of security: of establishing oneself in the organization. After an individual has established himself, a concern for recognition and advancement emerge. Since Hall and Nougaim's longitudinal data only covered a five-year time period, they were forced to speculate on what would happen beyond a concern for advancement. In the final career stage Hall and Nougiam speculated that a person would concern himself with a search for meaning and a sense of purpose in his work. This concern, then, would be a means of self-actualization.

Thus, Hall and Nougaim believe Maslow to be incorrect in inferring that it is lower-level need satisfaction that "causes" higher order needs to emerge. In their view a particular need would emerge as important to an individual because that need is salient at that particular stage of their career.

Maslow, in a personal letter to Hall, countered the career stage model explanation of findings. He argued for the hierarchical

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93 Ibid., p. 32. See footnote 12 on page 32 of the Hall and Nougaim article for their acknowledgement.
approach by stressing that he believed a long time period, quite possibly that of an entire lifetime, to be necessary for the emergence of the various need levels. In Maslow's explanation safety needs are salient and satisfied primarily during childhood, social needs during adolescence, esteem needs during early adulthood, and self-actualization needs would not become strongly salient until a person neared 50 years of age.

If Maslow's life-time model is correct it would explain the failure of the Hall and Nougaim data to support Maslow's hierarchy. Hall and Nougaim acknowledge this possibility as follows:

"....by studying a group of people all at the same stage of life (early adulthood), we are taking individuals who are predominantly at the same need level and we are thereby restricting our variance in need strength and satisfaction in all categories. (And in fact as Maslow would predict, the dominant concern in this sample is...esteem. Because of this restricted range, he would argue that the correlations are deceivingly low.)"

Quite obviously, Maslow's long-term hierarchy model bears future testing, as does the Hall-Nougaim career stage model.

The results of one other empirical study need to be presented before concluding this discussion of Hypothesis II. These results were generated from a cross-section test of Alderfer's E.R.G. theory. The researchers, Wanous and Zwany, discovered the existence of an hierarchical ordering among the three E.R.G. needs. In other words, need fulfillment for Alderfer's three need categories occurred in a

\[94\text{Ibid.}\]
\[95\text{Wanous and Zwany, op. cit., p. 95.}\]
progressive, "lower" to "higher" manner. For example, very few people reported high "growth" importance when "relatedness" and "existence" needs were at moderate or low levels. This is an especially important finding. It will be recalled that in formulating his theory Alderfer stressed the importance of a lack of a "step by step" order concerning the satisfaction-importance relationship for his three need categories. He particularly emphasized that the E.R.G. categories were jointly active. The findings of Wanous and Zwany indicate that Alderfer's idea may not be entirely correct.

In view of the findings discussed in this section, it would seem safe to conclude that evidence exists to support a hierarchical relationship among the various need categories and that lower-level needs must be satisfied before higher-order needs emerge to dominate behavior. However, the number of need categories, whether 2, 3, 4, 5, ..... or n, remains to be determined. Also, some agreement needs to be reached on which categories comprise the "lower-level" needs and which comprise the "higher level" needs. Further research must also be conducted to determine the variable which moderates the satisfaction-importance relationship. Specifically, do needs emerge as important on the hierarchy as soon as the prior level is satisfied? Does a particular

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96 The classification of human needs into different categories is not a "new" concept. See, for example, W. I. Thomas, The Unadjusted Girl, 1923, who classified human needs into four categories: security, the need for a safe place to retreat; response, the need for friendship and love; recognition, the need to be appreciated by one's fellow human beings; and, new experience, the need for variety and adventure.

For additional need classification schemes see also: W. C. Langer, Psychology and Human Living, Appleton-Century-Crofts, New York, 1937; and, H. A. Murray, Explorations in Personality, Oxford Press, New York, 1938.
category emerge depending on a person's age? Do differences in career stages account for the salience of different need categories? Or, does some other, as yet unknown, variable (or variables) moderate this relationship? Unfortunately, the specifics and complexities of this relationship are beyond the scope of this investigation. This researcher cannot be beyond the methodology employed in this study and say that a cause-and-effect relationship exists between lower-level satisfaction and higher-level importance. Nevertheless, support was gathered in this investigation for a two-level hierarchy wherein those persons whose lower-level physiological, security, and social needs were satisfied and who had the opportunity to satisfy higher-level esteem and self-actualization needs found these higher-level needs to be important.

More complete support for the two-level hierarchy might be generated by a corollary to Hypothesis II. It could test whether those persons whose lower-level needs were not satisfied and whose jobs offered opportunity to satisfy both lower and higher-level needs would consider higher level needs to be important. Maslow's theory, the results of previously cited investigations and the data gathered in this study would predict that until lower-level needs are satisfied, higher-level needs will not be considered important as motivators of behavior.

Hypotheses III stated that the importance of each of the three lower-level physiological, security, and social needs would diminish following its satisfaction. It will be recalled that highly significant correlations were obtained in the expected direction for each of
the three lower-level needs (see Table VII). These correlations indicated that the strength, or importance, of each of the three lower-level needs decreased following its satisfaction. These significant correlations offer support for Hypothesis III. They also offer support for Maslow's theory that need satisfaction reduces the importance of that same need -- at least for lower-level physiological, security, and social needs.

The results obtained in support of Hypothesis III are certainly not surprising. Other studies testing the satisfaction-importance concept for a particular need category have obtained results similar to those for Hypothesis III. For example, Cofer and Appley\textsuperscript{97} present a great deal of data which demonstrates that as lower-level needs become more satisfied, they become less important. Alderfer's\textsuperscript{98} study cited earlier found a tendency for the satisfaction of lower-level existence and relatedness needs to be associated with decreased importance of those needs. It would seem safe to say that there is an abundance of evidence demonstrating the tendency for lower-level needs to become less important as they become satisfied.\textsuperscript{99}

It should be pointed out, however, that not all of the studies testing the satisfaction-importance relationship within a particular need category have yielded such consistent results as those reported for Hypothesis III. Two exceptions were generated by Hall and


\textsuperscript{98}Alderfer, \textit{op. cit.}

\textsuperscript{99}Lawler and Suttle, \textit{op. cit.}, p. 284.
and Nougaim and by Lawler and Suttle. The results of both static and dynamic correlations employed in the Hall and Nougaim study suggested that there exists very little tendency for lower-level, safety and affiliation, needs to decrease in importance as they become more satisfied. (Hall and Nougaim did not test the satisfaction-importance relationship within the physiological need category.) Lawler and Suttle reported that while increases in security satisfaction were significantly related to decreases in security importance \( r = -.34, p< .01 \), no such relationship existed for the other lower-level need category: social. While the correlation for the social need category was in the expected direction, it was extremely low and did not reach statistical significance.

In concluding this discussion of Hypothesis III, it can be said that the highly significant correlations obtained in this study offer support for the theory that the satisfaction of physiological, security, and social needs is related to the diminished importance of those needs. Does this same inverse relationship between satisfaction and importance apply within each of the higher-level esteem and self-actualization need categories? According to Maslow's revised theory, the answer is "no." In other words, Maslow theorized that satisfaction of higher level needs did not lead to diminished importance. Rather, for growth-motivated people gratification of higher-level needs leads to increased importance of those needs. Maslow believed this to be especially true for the self-actualization need category. Hypothesis IV was formulated

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100 Hall and Nougaim, op. cit., pp. 19-20.
101 Lawler and Suttle, op. cit., p. 278.
to test that proposition.

Hypothesis IV stated that satisfaction of esteem and self-actualization needs would not be related to a decrease in importance of their respective strengths, but rather that the importance of these two higher-level need categories would tend to remain constant. The results did not support Hypothesis IV and do not, therefore, offer support for Maslow's revised theory. They do, however, offer support for Maslow's 1943 statement that need strength diminishes following its satisfaction. (In fact, that proposition was consistently supported for each of the five need categories under consideration. Table IX conveniently summarizes the results of the correlations between satisfaction and importance for each of the five categories.)

What is interesting to note is not only the fact that both correlations reached extremely high levels of significance, but also that of the five relationships tested in Hypotheses III and IV those tested in Hypothesis IV had the largest correlation coefficients. The correlation coefficient between the satisfaction of the esteem need and its importance is $r = .4217$, $p = .0001$. The correlation coefficient between the satisfaction of the self-actualization need and its importance is $r = .2749$, $p = .0001$. These results were quite surprising in that they contradict the widely popularized Maslow assumption that satisfaction of higher-level needs is related to increased importance of those needs. Even the Hall and Nougaim study, which is so-often used to question the validity of the Maslow theory found that as the satisfaction of esteem and self-actualization needs increased, their respective strengths also increased. As stated in that
TABLE IX

CORRELATIONS BETWEEN THE SATISFACTION OF EACH NEED CATEGORY AND ITS RESPECTIVE IMPORTANCE** (TOTAL RESPONDENTS, N = 186)

NEED IMPORTANCE

<table>
<thead>
<tr>
<th>Physiological</th>
<th>Security</th>
<th>Social</th>
<th>Esteem</th>
<th>Self-Actualization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiological</td>
<td>(.0028)*</td>
<td>.21765</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security</td>
<td>(.0013)*</td>
<td>.23446</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>(.0043)*</td>
<td>.20853</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Esteem</td>
<td>(.0001)*</td>
<td>.42170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>(.0001)*</td>
<td>.27496</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**To aid in interpretation: The methodology of this study was such that a positive correlation means that high satisfaction is associated with low importance.

NOTE: Levels of significance are indicated in parentheses.

* p<.01

This table indicates that Maslow's original 1943 theory is supported for each of the five need categories.
investigation, "With the exception of affiliation, the strength of each need correlated more strongly with its own satisfaction than with the satisfaction of any other need."\textsuperscript{102} Hall and Nougaim also reported that the results of one of Alderfer's early studies demonstrated "that growth needs tend to increase as they are satisfied, whereas the lower needs decrease upon gratification."\textsuperscript{103} Lawler and Suttle also tested the satisfaction-importance relationship within the higher level need categories. While their results were in the direction suggested by Hypothesis IV they did not reach statistical significance.\textsuperscript{104}

As was mentioned above the results generated for Hypothesis IV were surprising. In other words, there appears to be no difference between higher and lower level categories insofar as the satisfaction-importance relationship within need categories is concerned. And, on the basis of the results of Hypotheses III and IV it would seem safe to conclude that for the sample surveyed satisfaction of a need is related to diminished importance of that same need. As indicated by the correlation coefficients in Table IX this relationship was greatest for the esteem needs and least for the social needs. The smaller correlation coefficient indicates that there is more unexplained variance in the satisfaction-importance relationship for social needs than for esteem needs.

\textsuperscript{102}Hall and Nougaim, op. cit., p. 19.
\textsuperscript{103}Ibid., p. 15. Specifically, Hall and Nougaim were citing the results of Alderfer's 1966 unpublished doctoral dissertation at Yale.
\textsuperscript{104}Lawler and Suttle, op. cit.
OTHER RESULTS

While not pertaining directly to any of the hypothesized relationships of Maslow's theory, the data presented in Table X are interesting. In it are contained the mean importance, fulfillment, and satisfaction for each of the five need categories. (It is important to note that these means and the subsequent category rankings were not intended by this writer to be a test of Maslow's theory, per se. As stated by Wahba and Bridwell, "It is the authors' belief that rank ordering studies are a poor test of Maslow's ideas and the conclusions from them should be carefully weighted." Therefore, the data presented in this section has been included solely for the purpose of giving the reader as complete a picture of the respondents' need patterns as possible.)

As can be seen, the respondents considered self-actualization needs to be the most important, or strongest insofar as urgency of fulfillment is concerned, of Maslow's need categories. Following self-actualization needs in decreasing order of importance were security, physiological, social, and esteem needs. For need importance in Table X, the lower the numerical value, the lesser the importance of that need. As explained earlier the numerical importance score was derived from question "c" of Section I of the questionnaire. The above ranking is to be compared with Maslow's hierarchical order of needs: physiological, security, social, esteem, and self-actualization. Thus, it should be noted that the "high-level" need of self-actualization was

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105 Wahba and Bridwell, op. cit., p. 224.
### Table X

**Mean Need Satisfaction, Importance, and Fulfillment for the Five Need Categories**

*(N = 186)*

<table>
<thead>
<tr>
<th>Need Category</th>
<th>Need Importance Mean</th>
<th>Need Importance Rank</th>
<th>Need Fulfillment Mean</th>
<th>Need Fulfillment Rank</th>
<th>Need Satisfaction Mean</th>
<th>Need Satisfaction Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiological</td>
<td>5.7473</td>
<td>3</td>
<td>3.6854</td>
<td>5</td>
<td>2.4784</td>
<td>5</td>
</tr>
<tr>
<td>Security</td>
<td>5.9354</td>
<td>2</td>
<td>3.9247</td>
<td>4</td>
<td>2.1397</td>
<td>4</td>
</tr>
<tr>
<td>Social</td>
<td>5.6854</td>
<td>4</td>
<td>5.1182</td>
<td>1</td>
<td>0.7661</td>
<td>1</td>
</tr>
<tr>
<td>Esteem</td>
<td>5.5367</td>
<td>5</td>
<td>4.1818</td>
<td>2</td>
<td>1.5259</td>
<td>2</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>6.1311</td>
<td>1</td>
<td>4.1666</td>
<td>3</td>
<td>2.0774</td>
<td>3</td>
</tr>
</tbody>
</table>

Table X indicates that the respondents considered self-actualization needs to be the most important of the five need categories. Following self-actualization needs in decreasing order of importance were security, physiological, social, and esteem needs.
ranked first in importance while the "lower-level" need of security was ranked second. The other relatively "high-order" need category, esteem, was considered to be least important of the five need categories.

The second area of information presented in Table X is concerned with need fulfillment, or in other words, the perceived opportunity for need satisfaction. Need fulfillment was measured by question "a" of Section I of the questionnaire. In Table X the higher the numerical value of the mean, the greater the perceived opportunity to satisfy that need on the job. The scores indicate that the respondents perceive their jobs as offering the opportunity to satisfy their needs in the following order of greatest opportunity to least opportunity: social, esteem, self-actualization, security, and physiological. Restated, female faculty members do not feel that their jobs offer income levels they feel are necessary to adequately feed, house, and clothe themselves and their family and to adequately meet their medical and dental needs.

Need satisfaction is the third section presented in Table X. In this study satisfaction is a deficiency score obtained by subtracting the response to question "a" from the response to question "b" for each need category item in Section I of the questionnaire. Higher numerical values indicate greater levels of dissatisfaction. As can be seen, the ranking of need categories for satisfaction is the same as that for fulfillment. Those need categories which female faculty members considered their jobs as offering the least opportunity to satisfy (physiological and security) were also the same categories
which had the highest levels of dissatisfaction. Ranging in order from least satisfied to most satisfied these needs are: physiological, security, self-actualization, esteem, social.

The combining of results from the three areas of need importance, fulfillment, and satisfaction reveals a picture that is not entirely consistent with what one might expect concerning Maslow's hierarchical concept. According to Maslow's need theory those needs which an individual considers to be least satisfied should also be those which are most important to the individual insofar as urgency of satisfaction (that is, their importance as a motivator) is concerned. Similarly, those needs which are relatively well satisfied should be least important to the individual insofar as urgency of satisfaction is concerned. Or, in Maslow's terminology, "Unsatisfied needs motivate behavior." These last three sentences are supported by the results obtained for the mean importance, fulfillment, and satisfaction rankings of social and esteem needs. These two need categories are ranked as having the greatest levels of satisfaction and fulfillment among the five need categories. They are also viewed by the respondents as having the least amount of importance. This is consistent with what one might expect from Maslow's theory: that as needs are satisfied their importance as motivators of behavior diminishes. This is also certainly consistent with the results of Hypotheses III and IV in which positive and very highly significant correlations were obtained between social satisfaction and social importance ($r = .2085$, $p = .0043$) and esteem satisfaction and esteem importance ($r = .4217$, $p = .001$). In fact, of the five need categories the relationship between esteem
satisfaction and esteem importance was not only the highest but it also had the highest level of significance obtained (.0001).

In summarizing the results of the mean rankings of importance, satisfaction, and fulfillment presented thus far it can be said that those needs with the lowest levels of fulfillment (physiological 3.6854, security 3.9247) are also those with the lowest levels of satisfaction (physiological 2.4784, security 2.1397). Furthermore, those needs with the highest levels of fulfillment (social 5.1182, esteem 4.1818) were also those with the highest levels of satisfaction (social 0.7661, esteem 1.5259). And, as one might expect, these two highly satisfied need levels are ranked by the respondents as having the least amount of importance to them (social 5.6854, esteem 5.5367). All of the above findings are consistent with Maslow's theory of the relationship between the satisfaction of a given level of needs and its respective importance. And, these results are also consistent with the findings of Hypotheses III and IV.

What is inconsistent with the theory are the results obtained for self-actualization needs. As can be seen in Table X, self-actualization needs occupy a mid-point ranking of 3 insofar as mean fulfillment (4.1666) and satisfaction (2.0774) are concerned. At the same time, however, self-actualization needs are also ranked as being the most important (6.1311) of all of the need categories. This finding follows neither from what one might expect from Maslow's theory (that is, those needs which are most important to the individual are those which are least satisfied) nor from the consistency of results from the comparison of the satisfaction-importance rankings of the
four other need categories. All that can be said is that for the sample surveyed, female university faculty, self-actualization needs are the most important of the five need categories. The least amount of satisfaction, on the other hand, is indicated for the physiological (2.4784) and security (2.1397) need categories. Similar results were obtained in a 1971 study of nonmanagerial employees by Wofford.\textsuperscript{106}

His results demonstrated that contrary to Maslow's theory people seek higher level needs even when lower level needs are not gratified.

CONCLUSION

As was noted earlier these mean scores for need fulfillment, satisfaction and importance were not intended to serve as a test of Maslow's need theory. On the other hand, the formulation and testing of Hypotheses I through IV were. These results, as presented in detail earlier, are summarized in Table XI.

In concluding this discussion, the question posed at its outset must be answered. Can Maslow's hierarchy of needs theory be dismissed as totally inoperative in describing the relationship between needs and their satisfaction and importance for female university faculty? In this writer's opinion, the answer is "no". This opinion was formed on the basis of previously cited empirical findings as well as the findings of the current study. Here reference is made specifically to the results of Hypotheses II and III. As presented and discussed, a great deal of empirical evidence exists to both affirm and disaffirm Maslow's hierarchical need theory. Obviously,

\textsuperscript{106} J. C. Wofford, \textit{op. cit.}, p. 509.
TABLE XI
SUMMARY OF RESULTS

HYPOTHESIS

I. The strength (importance) of a given need level will be positively related to the satisfaction of the prior need level.

II. University faculty with satisfied lower-level needs, occupying positions offering opportunity to fulfill higher level needs on the job will consider these higher-level needs to be important on the job.

III. Satisfaction of lower-level physiological, security, and social needs is related to decreased importance of those needs.

IV. Satisfaction of higher-level esteem and self-actualization needs will not lead to decreased importance of those needs, but rather, the strength (importance) of those needs will tend to remain constant.

STATUS

Not Supported
Supported
Supported
Not Supported

NOTE: While the results did not support this hypothesis, the correlation coefficients and their level of significance indicated a tendency for satisfaction to be related to decreased importance.

As can be seen, Table XI provided a summary of the results of the four hypotheses tested in this study to determine the applicability of Maslow's need hierarchy theory.
contradictory empirical results are not sufficient to dismiss a theory. As the same time, however, the demonstrated shortcomings of Maslow's five level need hierarchy theory in describing the relationship between needs and their satisfaction and importance for female university faculty cannot be overlooked. Before a theory can be completely abandoned not only must contrary results exist, but also a new theory must be advanced and supported. The final decision on the acceptance of any theory over the other should rest upon whichever one best describes and/or predicts that which has been empirically generated. As yet, no one comprehensive theory can adequately account for the diversity of results.

The next section of this investigation focuses on the Porter-Lawler model of motivation. After an explanation of the workings of the model is given, specific hypotheses will be stated in order to test the applicability of certain sections of the model to female university faculty. In the following pages, three parts of the Porter-Lawler model will be tested: Satisfaction of Needs, Role Perceptions, and Pay as a Satisfier.
CHAPTER III

THE PORTER-LAWLER MODEL

EXPECTANCY THEORY

As was mentioned at the beginning of this study, the investigation is comprised of two major parts. The purpose of the first part was to investigate the applicability of Maslow's need hierarchy theory; a theory which is representative of the need theorists' approach to motivation. The purpose of this second part of the study is to investigate the applicability of the Porter-Lawler model of motivation. The Porter-Lawler model is based on expectancy theorists' approach to motivation. A number of writers have contributed to the development of expectancy theory. They include: Tolman, Lewin, Peak, Atkinson, Edwards, Vroom, and Georgopoulos, Mahoney, and Jones, among others. These theorists and their ideas concerning the

112 Vroom, op. cit.
determinants of impulse to action are shown in Figure 3. All of the
theories embrace two central concepts: expectancy, the likelihood that
a particular act will lead to a particular outcome; and valence, the
attractiveness of a particular outcome.

Expectancy theory states that people have behavior response
expectations about future events. These expectations take the form of
subjective assessments concerning the likelihood or probability that a
particular act will be followed by a particular outcome. These expect-
ancies are described in terms of their strength. These strengths of
intensity vary and range in numerical value from zero to one. The
maximum strength of an expectancy is 1 and represents those situations
where an individual is subjectively certain that an act will be followed
by the outcome. The minimum strength of an expectancy is zero. Zero
expectancy strength represents those situations in which an individual
is subjectively certain that a particular act will not be followed by a
particular outcome. Usually, however, an expectancy is subjectively
assigned a strength somewhere between the maximum (1) and the minimum
(zero).

The second central concept of expectancy theory is that of
valence. Valence can be viewed as the preference which an individual
has for a particular outcome. Faced with the task of deciding between
any two outcomes, a and b, a person will either prefer a to b, or b to
a, or will be indifferent as to a and b. Any given outcome is consid-
ered to be positive if a person prefers attaining it to not attaining
it; negative if the person prefers not to attain it; and, zero if the
person is indifferent as to its attainment. Valences can vary in
<table>
<thead>
<tr>
<th>THEORIST</th>
<th>DETERMINANTS OF IMPULSE TO ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolman</td>
<td>Expectancy of Goal, Demand for Goal</td>
</tr>
<tr>
<td>Lewin</td>
<td>Potency x Valence</td>
</tr>
<tr>
<td>Edwards</td>
<td>Subjective Probability x Utility</td>
</tr>
<tr>
<td>Atkinson</td>
<td>Expectancy x (Motive x Incentive)</td>
</tr>
<tr>
<td>Vroom</td>
<td>Expectancy x Valence, where Valence is Instrumentality x Valence</td>
</tr>
<tr>
<td>Peak</td>
<td>Instrumentality x Attitude (Affect)</td>
</tr>
<tr>
<td>Georgopoulos, Mahoney, Jones</td>
<td>Path (Instrumentality) - Goal (Needs) Approach</td>
</tr>
</tbody>
</table>

Figure 3. Expectancy Theories of Motivation

in strength of preference from +1.00 to -1.00. A maximally desired outcome is represented to +1.00; a maximally unattractive outcome is assigned a -1.00; and, neutral outcomes are numerically represented by a zero. For example, a person may have a strong attraction for a particular outcome, such as a promotion, and thereby assign to it a high positive value. On the other hand, a person wanting to avoid a particular outcome, such as a suspension, for example, would assign a negative value to it.

With these two components, expectancy theorists posit that an individual's motivation to perform (effort) can be determined by multiplying the expectancy of the outcome times the value of the outcome.

Based on expectancy theory, Lyman Porter and Edward Lawler, III, developed a conceptual model of the relationship between job attitudes and job performance. The model specifies which attitudes should precede performance and which should be dependent on performance.

The basic hypothesis of the Porter-Lawler model is that job satisfaction is primarily a dependent variable in relation to job performance and that other types of attitudes (that is, attitudes not classified under the satisfaction label) may have a much more crucial role in determining performance.

In a survey of empirical investigations studying the relationship of job attitudes to job performance, Brayfield and Crocket

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114 Porter and Lawler, Managerial Attitudes and Performance, op. cit.

concluded that "there is little evidence in the available literature that employee attitudes of the type usually measured in morale surveys bear any simple or, for that matter, appreciable relationship to performance on the job." A second, similar survey of empirical investigations concerning attitudes and performance was conducted by Hertzberg, Mausner, Peterson, and Capwell. Their conclusion was that, .... there is frequent evidence for the often-suggested opinion that positive job attitudes are favorable to increased productivity, .... however .... the correlations obtained in many of the positive studies were low .... in addition, the large number of studies in which morale, and productivity were not related must be stressed. (It should also be mentioned that both surveys did find that there was a definite consistency in the evidence for relationships in the expected direction between job satisfaction and turnover and absenteeism.)

A further review of the research using correlational analysis in this same area by Vroom led to a conclusion that a weak but positive relationship exists between satisfaction and performance. In a possible theoretical explanation of why job attitudes should be related to job performance, Vroom concluded his review by stating:

Job satisfaction is closely affected by the amount of rewards that people derive from their jobs and ..... level of performance is closely affected by the basis of attainment of rewards. Individuals are satisfied with their jobs to

118 Vroom, op. cit.
After carefully reviewing the literature, Porter and Lawler concluded that job satisfaction and job performance were in fact related. As such, they developed a model for the purpose of testing and empirically determining the conditions under which the two variables of job performance and job satisfaction were related. The model specifies which job attitudes should precede performance and which should be dependent on performance. In very general terms, the basic premise of the model is that rewards cause satisfaction and that performance sometimes leads to rewards. Thus, Porter and Lawler have hypothesized that performance can lead to rewards and that rewards cause satisfaction. They also hypothesize that expectations of future satisfactions and the attractiveness of possible rewards combine to influence performance.

The following section will identify each of the nine variables which comprise the Porter-Lawler model and will specify each of the theorized relationships to the other variables.

VARIABLES CONTAINED IN THE MODEL

As shown in Figure 4, Porter and Lawler related nine variables in their model of motivation and performance. They include:

\[\text{Ibid.}, \text{p. 264.}\]
1. Value of Reward
2. Perceived Effort-Reward Probability
3. Effort
4. Abilities and Traits
5. Role Perceptions
6. Performance
7. Rewards: Intrinsic and Extrinsic
8. Perceived Equitable Rewards
9. Satisfaction

These variables and their relationship to one another will be discussed in the following sections.

Value of Reward

This variable refers to the attractiveness of possible rewards or outcomes to the individual.\(^{120}\) It is hypothesized that for any particular person at any given point in time there will be a variety of possible outcomes that will be differentially desired. For example, employee Joe Smith may value a promotion to supervisor over the friendship of his fellow workers in Department X. Bill Brown, another worker in Department X may value co-worker friendship over the possibility of a supervisory promotion. In addition, any given potential reward will be differentially desired by different individuals. For example, a company pension plan may not have a great deal of appeal to a young

\(^{120}\) Although some outcomes may have negative values for certain persons, Porter and Lawler focus on positively valued outcomes or rewards. The specific emphasis is on those rewards relevant to the list of needs as theorized by Maslow. As such, rewards gain value for an individual to the extent that he perceives them as offering satisfaction of physiological, safety, social, esteem, and self-actualization needs.
Figure 4. The Porter-Lawler Model

worker, but that same plan may take on a great deal of value in the eyes of an older worker. 121

**Perceived Effort-Reward Probability**

The second variable in the model, perceived effort-reward probability, refers to a person's subjective expectation of the likelihood that the rewards he desires will follow from exerting different levels of effort. This expectation is derived from two component expectations:

1. "The probability that reward depends on performance.
2. The probability that performance depends on effort." 122

These components are hypothesized to interact in a multiplicative fashion so that if the value of either one is low, the probability that reward depends on effort must also be low. Thus, either variable of itself is a necessary, but not a sufficient condition for effort. For example, suppose a worker desires a promotion to departmental supervisor. The worker may feel that his chances have little to do with his level of performance either because no promotions are being made at this time and therefore no amount of performance will help him attain this valued outcome, or because promotions are being made but they depend on factors other than performance, such as seniority, union agreements, etc. Thus, if the worker does not believe that performance leads to a promotion, then he probably would not believe that a promotion depends on his job effort and would therefore perceive a low

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122 Ibid., p. 19.
effort-reward probability. However, even if he believes that a promotion depends on performance, he may not feel that performance is related to his effort. In this particular case he may not be capable of achieving the level of performance necessary for promotion even with a large expenditure of effort. Still another effort-reward situation could arise if the worker believes that the desired reward could be obtained through an expenditure of effort regardless of whether or not that effort results in performance. This usually occurs when the organization is perceived by the worker as giving rewards for "trying hard," but not necessarily for actual performance. Thus, the perceived effort-performance probability component would not influence the amount of effort exerted on the job. And, the worker would put forth effort (regardless of whether the effort results in actual accomplishment) because effort is rewarded.

In summary then, the perceived effort-reward probability refers to a person's perceptions of whether rewards depend on performance and whether performance depends on effort. 123

**Effort**

In the Porter-Lawler model, effort refers to the amount of energy (mental and/or physical) a person expends on a particular task. In other words, "How hard is the individual trying to perform the task?"; or, "How much mental and/or physical activity is the person engaging in while attempting to perform a task?"

Effort is a key variable in the model. As such, it should be carefully distinguished from performance. While effort and performance

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are frequently highly and positively related, there are situations in which they are not. For example, a college student may put forth a great effort in reviewing both class lecture notes and reading assignments in preparation for a test, but his actual performance or accomplishment on the test, as reflected in his grade, may be low.

According to Porter and Lawler, it is effort rather than performance that most closely corresponds to motivation. Effort, in turn, is derived from the interaction of the value of the reward and the perceived probability that reward depends on effort. Thus, effort refers to the amount of energy exerted in attempting to accomplish a task. 124 Whether or not the end result of exerting effort is actual task accomplishment (or, performance) is another question. The answer to this question depends on two more variables in the model: abilities and traits, and role perceptions.

Abilities and Traits

The abilities and traits variable refers to the relatively stable and long-term characteristics of the individual. It includes such individual characteristics as intelligence, manual skills, and personality traits and represents that person's ability to successfully accomplish a task at a particular point in time. While abilities and traits can be altered in the long-run, they usually do not change very much over the short-run. As such, at any particular point in time abilities and traits will place a current upper limit on performance resulting from effort. 125

124 Ibid., pp. 21-22.
125 Ibid., pp. 22-24.
Role Perceptions

A second variable influencing the performance resulting from effort is that of role perceptions. This variable refers to what a person believes he should be doing in order to successfully accomplish a particular task. In other words, "In what direction should I apply my effort so as to successfully perform my task?" It is important to note that an individual's role perceptions may or may not coincide with the role that the organization expects of him or her in the performance of tasks.

In the Porter-Lawler model, an individual's role perceptions are considered accurate if he directs his efforts in line with what his superiors believe the direction of his efforts should be. On the other hand, if an individual's role perceptions of how a task should be accomplished do not correspond to those of his superiors, then it is possible for a great deal of effort to be expended in the wrong direction (insofar as organizationally-defined performance is concerned).

Porter and Lawler illustrate the importance of role perceptions in influencing performance with the following example. In preparing her class for a test, a professor may stress the importance of outside reading assignments. If a student studies only class lecture notes and ignores the outside assignments, the direction of his efforts will be misplaced as will be reflected in his performance on the test. Thus, even though the student put forth a great deal of time and energy in studying his lecture notes, his efforts were not in the area where they should have been. As such, role perceptions (regardless of whether they are accurate or inaccurate) determine the direction in which the
individual applies his effort. 126

Performance

Performance refers to the successful end result of the application of effort. Thus, in order for an individual to perform a given task, not only must he expend effort on it, but also he must have both the abilities and traits to perform it and his efforts must be in the organizationally-defined direction. For example, in order to perform well as a college student, it is not enough for an individual to only exert effort to master the subject matter. He must also have the ability to work at a college level and his efforts as a student must be in a relevant direction.

Therefore, performance refers to a person's accomplishment of the tasks that comprise the job. In the Porter-Lawler model performance is the result of effort as modified by abilities and traits, and role perceptions. 127

Rewards

As conceptualized by Porter and Lawler, the reward component of their model refers to outcomes or returns that are desired by a person and which, when given for good performance, can serve as reinforcement for performance. Rewards can be provided by the individual herself and/or by others. According to Porter and Lawler, rewards which an individual gives herself for good performance are called intrinsic. For example, feelings of accomplishment and satisfaction of higher-order self-actualization needs are considered to be intrinsic rewards.

126 Ibid., pp. 24-25.
Extrinsic rewards such as pay, promotions, status, and job security are those that are provided by others in the organization and satisfy mainly lower-level needs.128

In the diagram of the Porter and Lawler model on page 98, the heavily waved line between performance and extrinsic rewards indicates that extrinsic rewards are often not tied to performance. For example, under a seniority system, a person may receive a promotion simply because he has been in the department the longest. The semi-wavy line between performance and intrinsic rewards reflects Porter and Lawler's finding that intrinsic rewards are directly related to good performance only when the job is structured to provide sufficient variety and challenge so that the individual can reward herself when she feels she has performed well.129

The feedback loop from the performance-rewards link-up to perceived effort-rewards probability implies that ......

..... the way in which an organization rewards a manager following his performance will affect (for a given period of time) his perceptions of the connection of rewards to performance, which will, in turn, affect his expectancies that effort leads to rewards. To this extent, then, the model utilizes past learning experiences as a factor in determining expectancies about the future.130

Porter and Lawler consider this to be a very important theoretical point since their model utilizes past learning as an influencing factor on expectations about the future.

128 Ibid., pp.28-29.
129 Ibid., pp. 163-164.
130 Ibid., p. 39.
Perceived-Equitable Rewards

The link between rewards and satisfaction is moderated by perceived equitable rewards. This term refers to an individual's belief concerning how much he should receive as a result of his level of job performance. According to Porter and Lawler, this variable can also include the amount of rewards that a person thinks should be attached to a job or position in the organization. The link from performance to perceived equitable rewards points out the rather direct relationship that self-ratings of performance have on the perceived equity of rewards. Porter and Lawler found that people who have higher levels of self-rated performance associate them with higher levels of expected equitable rewards.\(^{131}\)

Satisfaction

Satisfaction is derived from the amount of rewards actually received as compared with the perceived equitable level of rewards. It is a deficiency measure. If actual rewards meet or exceed perceived equitable rewards, satisfaction will result. If perceived equitable rewards exceed actual rewards, dissatisfaction will result. A small difference in this area would indicate little dissatisfaction (that is, relatively great satisfaction) whereas a large difference would indicate great dissatisfaction (that is, relatively low satisfaction).\(^{132}\)

The feedback loop from satisfaction to value of reward indicates that the satisfaction accompanying rewards will have an effect on the future values of rewards. While the attractiveness of rewards

\(^{131}\)Ibid., pp. 29-30.

\(^{132}\)Ibid., pp. 30-31.
associated with lower-level needs reduces the value or attractiveness (for a limited amount of time) of those needs, the relationship between the satisfaction of higher-order needs and the value of the reward is not definitive. As stated by Porter and Lawler,

Our working hypothesis, not tested by the data we obtained, is that rewards associated with higher-order needs -- such as esteem ... and self-actualization needs -- become more attractive the more a person is rewarded and feels satisfied with a given level of rewards. At this point, the broadest statement we can make concerning the feedback loop from satisfaction to value of reward is that the effects of satisfaction on reward value may be different -- even opposite -- for different types of needs and their associated rewards.133

RELATIONSHIPS BETWEEN AND AMONGST VARIABLES

As conceptualized by Porter and Lawler, the value of rewards and perceived effort-reward probabilities interact multiplicatively to create effort. Therefore, the greater the value of a reward to an individual and the greater the perceived probability that effort will lead to that reward, the greater the effort expended. Effort, as modified by the multiplicative interaction of abilities and role perceptions, leads to performance. However, as a result of the two intervening variables (abilities and role perceptions), effort will not be perfectly related to performance. Likewise, rewards may not be perfectly related to performance. Here it is believed that the more closely an individual sees performance leading to rewards the greater the likelihood that he will exert effort to attain a high level of

133 Ibid., p. 40.
performance. Satisfaction results from performance through rewards and their perceived equity. Thus, satisfaction is seen in the Porter-Lawler model as a dependent variable, not a causal one.

In summary then, the major relationship of the Porter-Lawler model is that performance leads to satisfaction through rewards.
CHAPTER IV

THE APPLICABILITY OF THE PORTER-LAWLER MODEL

In a 1973 article Luthans and Otteman state:

The expectancy theories of Victor Vroom and of Lyman Porter and Edward Lawler are becoming increasingly accepted. ... The expectancy motivation theories have stimulated numerous research questions and have begun to provide an explanatory framework for organizational behavior. To date, research has generally supported expectancy motivation models.\textsuperscript{134}

Hopefully, the results of this study will offer additional support for the Porter-Lawler model. On the following pages three major areas of the Porter-Lawler model will be investigated in an attempt to determine their applicability for female university faculty. These areas are: Satisfaction of Needs, Role Perceptions, and Pay as a Satisfier.

SATISFACTION OF NEEDS\textsuperscript{135}

The question of the exact nature of the relationship between job satisfaction and job performance is one that has been answered in many ways since the pioneering study in this area by Kornhauser and Sharp in 1932.\textsuperscript{136} The answers have ranged from statements declaring that there


\textsuperscript{135}The overall organization and structural framework for this section is drawn from Porter and Lawler, Managerial Attitudes and Performance, op. cit., pp. 120-150.


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is no relationship between these two variables to statements declaring that there is a direct cause-and-effect relationship existing between satisfaction and performance.

From the time of the Hawthorne experiments until the mid-1950s it was held that job satisfaction would lead to improved job performance. As stated by Wren, "This link between supervision, morale, and productivity became the foundation stone for the Human Relations movement"\(^{137}\) and, "The manager satisfied needs and the worker reciprocated by increasing output. In a catchphrase -- 'satisfied workers are productive workers.'"\(^{138}\) Research efforts during this period were guided by this assumed positive relationship between satisfaction and performance. It wasn't until 1955 that there were any serious arguments raised to question whether or not this relationship did, in fact, exist. In that year Brayfield and Crockett published a review of the empirical data on this subject. From this review they concluded that employee attitudes do not have a simple relationship with performance on the job.\(^{139}\) Rather, they described the relationship between performance and satisfaction as being one of concomitant variation as opposed to cause and effect. In other words, if productivity is perceived as leading to goal attainment then a positive relationship between performance and satisfaction might be expected. On the other hand, if the employee does not perceive productivity as a path to the attainment of goals


\(^{139}\) Brayfield and Crockett, *op. cit.*, p. 408.
that he desires, there should be no relationship between high productivity and high satisfaction. Porter and Lawler state that this analysis of the relationship between productivity and satisfaction generally agrees with their theoretical model as presented earlier.

Another review of the literature in this area was published in 1964 by Victor Vroom. In his book, *Work and Motivation*, Vroom examined studies that employed correlational analysis. His review included research which had been included in the Brayfield and Crockett survey as well as 7 additional ones that had been published since 1955. Vroom found a median correlation between measures of job satisfaction and job performance of +.14 for 23 cases. While the magnitude of the relationship is not very large, it is interesting to note that 20 of the 23 correlations were positive.

From this review of the literature, Vroom concluded that

... job satisfaction is closely affected by the amount of rewards that people derive from their jobs and level of performance is closely affected by the basis of attainment of rewards. Individuals are satisfied with their jobs to the extent to which their jobs provide them with what they desire, and they perform effectively in them to the extent that effective performance leads to the attainment of what they desire.

Porter and Lawler note a great deal of similarity between their position on the relationship between job satisfaction and job performance and that of Vroom, and Brayfield and Crockett. All of these theorized relationships treat satisfaction as a dependent rather than an

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140 Vroom, op. cit., pp. 184-185.
141 Ibid., pp. 183-186.
142 Ibid., p. 264.
independent variable. From this review of literature Porter and Lawler constructed a theoretical model (described earlier) to specify the conditions under which the two variables could expect to be related. Their research, as presented in Managerial Attitudes and Performance, determined if such relationships actually existed.

Since the 1968 publication of Managerial Attitudes and Performance, Charles Greene has reviewed the satisfaction-performance controversy. He reported the results of two recent empirical studies, each utilizing time-lag correlations, which lend "considerable support" to the Porter-Lawler statement of relationship between performance and satisfaction. One study by Bowen and Siegel found performance and satisfaction to be relatively strongly correlated. They contrasted this with the significantly low correlations obtained in the satisfaction-performance condition. A second study by Greene obtained results similar to those reported by Bowen and Siegel. In addition, Greene obtained significant correlations between performance and rewards granted subsequently and between those rewards and subsequent satisfaction. As stated by Greene, " ... Porter and Lawler's predictions that differential performance determines rewards and that rewards produce variance in satisfaction were upheld."

The purpose of the remaining part of this section will be to test certain hypotheses derived from the Porter-Lawler model on female

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144 Ibid., p. 167.
145 Ibid., p. 168.
146 Ibid.
university faculty. These hypotheses pertain to the relationship of self-ratings of performance and perceptions of need fulfillment and need satisfaction.

**Hypotheses**

The diagram of the Porter-Lawler model on page 98 shows performance leading to rewards, both intrinsic and extrinsic. Porter and Lawler believe that the quality of a person's performance is one of the factors affecting rewards and that most organizations try to reward good performance. As was mentioned earlier, rewards provided by the organization for good performance are referred to as extrinsic. On the other hand, intrinsic rewards, as for example, feelings of accomplishment, are those that an individual provides for himself. A person can reward himself intrinsically regardless of whether or not the organization provides extrinsic rewards for good performance. This is believed to be especially true for higher-order esteem and self-actualization needs. "Almost by definition these needs are directly fulfilled by intrinsic, self-mediated rewards." Organizations cannot supply the fulfillment of these higher-order needs. However, organizations can play an important role in this area by providing increased opportunities for individuals to reward themselves intrinsically for good performance. If it is assumed that self-administered intrinsic rewards are based on a person's perception that she has performed well, then self-ratings of performance should be related to feelings of need fulfillment. From this Porter-Lawler reasoning follows the first of

three hypotheses of this Satisfaction of Needs section.

**Porter-Lawler Hypothesis I:** The higher an individual rates the quality of her own performance, the greater will be her expressed degree of need fulfillment.\(^{148}\)

The second of the three hypotheses concerns the relationship between self-rated performance and fulfillment (rewards) as compared to the relationship between self-rated performance and need satisfaction. It is important to keep in mind that Porter and Lawler view need satisfaction as the difference between actual fulfillment and expectations of fulfillment. In terms of the questionnaire, this would be the difference between "How much is there now?" and "How much should there be?" for each need category. Thus, fulfillment (rewards) should be more closely related to performance than to satisfaction. As can be seen in the model, fulfillment is not the only determinant of satisfaction. Need satisfaction is also influenced by the degree to which a person's perceived equitable rewards (expectations) exceed their fulfillment (actual rewards). Porter and Lawler contend that a person who has a high self-rating of performance will not necessarily be more satisfied than a person who rates his or her performance as low. This is because high self-ratings of performance will probably be accompanied by both high fulfillment as well as high expectations of fulfillment. The person who rates his or her performance as low will not only have lower fulfillment, but will probably also have lower expectations of fulfillment.

\(^{148}\)This is Hypothesis 6-B in Porter and Lawler, *Managerial Attitudes and Performance*, op. cit., p. 127.
Thus:

Porter-Lawler Hypothesis II: An individual's own ratings of the quality of her job performance will be related more strongly to her expressed degree of need fulfillment than to her degree of need satisfaction.\textsuperscript{149}

As can be seen then, three ratings will be involved in testing this relationship: self-rating of the quality of job performance; perceived need fulfillment actually received from the job; and, perceived expectations of the need fulfillment (equitable rewards) that should be received from the job.

The Porter-Lawler model specifies that effort, in addition to performance, can also be expected to be related to fulfillment (rewards) and subsequent satisfaction. Effort should be related to fulfillment and satisfaction to the extent that it is transformed into performance (actual accomplishment). The extent to which effort can be transformed into performance depends on an individual's abilities and traits as well as his or her role perceptions. These two variables combine in a multiplicative relationship with effort in the Porter-Lawler model. In this sense, if a person's abilities and traits are high in relation to the requirements of an assigned task, and if that person correctly perceives what her role should be in attempting to carry out an assigned task, then higher levels of effort will lead to higher levels of performance and greater rewards. On the other hand, the nature of this multiplicative relationship is also one that specifies that if either role perceptions are incorrect, or if abilities and traits are not

\textsuperscript{149} This is Hypothesis 6-D in Porter and Lawler, ibid., p. 129.
adequate to meet task requirements, effort may be increased with little or no effect on performance and subsequent rewards. As can be seen then, because of the mediating effects of abilities and traits and role perceptions on effort, the relationship between effort and rewards (fulfillment) will not be as strong as the relationship between performance and rewards (fulfillment). This weaker relationship will exist as long as rewards are given directly for performance and not for effort alone. Therefore, the final hypothesis of this section can be stated as follows:

**Porter-Lawler Hypothesis III:** An individual's self-rating of performance will be more strongly related to her degree of need fulfillment than will her self-rating of effort.\(^{150}\)

**Attitude Measures**

The part of the questionnaire designed to measure need fulfillment and need satisfaction is very similar to the one used in the Porter-Lawler investigation. The wording has been modified so that the questions might be directed toward faculty (as opposed to managers), and it covers attitudes toward physiological needs and pay. This part of the questionnaire will consist of 19 items in the following exemplary form:

The feeling of worthwhile accomplishment in my university position:

a. How much is there now?  
\[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]  
\(\text{(Min)}\)

b. How much should there be?  
\[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]  
\(\text{(Max)}\)

c. How important is this to me?  
\[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7\]

\(^{150}\) This is Hypothesis 5-E in Porter and Lawler, *ibid.*, p. 130. It has been slightly modified so as to cover self-ratings of effort and performance.
A complete listing of all 19 items can be found in Appendix I of this investigation. As can be seen, these items are arranged randomly in the questionnaire. However, they have been classified into one of the following five types of needs:

- Physiological (Questions 3 and 4)
- Security (Questions 9 and 18)
- Social (Questions 13 and 16)
- Esteem: Self and Others (Self: Questions 1, 8, and 15; Others: Questions 5, 6, and 11)
- Self-Actualization (Questions 2, 10, 12, 14, and 17)

The essential feature of the design of these questionnaire items is its relevancy to Maslow's theory of the prepotency of needs.

Using this design, need fulfillment can be measured by the answer to the first of the three questions for each of the 19 questionnaire items: "How much is there now?". Need satisfaction will be operationally measured by the difference between the answer to the second question concerning perceived equitable rewards, "How much should there be?" and the first question concerning actual fulfillment. By this method, the greater the amount by which "should be" exceeds "is now", the greater the dissatisfaction. (If a situation should arise in which the response to "should be" is less than "is now", the difference will be treated as signalling even less dissatisfaction than zero differences.) The answer to the third question, "How important is this to me?" will be used to measure the importance that individuals attach to different needs.
Effort and Performance Measures

The quality of job performance and the amount of effort expended on the job will be measured by asking the respondents to rate themselves on a seven-point scale for the two questions listed below. These questions can be found in Section IV of the questionnaire as numbers 1 and 3. The instruction for completing Section IV of the questionnaire will read in part:

The purpose of this section is to determine how you rate yourself relative to others in your university with similar academic duties. You will be asked to rate yourself for characteristics on a seven-point scale which will look like this.

(LOW) 1 2 3 4 5 6 7 (HIGH)

Please circle the number on the scale that represents where you stand compared to others with similar academic duties.

1. Quality of your job performance.
   (LOW) 1 2 3 4 5 6 7 (HIGH)

3. Amount of effort you expend on the job.
   (LOW) 1 2 3 4 5 6 7 (HIGH)

Tests of the Hypotheses and Results

Porter-Lawler Hypothesis I

The first hypothesis of this section, Porter-Lawler Hypothesis I, is concerned with the relationship between need fulfillment (rewards) and faculty members' self-ratings of their performance. As will be recalled, it was hypothesized that self-ratings of the quality of performance should be related to feelings of need fulfillment. More specifically, this hypothesis predicted that those persons who rate the quality of their performance as being high will experience
greater need fulfillment than those with low self-ratings of performance.

In testing this hypothesis it was necessary to distinguish between high performers and low performers. This was done by dividing the sample into two groups corresponding to the top-third and bottom-third of the responses to the quality of performance item. The performance (and effort) self-ratings and the number of respondents reporting those self-ratings were shown in Table V on page 40. As presented in Table V, a total of forty-seven (47) observations comprise the bottom third (low performers), whereas fifty-one (51) observations comprise the top third (high performers) of the quality of performance item.

In order for this hypothesis to be supported the results would have to demonstrate a significantly stronger relationship between high performers and their need fulfillment as compared with low performers and their need fulfillment. The existence and significance of this hypothesized relationship was tested by t-tests. The differences between the means of the high performance group's and the low performance group's answers to the question "How much is there now?" (fulfillment) was tested for statistical significance by means of t-tests. The results for Porter-Lawer Hypothesis I are shown in Figure 5 and Table XII. As can be seen in both of these illustrations, the results for all need categories except physiological were in the expected direction. High performers perceived greater levels of need fulfillment than did low performers. This is indicated by the fact that the high performance line is above the low performance line for all need
Figure 5. Comparison of Need Fulfillment for High and Low Self-Rated Performance Groups

N: Low Performance = 47; High Performance = 51. Comparisons by each of the five need categories: Physiological, Low Performers (3.80) vs. High Performers (3.37); n.s.; Security, Low Performers (3.61) vs. High Performers (4.02); n.s.; Social, Low Performers (5.11) vs. High Performers (5.21); n.s.; Esteem, Low Performers (4.01) vs. High Performers (4.20); n.s.; Self-Actualization, Low Performers (4.11) vs. Higher Performers (4.15): n.s.

### TABLE XII
LOW AND HIGH SELF-RATINGS OF EFFORT AND PERFORMANCE AS RELATED TO FULFILLMENT

<table>
<thead>
<tr>
<th>NEED CATEGORIES—FULFILLMENT</th>
<th>Physiological</th>
<th>Security</th>
<th>Social</th>
<th>Esteem</th>
<th>Self-Actualization</th>
</tr>
</thead>
</table>

#### SELF-RATINGS

- **EFFORT**
  - Low Effort: 3.33, 3.43, 4.83, 3.78, 3.76
  - High Effort: 3.79, 4.00, 5.21, 4.36, 4.30
  - t-Value: -1.47, -1.79, -1.51, -2.72, -1.96
  - Level of Significance: n.s., p = .07, n.s., p = .007, p = .05

- **PERFORMANCE**
  - Low Performance: 3.80, 3.61, 5.11, 4.01, 4.11
  - High Performance: 3.37, 4.02, 5.21, 4.20, 4.15
  - t-Value: 1.35, -1.25, -0.38, -0.82, -0.15
  - Level of Significance: n.s., n.s., n.s., n.s., n.s.

As presented above, there is no significant difference between high and low self-rated performers and their level of need fulfillment. Higher levels of performance are not significantly related to higher levels of fulfillment for any of the five need categories.

Insofar as self-ratings of effort are concerned, significant differences do exist between high and low self-rated effort groups for the higher-order esteem and self-actualization needs. The high effort group has a significantly higher level of fulfillment for esteem and self-actualization needs.

Also, as indicated by the absolute value of the t-values for the comparison between the effort-fulfillment relationship and the performance-fulfillment relationship, the respondents consider fulfillment (rewards) to be more closely related to the amount of effort expended on the job than to actual performance.
categories except physiological. However, while the results were in
the expected direction, a quick glance at the lower portion of Table
XII will show that none of them were significant. As such, the results
do not offer support for Porter-Lawler Hypothesis I of this investiga-
tion and do not, therefore, offer support for the Porter-Lawler conten-
tion that higher levels of self-rated performance are related to higher
levels of need fulfillment.

One possible explanation for the lack of support for this
hypothesis could be the splitting of the sample into high and low
groups on the basis of the number of respondents and their self-ratings
of performance. This investigation split the responses to the self-
rated performance item into three groups in the hope that two clearly
different levels of performance would emerge: high performance, the
top third grouping, and low performance, the bottom third grouping.
Perhaps with a larger number of respondents the differences between
the groups (which were in the expected direction) would reach statis-
tical significance.

Porter-Lawler Hypothesis II

The second hypothesis of this "Satisfaction of Needs" section
investigates the relationship between self-rating of performance and
fulfillment as compared with the relationship between self-ratings of
performance and satisfaction. This hypothesis predicted that the
relationship between self-ratings and performance and need fulfillment
will be stronger than the relationship between self-ratings of per-
performance and need satisfaction.
To test this hypothesis, it was necessary to split the sample into two groups based on their self-ratings of performance. The top third grouping of the responses was designated high performers, while the bottom third grouping was designated low performers. As was mentioned previously, the performance self-ratings and the number of respondents reporting those self-ratings are shown in Table V on page 40. Table V shows that forty-seven (47) observations comprise the low performance grouping, whereas fifty-one (51) observations comprise the high performance group. The differences between the means of each group's (that it, the high performance group and the low performance group) need dissatisfaction scores were tested for statistical significance by t-tests for each of the five need categories. It is important to remember that in this investigation dissatisfaction has been defined as a deficiency score obtained by subtracting the responses to the question "How much is there now?" from the response to the question "How much should there be?" The strength of the performance-dissatisfaction relationship is then compared with the strength of the performance-fulfillment relationship for each of the five need categories.

In order for Porter-Lawler Hypothesis II to be supported, the results of the t-test would have to demonstrate a significantly stronger relationship between performance and fulfillment as compared with performance and satisfaction. First, however, a presentation of the results of the performance-satisfaction relationship is necessary. The results of this test are shown in Figure 6. With the exception of the security need category, the high performance group perceived higher levels of dissatisfaction than did the low performance group.
Figure 6. Comparison of Need Dissatisfaction for High and Low Self-Rated Performance Groups

N: Low Performance = 47; High Performance = 51. Comparisons by each of the five need categories: Physiological, Low Performers (2.17) vs. High Performers (2.99): p = .02; Security, Low Performers (2.34) vs. High Performers (2.16): n.s.; Social, Low Performers (0.70) vs. High Performers (0.72): n.s.; Esteem, Low Performers (1.53) vs. High Performers (1.64): n.s.; Self-Actualization, Low Performers (2.01) vs. High Performers (2.17): n.s.

The relationship between performance and satisfaction for the physiological need category was significant at the $p = .02$ level. This indicates that high self-rated performers perceived significantly higher levels of dissatisfaction for physiological needs as compared with low performers. Restated, high performers were significantly more dissatisfied with their income and its lack of ability to adequately feed, clothe, house, and meet medical and dental needs for themselves and their family. The relationship for all other categories was not significant. Both Figure 6 as well as Figure 5 are necessary to further present the results for Porter-Lawler Hypothesis II.

While these two figures are helpful in further testing the hypothesis, a direct comparison of fulfillment (Figure 5) and satisfaction (Figure 6) cannot be made from them. This is because the ordinates for each of the graphs is different. On Figure 5 the ordinate is labeled fulfillment, whereas the ordinate for the graph in Figure 6 is labeled dissatisfaction. As such, a third illustration in the form of a table must be introduced to facilitate the comparison (see Table XIII). In it are presented the $t$-values for the differences between the means of fulfillment and dissatisfaction of the five need categories for the high and low self-rated performance groups. With these $t$-values for the differences between the means a direct comparison can now be made. The absolute value of the $t$-values indicates that for the security, social, and esteem categories a stronger relationship exists between performance and fulfillment as compared with performance and dissatisfaction. In other words, high and low self-rated performers are more statistically different (for the security, social, and esteem
**TABLE XIII**

**COMPARISON OF T-VALUES TO DETERMINE DEGREE OF RELATIONSHIP BETWEEN PERFORMANCE AND FULFILLMENT VS. PERFORMANCE AND DISSATISFACTION**

<table>
<thead>
<tr>
<th>NEED CATEGORY</th>
<th>FULFILLMENT</th>
<th>DISSATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiological</td>
<td>1.35, n.s.</td>
<td>-2.32, p = .02</td>
</tr>
<tr>
<td>Security</td>
<td>-1.25, n.s.</td>
<td>0.50, n.s.</td>
</tr>
<tr>
<td>Social</td>
<td>-0.38, n.s.</td>
<td>-0.09, n.s.</td>
</tr>
<tr>
<td>Esteem</td>
<td>-0.82, n.s.</td>
<td>-0.39, n.s.</td>
</tr>
<tr>
<td>Self-Actualization</td>
<td>-0.15, n.s.</td>
<td>-0.53, n.s.</td>
</tr>
</tbody>
</table>

**Dissatisfaction**

For all need categories except physiological no significant relationship exists between performance and dissatisfaction. This indicates that for the four remaining categories there is no difference between the two self-rated performance groups when compared to dissatisfaction. The only significant relationship obtained was that for physiological needs. This indicates that high performers perceived significantly higher levels of dissatisfaction for physiological needs as compared with low performers. See also Figure 6.

**Fulfillment**

This table also demonstrates that while the results for all need categories except physiological were in the expected direction, that is, high performers had higher levels of fulfillment than low performers, the difference between the two groups' means was not significant. See also Figure 5.
categories) on their need fulfillment than on their need dissatisfaction. This is indicated by the fact that for these three need categories the absolute value of t is greater for fulfillment than for dissatisfaction. In a comparison of t-values to assess the strength of a relationship between variables, the larger value indicates a stronger relationship. However, since none of these values are significant, the second hypothesis cannot be supported.

A possible explanation for the lack of support might again be the splitting of the sample into high and low groups on the basis of the number of respondents and their self-ratings of performance. Perhaps with a larger number of respondents the differences between the groups would be large enough to reach statistical significance.

A further lack of support for Porter-Lawler Hypothesis II is indicated by the dissatisfaction-fulfillment pattern for physiological needs. As can be seen in Table XIII, not only was the absolute value of the t-value for the performance/dissatisfaction relationship (2.32) larger than that for performance/fulfillment (1.35) but also, this larger t-value was significant at the p = .02 level. Thus, for the physiological need category not only does a significantly stronger relationship exist, but it exists in a direction contrary to that proposed by the hypothesis. In other words, for the physiological category an individual's self-rating of performance is more closely related to satisfaction than to fulfillment. A possible explanation for this finding that high performers have a significantly higher level of dissatisfaction for physiological needs might be that their perceived equitable level of rewards is also higher. Thus, the degree of
dissatisfaction with the lack of their income's ability to feed, house, clothe, and meet the medical and dental needs of themselves and their families could stem from their expectation that their higher levels of performance should have higher levels of (in this case, physiological) rewards. This finding is certainly consistent with the results for the physiological fulfillment category previously presented in Porter-Lawler Hypothesis I. While not significant, this relationship demonstrated that high performers had lower levels of physiological fulfillment than did low performers. This topic will be treated further in the "discussion" section.

Porter-Lawler Hypothesis III

The last of the hypotheses to be tested in this section, Porter-Lawler Hypothesis III, concerns itself with the relationship between self-ratings of performance and fulfillment as compared with self-ratings of effort and fulfillment. It predicts that self-ratings of performance will be more strongly related to need fulfillment than will self-ratings of effort be related to need fulfillment.

To test this hypothesis the sample was split into two groups on the basis of the self-ratings of effort. The top third grouping of the responses was designated high effort, while the bottom third grouping was designated low effort. The effort self-ratings and the number of respondents reporting those self-ratings are shown in Table V on page 40. Table V shows that forty-six (46) observations comprise the low effort grouping, whereas seventy-five (75) observations comprise the high effort group. The differences between the means of each group's (high effort and low effort group) responses to the need fulfillment
question ("How much is there now?") for each of the five need categories were tested for statistical significance by t-tests. The results of the effort-fulfillment relationship were then compared with the strength of the performance-fulfillment relationship for each of the five need categories.

In order for Porter-Lawler Hypothesis III to be supported the results would have to demonstrate a significantly stronger relationship between performance-fulfillment than for effort-fulfillment. This stronger relationship would be indicated by larger t-values. Figure 7, Figure 5, and Table XII are relevant for the presentation of results for this hypothesis.

Figure 7 and the upper half of Table XII present the results of the effort-fulfillment relationship. As can be seen in Figure 7, the high effort group expressed higher levels of fulfillment for each of the five need categories than did the low effort group. This higher level of fulfillment was significantly related to self-ratings of effort for both the esteem and self-actualization need categories. As presented in Table XII and Figure 7 these significant relationships for effort-fulfillment are as follows: esteem, low effort (3.78) vs. high effort (4.36): \( p = .007 \); self-actualization, low effort (3.76) vs. high effort (4.30): \( p = .05 \). In addition, the effort-fulfillment relationship for the security need category approached statistical significance at the \( p = .07 \) level. The relationship for the physiological and social need categories was not significant.

These effort-fulfillment results can now be compared with those for the performance-fulfillment relationship. As shown in the bottom
Figure 7. Comparison of Need Fulfillment for High and Low Self-Rated Effort Groups

N: Low Effort = 46; High Effort = 75. Comparisons by each of the five need categories: Physiological, Low Effort (3.33) vs. High Effort (3.79): n.s.; Security, Low Effort (3.43) vs. High Effort (4.00): $p = .07$; Social, Low Effort (4.83) vs. High Effort (5.21): n.s.; Esteem, Low Effort (3.78) vs. High Effort (4.36): $p = .007$; Self-Actualization, Low Effort (3.76) vs. High Effort (4.30): $p = .05$.

half of Table XII and also in Figure 5, none of the performance-fulfillment relationships were significant. In addition, the absolute value of the t-values for every one of the need categories for the effort-fulfillment relationship was larger than for the performance-fulfillment relationship. These larger t-values indicate that a stronger, or closer, relationship exists between effort and fulfillment than between performance and fulfillment. As was pointed out above, this relationship was significant for both of the higher-order esteem and self-actualization needs. Thus, these results do not support Porter-Lawler Hypothesis III, nor do they support the Porter-Lawler contention that performance is more closely related to fulfillment than effort. Once again, however, the lack of support might stem from the method of dividing effort and performance into high and low groupings.

Discussion

In this section three hypotheses were formulated to test the need fulfillment and satisfaction section of the Porter-Lawler model. The results of the tests of these three hypotheses yielded no firm support for this section of the model. Where Porter and Lawler predicted significant relationships to exist between certain variables of their model, none were obtained.

More specifically, the first hypothesis stated that the higher an individual rates the quality of her own performance, the greater will be her expressed degree of need fulfillment. The rationale behind the development of this hypothesis was that if organizations provided differential rewards to reflect differentials in performance, then persons who rated themselves high on performance would also express a
higher level of need fulfillment (rewards) than persons who rated themselves low on performance. As was presented earlier, the results did not support this hypothesis. None of the high versus low performance-fulfillment comparisons were statistically significant. These results indicate that the female faculty members who perceive themselves as performing especially well in their job capacity do not feel that their job is providing them with a significantly higher level of fulfillment (reward) than those faculty members who rate themselves low in performance. However, it should be noted that the results were in the expected direction for all of the need categories except physiological. Graphically, this was depicted in Figure 5 by the fact that for the four remaining need categories, the line representing the high performers was above the line representing the low performers. The only need category for which the results were not in the expected direction was for the aforementioned physiological category. For this need category high self-rated performers felt that their jobs provided even less fulfillment than did low self-rated performers. It will be recalled that the physiological category concerned itself with questions dealing with the ability of job income to adequately feed, house, clothe, and provide for the medical and dental needs of the faculty member and her family. As was pointed out above, however, this relationship was not significant.

There are three possible reasons for the lack of support for this hypothesis. Two of them are related to the reward (fulfillment) component of the model. These rewards can be of an extrinsic nature, (through salary increases, promotions, job security) or an intrinsic nature, (through feelings of accomplishment, opportunity for individual growth,
use of creative potential) or, both. In Porter and Lawler terminology, rewards given by the organization are referred to as extrinsic rewards. Thus, one possible reason for the lack of support for this hypothesis could be that the university reward system is not operating so that differentials in performance are indeed differentially rewarded. Faculty members do not feel that higher levels of performance are being rewarded by the university through salary increases, or promotions, or other forms of extrinsic rewards.

Rewards that an individual gives herself for good performance are referred to as intrinsic. In a discussion of their model, Porter and Lawler emphasize that intrinsic rewards are related to good performance only if the design of the job provides sufficient variety and challenge so that an individual can reward herself if she feels she has performed well.\textsuperscript{151}\footnote{Porter and Lawler, \textit{ibid.}, p. 163.} The demographics of this study revealed that over 70 percent of the respondents occupied positions of instructor (forty-one percent) or assistant professor (thirty percent). These positions are at the lower end of the academic promotion ladder. As is the case with so many positions at the lower end of a promotion ladder, perhaps (although not tested by the data here) these academic positions do not provide the variation and challenge necessary for intrinsic rewards.

In discussing the results of their study on managerial employees Porter and Lawler likewise mention that it was probably the nature of the sample itself (managers as opposed to nonmanagers) that resulted in significant relationships between self-ratings of performance and
fulfillment. Specifically in relationship to Porter-Lawler Hypothesis I, they state that it is more likely to be confirmed for managers than for nonmanagement employees. The reasoning here would involve the assumption that management jobs, in contrast to nonmanagement jobs, by their very nature are more likely to contain a higher percentage of challenging tasks leading to feelings of self-esteem and growth when the individual believes he has performed them well.

Thus, combining this reasoning with the demographics of this study, it could be argued that there might be differences within the academic hierarchy that could lead to different findings than those obtained here. The relevancy of this argument cannot be determined by the data gathered in this study. It depends upon the results of future, additional research in this area. This research would involve investigating female faculty who occupy higher level academic positions (that is, those at the associate professor and full professor level) and comparing results with lower level positions (those at the instructor and assistant professor and professor level) to determine if significant differences could be obtained. This possibility of differences existing within academic ranks is an area for extended research.

Empirical support for the line of thinking suggested above was generated by the results of two studies by John Slocum. In one study

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152 Ibid., p. 148.
Slocum\textsuperscript{154} found that performance and need satisfaction were more strongly related for upper level managers than for lower level managers. One interpretation of this finding was that upper level managers have greater latitude in providing themselves with intrinsic rewards. In a second study by Slocum\textsuperscript{155} significantly higher correlations were obtained between performance and satisfaction for higher level needs commonly associated with intrinsic rewards than for lower level needs.

Not all of the research findings, however, support the theory that the nature of the job itself influences self-administered intrinsic rewards (higher level fulfillment). A recent investigation was conducted by Lloyd Baird\textsuperscript{156} to determine if the nature of the job itself would indeed allow individuals to provide themselves with intrinsic rewards. Specifically, he focused on the impact of intrinsic rewards on the relationship between performance and satisfaction.

Theoretically, according to Baird, performance and satisfaction should be strongly related on those job tasks that provide "opportunities to do a meaningful and identifiable portion of the work, if they result in outcomes that are .... experienced as worthwhile by the individual, and if they provide feedback about what has been


accomplished." In the Baird investigation, jobs possessing these characteristics were termed "stimulating" whereas those not possessing these characteristics were termed "nonstimulating." The general hypothesis of this study, then, was that individuals who worked on stimulating jobs would demonstrate a positive relationship between performance and satisfaction.

Quite interestingly, and contrary to general theory, the results of the study demonstrated that satisfaction was correlated with performance only in "nonstimulating" jobs. (It should be noted, however, that satisfaction in the Baird study was measured with the Smith, Kendall, and Hulin "Job Descriptive Index" and that the performance measure was a superior, not a self, rating of performance.)

In discussing these results, Baird acknowledged that:

More importantly, it is possible that the J. D. I. is not an appropriate measure to test the theory. .... Theory suggests that it is satisfaction of higher order needs that is important in job design. Direct measures of higher order need satisfaction might provide different results than those obtained.

As was mentioned earlier there are three possible reasons for the lack of support of Porter-Lawler Hypothesis I. The third possible reason for the lack of support might lie with the methodology used to split the self-ratings of performance into highs and lows. This investigation split the responses to the self-rated performance item

\[157\] Ibid., p. 722.
\[158\] Ibid., p. 726.
into three groups in the hope that two clearly different levels of performance would emerge: high performance, the top third grouping consisting of 51 observations, and low performance, the bottom third grouping consisting of 47 observations. Perhaps with a larger number of respondents, the differences between the groups (which were in the expected direction) would have reached statistical significance.

The results of this investigation also did not support Porter-Lawler Hypothesis II. Based on the relationship predicted by the Porter-Lawler model, this hypothesis stated that the relationship between self-ratings of performance and need fulfillment would be stronger than the relationship between self-ratings of performance and need satisfaction. The results of the test of this hypothesis, as presented in Figure 5 (fulfillment) and Figure 6 (satisfaction) reveal that the hypothesis was not supported. In addition, evidence was gathered for the physiological need category which partially disaffirmed the hypothesis under discussion. Of the five need categories, a significant relationship was obtained between performance and physiological satisfaction \[ \text{low performers (2.17) versus high performers (2.99: } p = .02 \]. Furthermore, Figure 6 demonstrated that high self-rated performers are more dissatisfied with the level of rewards received in all need categories (except security) than are low self-rated performers. This is indicated by the fact that the high self-rating of performance line is above the low self-rating of performance line for all need categories except security.

Figure 5 shows that none of the relationships between self-ratings of performance and fulfillment were significant. This lack of significant differences indicates that when a faculty member feels she
has done a good job she is not likely to feel that she has been any more highly rewarded than a low performer. When the results presented in Figure 5 are considered with show in Figure 6 it can also be said that high self-rated performers are likely to be more dissatisfied than low self-rated performers with this level of rewards. The reason for this could be that her perceived level of equitable rewards is greater than that of a low performer. Therefore, the degree of dissatisfaction with what she is receiving is also greater. This line of reasoning is supported by Lawler, who states that:

....in a situation where the good performing employees are rewarded the same as poor performing employees, a negative relationship should exist between satisfaction and performance because the better performers will be experiencing the same level of rewards as the poor, but will feel they should be rewarded more highly. In short, the good performers will have a greater discrepancy between what they receive and what they feel they should receive.159

A second possible reason for the higher level of dissatisfaction stems from the findings for physiological need fulfillment. Although the findings for physiological fulfillment were not significant, Figure 5 depicts that high self-rated performers expressed less fulfillment of physiological needs than did low self-rated performers. This is indicated by the fact that the high performance line is below the low performance line for the physiological category. Thus, a lower level of actual fulfillment combined with a higher perceived

equitable level of rewards resulted in the significantly greater level of dissatisfaction of physiological needs.

Thus, as was mentioned at the outset of this discussion of Porter-Lawler Hypothesis II, the results demonstrate that the respondents in this study do not perceive rewards as being contingent on performance. The possibility exists then that the reason why rewards are not perceived as being contingent upon performance is because faculty members may perceive rewards as being distributed randomly. In a random reward system, rewards are not distributed on the basis of performance, but rather, both high and low performers receive rewards. Support for this line of thinking was generated by the results of a study by Cherrington, Reitz, and Scott, Jr. This study tested the hypothesis that random reward systems yielded correlations between performance and satisfaction that would not differ significantly from zero. The results of the Cherrington, Reitz, and Scott, Jr. study supported their hypothesis. In an attempt to determine if random reward systems were perceived to exist by the subjects of this study, correlations were made by this investigator to determine if the relationship between performance self-ratings and satisfaction would also be close to zero. Those correlations for each of the five need categories are: physiological: .1565; security: -.1375; social: -.0680; esteem: -.0884; self-actualization: -.0315. Thus, based on the findings of both the Cherrington, Reitz, and Scott, Jr. study and the

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similar correlations obtained in this investigation, support exists for the position that faculty members do not perceive rewards as being contingent on performance.

As was stated above, not only was Porter-Lawler Hypothesis II not supported by the data, but also it was partially disaffirmed by the significant relationship obtained between performance and physiological satisfaction. This result was certainly not expected in that the physiological category is a lower level need category and is associated with extrinsic rewards and satisfaction. And, in reference to this, Lawler has stated that satisfaction with intrinsic rewards should be more closely tied to performance than satisfaction with extrinsic rewards.161

The Porter-Lawler position is supported by the results of the studies by Slocum on managerial employees mentioned earlier.162 In one investigation Slocum specifically tested whether performance and need satisfaction were more closely related for higher level needs (intrinsic rewards) than for lower level needs (extrinsic rewards). The results yielded significantly higher correlations between performance and satisfaction for higher level self-actualization needs than for security or esteem needs.163 The findings of a second study by Slocum also supported the Porter-Lawler position relating higher

161 Lawler, op. cit., p. 227.
164 Slocum, "Motivation in Managerial Levels: Relationship of Need Satisfaction to Job Performance," op. cit.
order need satisfaction to performance. Slocum stated, "As predicted, the higher order needs of autonomy and self-actualization were more closely associated (p<.05) with performance than the lower order needs." 165

Another study of the performance/need satisfaction relationship by Kuhn, Slocum, and Chase 166 yielded different results from those presented immediately above. In this investigation of nonmanagerial employees, extrinsic rewards and their satisfaction of lower level needs were found to be more closely related to performance than intrinsic rewards and the satisfaction of upper level needs.

Finally, a further study by Edward Lawler and Douglas Hall 167 found that higher order autonomy and self-actualization need satisfaction was not related to self-rated performance. "The data show that a close to zero relationship exists between satisfaction and performance." 168

As can be seen then, the results concerning the relationship of performance and need satisfaction vary from study to study. At best, the exact nature of this relationship can be described as: uncertain. This uncertainty continues to be reflected in the current

165 Ibid., p. 315. It should be noted that while Slocum used the Porter-Lawler questionnaire in both of his investigations, the need categories included in the study and their order, from lowest to highest, were: security, social, esteem, autonomy, and self-actualization.


168 Ibid., p. 310.
research and writings on this topic. However, much of the current research on the relationship between need satisfaction and performance is concerned with "causality." Determination of causality is beyond the methodology and scope of this writer's study. Perhaps with a better understanding (that is, a better understanding than is currently known) of the direction of causality, however, more definitive statements can be made about the relationship between performance, intrinsic and extrinsic rewards and need satisfaction.

At first glance, the controversy over the direction of a causal relationship between two variables such as job satisfaction and job performance may be unwarranted in light of empirical evidence denouncing any simple association. However, a subtle advantage of such a postulation may be the advancing of different moderator variables dependent upon hypothesized directionality. Such an advantage is demonstrated in the Lawler and Porter model (1967) in which they incorporated a moderator variable labeled "perceived equitable rewards".169

Perhaps, then, the best way to end this discussion of Porter-Lawler Hypothesis II is by briefly reflecting the different views on causality since the publication of the model* and the resulting lack of consensus. Porter and Lawler consider satisfaction a dependent variable, an effect of performance. Satisfaction is considered to be a function of performance-related rewards. An empirical investigation

*Note: Earlier views were presented at the beginning of this "Satisfaction of Needs" section.

by Greene focused on causal relationships between rewards (in the form of merit pay), job satisfaction, and performance. The results supported the idea that satisfaction is an effect of performance, not a cause. As stated by Greene,

The results of this study support the hypothesis that merit pay causes satisfaction but satisfaction does not cause performance. Concerning the satisfaction-performance relationship, however, the results do provide evidence supporting the opposite direction—that performance causes satisfaction.  

These results led Greene to conclude: "These particular results are consistent with Porter and Lawler's (1968) predictions that differential performance causes rewards which, in turn, cause satisfaction."  

A completely opposite view was derived from the results of the Cherrington, Reitz, and Scott, Jr. investigation mentioned earlier. They propose that there is no inherent relationship between satisfaction and performance and that just about any empirical relationship can be produced between self-reports of satisfaction and performance simply by manipulating the performance to reward contingency. The results of the Cherrington, Reitz, and Scott, Jr. experimental study strongly supported their position. Correlations  

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171 Ibid., p. 99.
172 Ibid.
173 Cherrington, Reitz, and Scott, Jr., *op. cit.*
174 The basic idea of the Cherrington, Reitz, and Scott, Jr., position is that both performance and satisfaction are a function of performance contingent rewards. These rewards cause both performance and satisfaction.
between satisfaction and performance either: did not differ significantly from zero in random reward situations; or, were positive where contingent rewards were appropriate for performance; or, finally, were negative where contingent rewards were inappropriate for performance.

A "causal-correlational" analysis of the longitudinal data gathered by John Wanous on female telephone operators found that job satisfaction and performance were positively related. However, the direction of causality could not be determined. When job satisfaction was divided into intrinsic and extrinsic components Wanous found that performance causes intrinsic satisfaction, whereas extrinsic satisfaction causes performance. These relationships were explained by the nature of the job under consideration (The relationship between performance and subsequent intrinsic satisfaction was explained by the initial challenge encountered on a new job.) and also by the fact that the subjects of the study were newly hired employees (The desire to "look good" as a new employee was offered as an explanation for the relationship between extrinsic satisfaction and subsequent performance.).

Finally, the picture of the relationship between performance and satisfaction is further clouded by the results of two very recent investigations: one by Jacobs and Solomon and the other by J. H. Kerr Inkson. Both of these investigations examined the influence of

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self-esteem as a moderator variable on the relationship between performance and satisfaction. The impetus for this line of thought stems from the results of laboratory studies by A. K. Korman. The results of one of Korman's early investigations\(^{178}\) offers support for the view that task liking and task success will be positively related for subjects who are high on self-esteem and that task liking and task success will be unrelated for low self-esteem subjects.

Further studies in this area led Korman to propose a "consistency" theory of work motivation.\(^{179}\) Korman theorized that a person's job performance depended upon his "self" concept. Workers then would vary their performance so as to run parallel with either a positive or negative self-evaluation. For example, a person who views himself as having a great deal of self-esteem would attempt to perform well in order to maintain consistency with his self-concept. This same individual would also become dissatisfied if he could not perform well. Likewise, a low self-esteem worker would not attempt to perform well (to do otherwise would be inconsistent with his self-concept). Also, this worker would become dissatisfied if he performed well. Two conclusions follow from this line of thinking:

1. High self-esteem workers will have higher levels of performance than low self-esteem workers.


2. A positive relationship will exist between performance and satisfaction for high self-esteem workers, whereas a negative relationship will exist between performance and satisfaction for low self-esteem workers.

Both of the above conclusions were tested by the J. H. Kerr Inkson\textsuperscript{180} study mentioned above. The results did not confirm the hypothesis that self-esteem is correlated with job performance. The explanation offered by Inkson for this lack of confirmation was the nature of the jobs of the subjects themselves: New Zealand meat processors. From an employment point of view this is one of New Zealand's lowest in status and is viewed as being only a means to an end. "High performance is therefore unlikely to be seen as a way of implementing a positive self-concept."\textsuperscript{181}

Results of a second hypothesis tested in the Inkson study did, however, yield support for the view that performance and satisfaction would be positively related for high self-esteem workers. As discussed by Inkson, "These results suggested that good performance, even if it was not striven for any more by high self-esteem than by low self-esteem workers, nevertheless helped these workers to achieve greater intrinsic satisfaction."\textsuperscript{182}

Jacobs and Solomon\textsuperscript{183} also tested the hypothesis that self-esteem operates as a moderator to significantly increase the

\textsuperscript{180} Inkson, op. cit.
\textsuperscript{181} Ibid., p. 246.
\textsuperscript{182} Ibid.
satisfaction and performance relationship. Statistical tests yielded considerable support for this hypothesis. The moderating effect of self-esteem, as advanced by Korman, was to increase the satisfaction and performance relationship.

On the basis of this brief update on the relationship (if any) between performance and satisfaction, it seems safe to conclude that a great deal more research needs to be conducted before a definitive assessment can be made regarding performance and satisfaction and the factors affecting these two variables.

The last hypothesis tested in this section, Porter-Lawler Hypothesis III, predicted that self-ratings of performance would be more closely related to need fulfillment than would self-ratings of effort. The results of the test of this hypothesis partially disaffirmed it. Statistically significant relationships were obtained between self-ratings of effort and both of the higher-order esteem and self-actualization need categories. As presented earlier in Table XII and Figure 7, these significant relationships for effort-fulfillment are as follows: esteem, low effort (3.78) vs. high effort (4.36): \( p = .007 \); self-actualization, low effort (3.76) vs. high effort (4.30): \( p = .05 \). In addition, the effort-fulfillment relationship for the security need category approached statistical significance at the \( p = .07 \) level. By comparison, none of the relationships between performance and fulfillment were significant. These results were presented earlier in Table XII and Figure 5. This finding runs contrary to the predictions of the Porter-Lawler model, for in the model (page 98) effort is further removed from fulfillment (rewards) than is
performance. Thus, for the subjects of this study, a stronger relationship exists between effort and fulfillment than between performance and fulfillment. These results would then explain the lack of significant relationships in the performance-fulfillment area (as tested in Porter-Lawler Hypothesis I), for it is effort which is perceived to be more closely related to fulfillment than performance.

It will be recalled that the fulfillment, or reward, variable in the Porter-Lawler model can be of an extrinsic nature or an intrinsic nature. Extrinsic rewards are those which the organization gives and correspond to the fulfillment of lower-order needs. Intrinsic rewards are those which the individual gives herself and correspond to the fulfillment of higher-order needs. Since significant relationships were obtained between effort and both of the higher-order esteem and self-actualization need categories it can be argued that faculty members who rate their effort as high are rewarding themselves through feelings of accomplishment. None of the relationships between effort and the three lower-level need categories (extrinsic rewards) were significant. However, it is interesting to note in Table XII that the absolute value, or magnitude, of the t-values for each of the effort-fulfillment relationships is larger than that for the corresponding need category in the performance-fulfillment relationship. For the effort-security fulfillment relationship, this value approaches significances at the p = .07 level. Thus, it could be suggested that the organization is providing just as many, if not more, extrinsic rewards for effort expended as for performance.
Obviously from an organizational standpoint, it is important to reward performance (actual accomplishment), as opposed to effort (energy expended). The results of this investigation (Porter-Lawler Hypothesis I) demonstrated that the faculty members surveyed do not perceive the organization as rewarding performance. Nor do they perceive the organization as providing the opportunity to provide themselves with intrinsic rewards for high levels of performance. These two statements are supported by the fact that none of the comparisons between high versus low self-rated performers and each of the five need categories were significant. Thus, the significant relationships between higher-order esteem and self-actualization needs and self-ratings of effort could indicate that individuals have to reward themselves with intrinsic rewards for their high levels of effort.

Summary

The predictions derived from the Porter-Lawler model concerning the relationship between effort and performance self-ratings and need fulfillment and satisfaction do not seem to be generally applicable to the female faculty members of this study. Of the three hypotheses tested in this section one was not supported and the remaining two were partially disaffirmed. These hypotheses and their status (based on the results of this investigation) are presented in summary form in Table XIV.

The test of Porter-Lawler Hypothesis I demonstrated no difference between high and low self-rated performers and their level of need fulfillment. Differentials in performance were not perceived as being differentially rewarded and, for the subjects of this study,
As can be seen, Table XIV provides a summary of the results of the three hypotheses tested in this study to determine the applicability of the "Satisfaction of Needs" section of the Porter-Lawler model.
self-ratings of performance and fulfillment were not significantly related.

Porter-Lawler Hypothesis II directed its attention to two areas: to determine if a relationship existed between performance and satisfaction; and, to determine if, as the model predicts, that performance would be more closely related to fulfillment than to satisfaction. The results showed that, except for physiological needs, performance and satisfaction were also not significantly related. For physiological needs, high self-rated performers perceived significantly higher levels of dissatisfaction than low self-rated performers. Also, performance was not found to be more closely related to fulfillment than to satisfaction.

Finally, Porter-Lawler Hypothesis III explored the relationship between fulfillment and self-ratings of effort and performance. Once again it was discovered that when a significant relationship existed, it was in an opposite direction to that suggested by the Porter-Lawler model.

On the basis of these findings, then, certain modifications need to be made in the Porter-Lawler model. They are depicted in Figure 8 and serve to make the model more accurate in describing the relationship between attitude and behavior variables for the subjects of this study: female faculty members. The most important of these modifications stems from the findings of Porter-Lawler Hypothesis III wherein effort was found to be more closely related to higher-order need fulfillment (intrinsic rewards) than was performance. Specifically, high self-ratings of effort were found to be significantly
Figure 8. Modifications in the Porter-Lawler Model on the Basis of the Findings of the "Satisfaction of Needs" Section of the Investigation.
related to the fulfillment of esteem and self-actualization needs. This was not expected from the predictions of Porter and Lawler since effort is separated in the model by more variables from fulfillment than is performance.

As can be seen then, these results do not generally support the predictions of the Porter-Lawler model. The next section of this investigation will examine another part of the model: role perceptions. Statistical techniques similar to those used in the "Need Satisfaction" section will again be used to test Porter-Lawler predictions concerning the relationship of role perceptions to effort and performance.

ROLE PERCEPTIONS

The Porter-Lawler model is designed to call attention to the importance of role perceptions as one of the variables which translates effort into performance. The model specifies that given equal levels of ability and effort those individuals who have correct role perceptions (that is, that which should be done to meet job requirements) will be more effective performers than those who do not. One of the role perceptions thought to be relevant to job performance has been characterized along an "inner-other directed" dimension as first suggested by the writing of David Riesman in 1950. The question to which this research project must now direct its attention can be stated

184 The overall organization and structural framework for this section is drawn from Porter and Lawler, ibid., pp. 98-119.

as follows: Is the inner-other directed dimension relevant for determining faculty performance? Evidence that faculty role perceptions on this dimension are consistently related to effective performance would offer support for the model. And, in addition, this research information would also reveal which of the two sets of traits is more closely related to effective faculty performance.

In formulating and testing their model, Porter and Lawler thought it very important to collect data relevant to the inner-other-directed dimension so as to ascertain the importance of role perceptions in determining performance. They noted a shift in thinking concerning the qualities necessary for effective performance in modern organizations. Much of the controversy in this area was sparked by the publication of two books in the 1950s: *The Lonely Crowd*\(^{186}\) by David Riesman and *The Organization Man*\(^{187}\) by William Whyte, Jr. Both of these works questioned whether independence and imagination were still among the qualities leading to effective performance in business organizations today.

Riesman believes that successful performance in organizations flows from people who are "other-directed" in their thinking; that is, those who emphasize getting along and being accepted by others. As explained by Professor Leon Megginson, the other-directed person operates as though he were guided by radar. The radar antenna is tuned to the shifts in attitudes and reactions of others. The individual

\(^{186}\) Ibid.

monitors these shifts and acts accordingly. It was found in an experiment designed to test the validity of this hypothesis that other-directed persons were more susceptible to social influence than were inner-directed individuals. The results showed a positive support for the hypothesis. On the other hand, the inner-directed person is one who is less sensitive to the thinking and desires of others in guiding his own behavior. Rather, he relies heavily on his own ideas and values in determining his behavior.

In 1956 a similar set of ideas was advanced by Whyte. Whyte also directed his attention to the type of behavior necessary to succeed in today's organizations. This concept was advanced under the title "organization man." The hallmark of the organization man's behavior was conformity, and in order to succeed, the individual must therefore sacrifice some of his individuality and creativity.

Porter and Lawler point out the similarity between the views of Riesman and Whyte: successful performance in modern organizations depended on getting along and being accepted by others. Individuality was "out" while conformity was "in." Both Riesman and Whyte thought this to be especially true in lower and middle management positions and among bureaucrats and salaried employees. Porter and Lawler, however, question whether these other-directed, organization man qualities do in fact lead to successful performance. They cite empirical evidence concerning the relative success of managers with inner- and

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188 Megginson, op. cit., p. 556.
other-directed values. The results of these studies do not support the views of Riesman and Whyte. One study by Fleishman and Peters found a significant tendency \( r = -0.44 \) for those managers who scored low on conformity to be given a higher job performance rating by their superiors than managers who scored high on conformity.\(^{190}\) Since the subjects of this study were middle managers in a large industrial organization, the results appear to be especially damaging to the views of Riesman and Whyte. The results obtained by Fleishman and Peters were replicated in a follow-up study by Hay.\(^{191}\) Roadman studied the peer-rated characteristics of managers as compared with their promotion rates.\(^{192}\) He also found that successful managers (that is, those who were promoted) were those exhibiting such inner-directed characteristics as originality, independence, aggressiveness, and self-expression. These same managers were scored relatively low by their peers on their tact and cooperation with others. Two other studies on this subject have been conducted by Porter and Henry.\(^{193}\) They investigated managers' perceptions of how important ten personality-type traits were for success in


\(^{193}\) Lyman Porter and Mildred Henry, "Job Attitudes in Management: VI.," op. cit.

their positions. Five of these traits were considered to describe inner-directed behavior and five described other-directed behavior. The findings of these two studies were interpreted to mean that large organizations tend to reward inner-directed behavior.

Hypotheses

The Porter-Lawler model emphasizes that in order for a person to perform effectively on the job, his or her perceptions of what should be done to accomplish the job task (that is, their role perceptions) should be similar to what the organization believes should be done to accomplish the task. When this occurs the employee is said to have "correct" role perceptions. And, following the Porter-Lawler reasoning, with abilities and motivation held constant, organizational participants with "correct" role perceptions will be more effective performers than those with "incorrect" role perceptions. (Note: Motivation is operationally defined as the combination of the following: the value of rewards and the perceived effort-reward probability.) In formulating the first hypothesis then, it should be remembered that the empirical evidence cited above demonstrated that large organizations rewarded inner-directed behavior. As such, the first of two hypotheses concerning role perceptions can now be stated.

\[194\] Porter and Lawler point out that role perceptions are assumed to form the basis of role behavior. Therefore, there should be a "substantial amount of congruence" between them.
Porter-Lawler Hypothesis IV: The more faculty members see their jobs as demanding inner-directed behavior, the higher they will rate themselves on quality of job performance.\textsuperscript{195}

Since data is to be gathered concerning the self-rated amount of effort each person puts forth on the job, a second hypothesis can be stated. This hypothesis is based on the idea that effort, ability, and role perceptions combine multiplicatively to determine performance. The nature of a multiplicative relationship is one wherein if either effort, or ability, or the correctness of role perceptions is low, the end result (that is, performance) will also be low. From this reasoning a second hypothesis follows:

Porter-Lawler Hypothesis V: The relationship between role perceptions and performance will be greater (stronger) for those persons who rate themselves high on effort than it will be for those persons who rate themselves low on effort.\textsuperscript{196}

Attitude Measures

The role perceptions of the female faculty will be measured by asking them to rank 12 personality-type traits. The part of the questionnaire designed to measure role perceptions is identical to the one used in both the Porter and Lawler investigation and the Porter and Henry investigations. The wording has been modified so that the instructions might be directed toward faculty. These instructions are

\textsuperscript{195}This is Hypothesis 5-A in Porter and Lawler, Managerial Attitudes and Performance, op. cit., p. 104. It has been slightly modified so as to cover self-ratings of performance.

\textsuperscript{196}This is Hypothesis 5-B in Porter and Lawler, \textit{ibid}. It has been slightly modified so as to cover self-ratings of effort and performance.
as follows:

The purpose of this part of the questionnaire is to obtain a picture of the traits you believe are most necessary for success in your present university position.

Below is a list of twelve traits arranged randomly. Rank these twelve traits from 1 to 12 in the order of their importance for success in your present university position.

In order to disguise the dimension being studied, two dummy traits were included in the list: efficiency and intelligence. These two items were dropped from the list when the data was analyzed. The remainint ten traits were reranked from 1 to 10, and the appropriate traits were elevated in rank so as to serve as replacements for the two that were removed. Note that while the respondents were asked to assign the most important trait a rank of 1, the analysis of the data reversed the numerical order of importance. In the analysis of the data then, the most important trait was given a score of 9 and the least important trait was given a score of 0. The ten relevant traits are listed below in the two clusters as described in the writings of Riesman and Whyte.

<table>
<thead>
<tr>
<th>Inner-Directed Cluster</th>
<th>Other-Directed Cluster</th>
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<tbody>
<tr>
<td>Forceful</td>
<td>Cooperative</td>
</tr>
<tr>
<td>Imaginative</td>
<td>Adaptable</td>
</tr>
<tr>
<td>Independent</td>
<td>Cautious</td>
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<tr>
<td>Self-Confident</td>
<td>Agreeable</td>
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<tr>
<td>Decisive</td>
<td>Tactful</td>
</tr>
</tbody>
</table>

As in the Porter-Lawler study, cluster scores will be computed for each person by summing her ranks for the five relevant traits. This cluster score will then be subtracted from 45 (the sum of the digits from 0 to 9) to determine the score for the other cluster. Thus, a high score on a given dimension indicates that the five traits making up that dimension were all rated as relatively important.
Tests of the Hypotheses and Results

Porter-Lawler Hypothesis IV

The first role perception hypothesis, Porter-Lawler Hypothesis IV, predicted that the more faculty members see their jobs as demanding inner-directed behavior the higher will be their self-ratings of the quality of their job performance. In testing this hypothesis the sample was divided into two groups based on which cluster, inner-directed or other-directed, they believe to be more important in determining success in their present university position. (As was stated above, this measure was obtained from the ranking of traits listed in Section V of the questionnaire. A complete copy of the questionnaire can be found in the appendix.) Each group was then compared with its mean self-rating of job performance to determine, by means of t-tests (t = 1.02), if the differences were statistically significant. The results of the test of Porter-Lawler Hypothesis IV are presented in Figure 9. As can be seen, there is a trend for female faculty members who have high inner-directed cluster scores (N = 90) to rate themselves higher on job performance than do those female faculty who have low inner-directed cluster scores (N = 93). This is indicated by the rise in the line as the degree of inner-directedness moves from low to high. The difference between these two groups, however, is not significant.

Table XV presents the mean ranking for each trait by high and low self-rated performance groups. It is interesting to note that both high and low self-rated performers ranked self-confidence (inner-directed) and cooperative (other-directed) as the two traits most important for job success, whereas forceful (inner-directed) and
Figure 9. Mean Self-Rating of Job Performance for High and Low Inner-Directed Groups

N = Low Inner-Directed (LL) = 93; High Inner-Directed (HH) = 90. Comparison: LL (5.81) vs. HH (5.97): t = 1.02, n.s.

**TABLE XV**

**MEAN RANKING OF TRAITS BY HIGH AND LOW SELF-RATED PERFORMANCE GROUPS**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Low Performers (N = 47)</th>
<th>Mean</th>
<th>Rank</th>
<th>High Performers (N = 51)</th>
<th>Mean</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INNER-DIRECTED TRAITS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forceful</td>
<td>2.19</td>
<td>0</td>
<td></td>
<td>2.70</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Imaginative</td>
<td>5.31</td>
<td>6</td>
<td></td>
<td>4.82</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Independent</td>
<td>3.48</td>
<td>2</td>
<td></td>
<td>3.84</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Self-Confident</td>
<td>6.48</td>
<td>9</td>
<td></td>
<td>5.88</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Decisive</td>
<td>4.14</td>
<td>4</td>
<td></td>
<td>4.37</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Σ = 21.60</strong></td>
<td></td>
<td></td>
<td><strong>Σ = 21.61</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OTHER-DIRECTED TRAITS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative</td>
<td>5.80</td>
<td>8</td>
<td></td>
<td>6.60</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Adaptive</td>
<td>5.72</td>
<td>7</td>
<td></td>
<td>5.72</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Cautious</td>
<td>2.61</td>
<td>1</td>
<td></td>
<td>1.94</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Tactful</td>
<td>5.12</td>
<td>5</td>
<td></td>
<td>4.47</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agreeable</td>
<td>4.12</td>
<td>3</td>
<td></td>
<td>4.52</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Σ = 23.37</strong></td>
<td></td>
<td></td>
<td><strong>Σ = 23.35</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The numbers in the above table represent the mean and ranking of inner, other-directed traits by the two self-rated performance groups. The higher the number, the greater is the relative importance of the trait. The maximum possible ranking is 9 and the minimum is 0. Two of the five inner-directed traits (self-confident and imaginative) are rated as more important by the high self-rated performers, and three of the five other-directed traits (cooperative, adaptable, and tactful) are rated as more important by the low self-rated performers.

cautious (other-directed) were the two traits ranked by both high and low performers as least important. As can be seen in the sums of the means in Table XV there is very little difference in the ranking of inner-directed traits by high ($\bar{X} = 21.61$) and low ($\bar{X} = 21.60$) self-rated performers. Similarly, there is very little difference in the ranking of other-directed traits by high ($\bar{X} = 23.25$) and low ($\bar{X} = 23.37$) self-rated performers. The data presented in Table XV along with the results presented in Figure 9 do not support Porter-Lawler Hypothesis IV.

Porter Lawler Hypothesis V

The second role perception hypothesis, Porter-Lawler Hypothesis V, predicted that the relationship between role perceptions and performance will be stronger for those persons who rate themselves high on effort than for those who rate themselves low on effort. In order to test this hypothesis, the sample was first divided into two groups (high and low) on the basis of their self-ratings of effort. The basis of the division was the top and bottom third of the scores for the self-ratings of effort. The effort self-ratings and the number of respondents reporting those self-ratings were shown earlier in Table V.

As presented in Table V in a total of forty-six (46) observations comprise the bottom third (low effort), whereas seventy-five (75)* observations comprise the top third (high effort) of the quality of effort item. Within each of the two effort groups, the sample was again

*Note: While 75 observations comprise the total high effort item, only 73 were actually used in the subsequent test of Porter-Lawler Hypothesis V. The reason for this is that 2 of the total 75 observations did not complete the "Role Perception" section of the questionnaire. As such, they were eliminated from the analysis.
divided into two groups. The basis for this secondary division was the inner-directed cluster score so that for each self-rated effort level (high and low), high and low inner-directed faculty were obtained. Each of these four groupings (high effort-high inner-directed, N = 41; high effort-low inner-directed, N = 32; low effort-high inner-directed, N = 18; low effort-low inner-directed, N = 28) were then compared with their respective self-ratings of performance. The differences between the means for each of the group's self-ratings of performance were tested for statistical significance by means of t-tests. The results are presented in Figure 10. As can be seen, the high self-rating of effort line is above the low self-rating of effort line. Thus, the results are in the expected direction as the mean self-ratings of performance for both the high and low inner-directed, high effort groups are larger than those for the high and low inner-directed, low effort groups. However, the differences are not statistically significant. In addition, and contrary to expectations, the high inner-directed, high effort group had a smaller mean self-rating of performance than did the low inner-directed, high effort group. This is indicated by the slight decrease in the slope of the high effort line from low to high inner-directedness. Thus, the results do not support Porter-Lawler Hypothesis V.

Discussion

The Porter-Lawler model states that role perceptions are one of the variables used by a worker to convert efforts into performance. In this section two hypotheses were formulated to test the role
Figure 10. Mean Self-Rating of Job Performance for High and Low Inner-Directed Groups with Two Levels of Effort

N: High Inner-Directed, High Effort (HI-HE) = 41; Low Inner-Directed, High Effort (LI-HE) = 32; High Inner-Directed, Low Effort (HI-LE) = 18; Low Inner-Directed, Low Effort (LI-LE) = 28.

Comparisons by inner-directedness: HI-HE (6.48) vs. LI-HE (6.50), \( t = -0.0744, \text{n.s.} \); HI-LE (5.05) vs. LI-LE (4.96), \( t = .2332, \text{n.s.} \).

perception variable of the Porter-Lawler model. The results of the tests of these two hypotheses yielded no firm support for this section of the model. Where Porter and Lawler predicted significant relationships to exist between role perceptions and performance, none were obtained.

More specifically, the first hypothesis stated that the more faculty members see their jobs as demanding inner-directed behavior, the higher they will rate themselves on quality of job performance. As was presented in the results of Porter-Lawler Hypothesis IV and in Figure 9, while the high inner-directed group did have higher self-ratings of performance than the low inner-directed group, the difference was not significant. The second hypothesis tested in this section was based on the Porter-Lawler idea that effort, ability, and role perceptions combine multiplicatively to determine performance. The nature of a multiplicative relationship is one wherein if either effort, or ability, or the correctness of role perceptions is low, the end result, performance, will also be low. More specifically, the second hypothesis stated that the relationship between role perceptions and performance would be greater (stronger) for those persons who rated themselves high on effort than it would be for those persons who rated themselves low on effort. As can be seen then, this hypothesis (Porter-Lawler Hypothesis V: two levels of effort) was predicated on a relationship existing between role perceptions and performance (Porter-Lawler Hypothesis IV: effort held constant). It was mentioned above that the results of this investigation did not offer support for Hypothesis IV; no relationship was found between role perceptions and
performance. With these results it was then expected that no significant relationships would be found when effort was varied in Porter-Lawler Hypothesis V. As presented in the results of Hypothesis V and Figure 10, none were found.

The results of Porter and Lawler, Fleishman and Peters, Hay, Roadman, and Porter and Henry (cited at the beginning of this "Role Perception" section) all lend considerable support for the view that role perceptions and their degree of "correctness" do indeed influence performance. Why, then, was no relationship found in this investigation?

The results of this investigation seem to suggest that for the sample under consideration role perceptions as classified along an inner, other-directed dimension do not have as close a relationship to performance as Porter-Lawler would suggest. At the same time, however, the results certainly do not support the Riesman and Whyte views concerning the place of other-directed behavior in the American workplace. As can be seen in Table XV, there is no overwhelming preference by high and low self-rated performers as to which set of traits, inner or other-directed, is most important for success in their academic positions. This lack of a consistent preference for one set of traits over the other applies not only to high and low self-rated performers but to the entire sample under consideration. The entire sample ranked the inner, other-directed traits as having the following importance:
Greatest Importance
1. Cooperative (Other-Directed)
2. Self-Confident (Inner-Directed)
3. Adaptable (Other-Directed)
4. Imaginative (Inner-Directed)
5. Tactful (Other-Directed)
6. Decisive (Inner-Directed)
7. Agreeable (Other-Directed)
8. Independent (Inner-Directed)
9. Forceful (Inner-Directed)

Least Importance
10. Cautious (Other-Directed)

As can be seen, both inner and other-directed traits are quite evenly dispersed throughout the ranking. Thus, one possible explanation for the lack of support for the hypotheses in this section resides in this lack of consistency as to which set of traits is most important for job success. Hypothesis IV focused on a cluster of traits, viewed in the literature as being inner-directed or other-directed in orientation, to determine its relationship to performance. However, the results presented in Table XV, and the ranking of the importance of the traits presented above reveal a mixture of both inner and other-directed traits to be essential to the success of women in academics.

Based on these findings then, the lack of support for the role perception hypotheses might stem from the classification of traits along the inner, other-directed dimension. The lack of a significant relationship for the variables tested in Porter-Lawler Hypotheses IV and V demonstrates that being relatively inner-directed or relatively other-directed bears no relationship to performance. Rather, the results suggest that both high and low performers (Table XV) as well as the sample as a whole view a combination of both inner and other-directed traits as being important to success in academic positions. This, of course, would be an area for further research. The possibility exists
that the qualities (role perceptions) necessary for success in academic positions might not be accurately classified along an inner, other-directed dimension. It is important to note that much of the literature upon which the theorized relationship between inner-directed, other-directed role perceptions and performance was formulated was based on managers. In other words, it is quite possible that the reason why no relationship was found between role perceptions and performance was because the traits, role perceptions, that comprise the inner-directed, other-directed dimension are not relevant (when they are viewed in those clusters) for success in academic positions. It would appear that some mixture of inner and other-directed traits might prove to be more accurate in relating role perceptions to performance.

Another explanation for the lack of support for the two role perception hypotheses in this section might lie with the gender of the sample under consideration in this investigation: females. Porter and Lawler argue that inner-directed behavior is rewarded by organizations and that inner-directed behavior is related to higher levels of performance. A closer look at the inner-directed dimension reveals that it is comprised of those traits that have traditionally not been associated with the feminine role: independent, forceful, decisive, imaginative, and self-confident. On the other hand, such other-directed traits as agreeable, tactful, cooperative, cautious, and adaptable run much more parallel with the role traditionally expected to be carried out by females. Thus, to exhibit inner-directed traits is not "feminine," and yet, behaving in an other-directed orientation
leads neither to rewards nor to higher levels of performance. Therefore, the second possible explanation for the lack of support for the hypotheses in this section lies in the fact that many women in the workplace are faced with what in the literature is known as "role conflict." 197

This role conflict is manifested by the uncertainty on the part of women as to which set, or mixture of traits, should be used for effective performance on the job. Thus, it could be suggested that the lack of consistency in the rankings presented above, as well as in Table XV exemplifies this uncertainty. Dr. Megginson 198 cites the recent findings of a training program for women managers conducted by the University of Minnesota. 199

The objective of the program was to try to get each woman to understand herself, both as a woman and as an achiever, and to accept the premise that these two qualities are not incompatible.200

Three months after the conclusion of the program the women were interviewed to note the effects, if any, that the training program had. "Better self-awareness" and "increased self-confidence" were the most frequently mentioned effects of the program.

Horner, on the basis of her research, was led to conclude that:

200 Megginson, Personnel and Human Resources Administration, op. cit.
For women, then, the desire to achieve is often contaminated by what I call the motive to avoid success. I define it as the fear that success in competitive situations will lead to negative consequences, such as unpopularity and loss of femininity.201

And, in a recent publication, Dr. Harris202 cited the research findings of Bem203 which showed that high levels of femininity are usually related to low self-esteem, high anxiety, and low self-acceptance. Similar findings can be found in Terborg,204 Buchholz,205 and White and McIlroy.206

Following this line of thought, it is quite possible that the lack of a relationship between inner, other-directed role perceptions and performance lies in the fact that women are faced with conflicting role demands: those of being "feminine" in the traditional (other-directed) sense of the word versus those of "getting the job done"

203 Bem, op. cit., p. 60.
(inner-directed) which research, as cited earlier, has shown to be significantly related to higher levels of performance.

If role conflict does exist among the female faculty members of this study, it then becomes important to reduce it. The research efforts of House and Rizzo on role conflict and ambiguity would seem to support this line of thinking. Generally, the relationship between role conflict and level of individual performance has been hypothesized to be negative: greater role conflict is associated with lower levels of performance.

Perhaps when women's perceptions of what role they are to enact are solidified (possibly, as Dr. Megginson has suggested, through

\[\text{Note: This study did not investigate role conflict, per se. It focused on the Porter-Lawler theory of the relationship between role perceptions and performance as measured along the inner-directed, other-directed dimension. For those who might be further interested in the measurement of role conflict and role ambiguity, a questionnaire has been developed by Rizzo, House, and Lirtzman. See: John Rizzo, Robert House, and Sidney Lirtzman, "Role Conflict and Ambiguity in Complex Organizations," Administrative Science Quarterly, Vol. 15, No. 2 (June, 1970), pp. 150-163.}\]

\[\text{Robert J. House and John R. Rizzo, "Role Conflict and Ambiguity as Critical Variables in a Model of Organizational Behavior," Organizational Behavior and Human Performance, Vol. 7, No. 3 (June, 1972), pp. 467-505.}\]

\[\text{Not all research findings support this negative relationship. For example, see the following review: W. Clay Hamner and Henry Tosi, "Relationship of Role Conflict and Role Ambiguity to Job Involvement Measures," Journal of Applied Psychology, Vol. 59, No. 4 (August, 1974), pp. 497-499. These discrepancies in findings concerning the relationship between role conflict and performance have been explained by Hamner and Tosi by naming "organizational level" as a moderator variable. The influence of organizational level as a moderator in this relationship is also supported by the findings of: Randall S. Schuler, "Role Perceptions, Satisfaction, and Performance: A Partial Reconciliation," Journal of Applied Psychology, Vol. 60, No. 6 (December, 1975), pp. 683-687; and, Andres Szilagyi, "An Empirical Test of Causal Inference Between Role Perceptions, Satisfaction with Work, Performance and Organizational Level," Personnel Psychology, Vol. 30, No. 3 (Autumn, 1977), pp. 375-388.}\]
training programs) a more definitive relationship between role perceptions and performance will result. Dr. Harris's own findings in this area led him to suggest that the self-concept of women may be changing. This, he notes, is important "because perception frequently has a direct link with behavior." He argues that if it is advantageous to possess self-confidence and self-esteem in managerial and supervisory positions, then women with less self-confidence may be seriously handicapped in the performance of their jobs. Based on a recent sample, Dr. Harris's findings show that "women nearing the completion of their college careers and preparing to enter the work force (and the ranks of managers) revealed a self-concept that was equal to those of the men in the sample and in some cases exceeded the men's self-concept." Whether this self-concept is reinforced or shaken by subsequent experience in the work place will be an area worth watching.

Summary

The predictions derived from the Porter-Lawler model concerning the relationship between role perceptions and performance as well as the relationship of effort and role perceptions to performance do not seem to be generally applicable to the female faculty members of this study. Neither of the two hypotheses tested in this section were supported by the data. These hypotheses and their status (based on the results of this investigation) are presented in summary form in Table XVI.

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210 Harris, "Is Self-Concept a Limiting Managerial Factor for Women?" op. cit., p. 43.
211 Ibid., p. 42
### TABLE XVI

**SUMMARY OF RESULTS: ROLE PERCEPTIONS**

<table>
<thead>
<tr>
<th>PORTER-LAWLER HYPOTHESIS</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV. The more faculty members see their jobs as demanding inner-directed behavior, the higher they will rate themselves on quality of job performance.</td>
<td>Not Supported</td>
</tr>
<tr>
<td>V. The relationship between role perceptions and performance will be greater (stronger) for those persons who rate themselves high on effort than it will be for those persons who rate themselves low on effort.</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

As can be seen, Table XVI provides a summary of the results of the two hypotheses tested in this study to determine the applicability of the "Role Perceptions" section of the Porter-Lawler model.
The test of Porter-Lawler Hypothesis IV demonstrated no significant difference between high and low inner-directed behavior and self-ratings of performance. While high inner-directedness was associated with higher self-rated levels of performance than was low inner-directedness, the difference was not significant.

The purpose of Porter-Lawler Hypothesis V was to vary effort to determine its effect on the role perception-performance relationship. However, since no relationship was found between role perceptions and performance in Hypothesis IV, it was not expected that one would be found when effort was varied. And, as the results showed, there was no significant relationship of effort and role perceptions to performance.

Finally, a ranking of the importance of the inner, other-directed characteristics by both the sample as a whole as well as by high and low self-rated performers showed that a mixture of both inner and other-directed characteristics were thought to be important for success on the job.

On the basis of these findings, then, certain modifications need to be made in the Porter-Lawler model. They are depicted in Figure 11 and serve to make the model more accurate in describing the relationship between attitude and behavior variables for the subjects of this study: female faculty members. The most important modification stems from the findings of Porter-Lawler Hypothesis IV which showed no significant relationship between role perceptions and performance.
Figure 11. Modifications of the Porter-Lawler Model on the Basis of the Findings of the "Role Perceptions" Section of the Investigation.

*Note: Although the influence of "abilities" was not investigated in this study, a recent study by Randall S. Schuler, "The Effects of Role Perceptions on Employee Satisfaction and Performance Moderated by Employee Ability," Organizational Behavior and Human Performance, Vol. 18, No. 1 (February, 1977), pp. 98-107, focused on the effects of ability on the relationship between role conflict and performance. Schuler hypothesized that high employee ability would reduce the negative relationship between role conflict and performance. The overall results, however, did not support this line of thinking.
The next section of this investigation will examine the last of the parts of the model to be considered in this study: pay as a satisfier. Statistical techniques similar to those used in the "Need Satisfaction" and "Role Perception" sections will again be used to test Porter-Lawler predictions concerning the relationship of pay as a satisfier to effort and performance.

**PAY AS A SATISFIER**

In considering the relationship between performance, rewards, and satisfaction, Porter and Lawler noted that rewards are valued (that is, considered important) only to the extent that they satisfy needs. A previous section of this investigation considered the relationship between performance, the fulfillment of needs as categorized by Maslow, and the satisfaction of those needs. It will be noted in the section of the questionnaire designed to measure need fulfillment a "non-specific" item was introduced: "The pay for my position." Porter and Lawler did not include pay under any one particular need category because they believed pay functioned to satisfy several need levels. In fact, their model is specifically based on the empirically-supported assumption that pay satisfies not only lower-order needs but higher-order needs as well. As such, they singled out the role of

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*Note: This item was called "non-specific" because Porter and Lawler maintain that it is related to more than one need category.

212 The overall organization and structural framework for this section is drawn from Porter and Lawler, *ibid.*, pp. 56-97.

213 Porter and Lawler cite the following two studies in support of their statement:
pay as a motivator or "satisfier" (if we are to use Herzberg's terminology) for special attention.

The role of pay as a motivator of performance has received varying amounts of attention and importance over time. From the perspective of management history the variations in the importance placed on money as a motivator can be seen in three broad views on the individual at work: "economic man," "social man," and "self-actualizing man."

The term "economic man" is usually associated with the scientific management period. According to Daniel Wren, "This notion held that monetary incentives brought out the best in man and that he would work harder to get more."\(^{214}\)

> Early scientific management theory was consonant with the social values of reward for individual effort and the classical virtues of rational man directed by his own self interest .... this self interest was largely the monetary reward that came from work, giving rise to the idea of 'economic man.'\(^{215}\)

With this view of why man worked in mind, organizations began installing hundreds of different pay plans. Some of them included:


\(^{214}\) Wren, op. cit., p. 51.

\(^{215}\) Ibid., p. 259.
Taylor's piece-rate system, Gantt's task work with a bonus system, Towne's gain sharing plan, and Halsey's premium plan of paying for labor. While these plans were capable of generating productivity increases and aid in fact do so, they also gave rise to other problems.

One source of these problems stemmed from the "lump of labor theory." This theory held that there was only a fixed amount of work to do in this world and that to work harder today meant only that much less for the worker to do tomorrow. As such, it would be possible for an individual to work himself and his or her fellow workers out of a job through high levels of performance. Another source of problems and employer-employee friction was the fact that many organizations resorted to lowering the piece rate or raising the standard after they had been "scientifically" determined. Workers thus had to work harder to earn the same amount of money. These first two problems tended to destroy any association between performance and pay. The last major source of problems leading to the abandonment of the economic man concept and its reliance on incentive plans for greater productivity arose through the informal work group's sanctions against rate busting (that is, going beyond the group-determined quota for output). These sanctions ranged from sarcasm to ridicule to "binging" to complete ostracism of the rate buster. In this situation, the worker's desire to be accepted by fellow workers might preclude higher levels of performance even though those higher levels would lead to greater monetary rewards.

These problems along with a new view of man generated by Mayo's explanation of the results of the Hawthorne studies set the stage for
emphasis on factors other than financial ones to influence an individual's productivity. The results of the Hawthorne studies ushered in a new era in management thought: human relations with its emphasis on "social man." According to human relationists, "economic man" was no longer a totally valid concept for describing behavior at work. Instead, social man was a more accurate description of worker motivation. Social man was motivated by a desire to be continuously associated with his fellow workers. Porter and Lawler state:

The developing 'human relations' movement apparently contributed to the abandonment of many incentive pay plans. ... Motivational schemes during this period were frequently designed in a way that essentially ignored the use of pay as a motivator, despite the fact that the Western Electric studies themselves found that in the Second Relay Assembly room a substantial increase in productivity was due to the wage incentive system.\(^{216}\)

The human relations concept of "social man" was not to be long-lived. It was replaced by "self-actualizing man." According to Porter and Lawler, it was Maslow's theory of motivation\(^{217}\) that explained both the failure of incentive systems and why pay might lack primary importance for workers. Maslow's theory was that unsatisfied needs motivate

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For additional details and criticism of the Hawthorne researchers' failure to consider the fact that their results demonstrated pay did function as a motivator see: Alex Carey, "The Hawthorne Studies: A Radical Criticism," *American Sociological Review*, Vol. 32, No. 3 (June, 1967), pp. 403-416.


Maslow was not alone in his views on self-actualizing man. Other writers with similar views include McGregor, Argyris, and Herzberg.
behavior and that man was constantly striving to satisfy needs. These needs were arranged in a hierarchy of importance and included (from lowest to highest) the following categories: physiological, safety, social, esteem, and self-actualization. Once one level of needs was relatively well-satisfied its importance as a motivator declined and the next higher level of needs emerged to influence behavior. Many of the proponents of a self-actualizing view of man believe that pay satisfies lower-order needs. Therefore, incentive plans based on monetary rewards are often said to have been unsuccessful because in the American workplace most workers' lower-order needs are well satisfied. As theorized by Maslow, satisfied needs do not motivate behavior and pay therefore would decline in importance. And, according to the Porter-Lawler model, pay will not function as a motivator if it is unimportant. However, pay is unimportant as a motivator only if it is assumed that pay satisfies mainly lower-order needs. As was cited at the beginning of this section, empirical evidence exists which demonstrates that pay can satisfy both lower-order and higher-order needs. Therefore, as a result of the broad need satisfaction capabilities of monetary rewards, pay is important enough in most cases to be a significant motivator of behavior.

The question to which Porter and Lawler now addressed themselves was to determine those conditions under which pay would motivate effective job performance. In general terms the answer seemed to lie in a comparison of effective managers' attitudes toward pay with ineffective managers' attitudes toward pay. As can be seen in the Porter-Lawler model on page 98, two kinds of attitudes must exist if pay is to
function as an incentive: pay must be important to the person, and secondly, that person must believe that performance will lead to monetary rewards. Pay will not function effectively as an incentive if either of these two attitudes is lacking. In addition, no relationship could be expected between the importance of pay and performance.

**Hypotheses**

Studies by Georgopoulos, Mahoney, and Jones \(^{218}\) and by Herzberg, Mausner, and Snyderman \(^{219}\) were cited by Porter and Lawler as offering evidence in support of their prediction that those workers who see a close relationship between pay and performance will in fact be motivated to good performance. The Georgopoulos *et al.* study reported that workers with high self-ratings found good performance as being a path to obtain higher pay. The publication, *The Motivation to Work*, by Herzberg *et al.* has also reported on the results of a study that considered the relationship between attitudes toward pay and job performance. In gathering his data Herzberg asked over 200 accountants and engineers representing a cross-section of industry in Philadelphia to think of a time when they felt exceptionally good or exceptionally bad and to then relate what had caused their feelings. Emerging from this study was a new concept of motivation known variously as the motivation-hygiene concept, the motivation-maintenance model, the two factor theory of motivation, and the satisfier-dissatisfier theory. (Herzberg's theory has received both widespread support and many criticisms.)

\(^{218}\)Georgopoulos, Mahoney, and Jones, *op. cit.*

\(^{219}\)Herzberg, Mausner, and Snyderman, *op. cit.*
Regardless of the title under which Herzberg's theory is described, the results of his research point to two distinct sets of factors: one set leading primarily to job satisfaction and the other set leading primarily to job dissatisfaction. According to Herzberg,

This hypothesis suggested that the factors involved in producing job satisfaction were separate and distinct from the factors that led to job dissatisfaction. ... The opposite of job satisfaction would not be job dissatisfaction, but rather no job satisfaction; and similarly the opposite of job dissatisfaction is no job dissatisfaction -- not job satisfaction.\(^{220}\)

The factors leading to job dissatisfaction were called hygiene or maintenance factors and were usually found to be associated with the job environment or job context (that is, the situation in which the individual performs the job). Examples of these hygiene factors include working conditions, supervision, interpersonal relations, company policies, and job security. Herzberg found that these hygiene factors acted "in a manner analogous to the principles of medical hygiene. Hygiene operates to remove health hazards from the environment of man. It is not a curative: it is, rather, a preventive."\(^{221}\)

The hygiene, or maintenance, factors operate in such a way that their presence is not highly motivating, but their absence proves to be highly dissatisfying. In other words, when these factors deteriorated below what the worker considered to be an acceptable level, dissatisfaction was the result. However, the maintenance of these factors at or above an acceptable level did not prove to be motivating. It only

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\(^{221}\) Herzberg, Mausner, and Snyderman, op. cit., p. 113.
prevented dissatisfaction.

The other set of factors identified by Herzberg were termed satisfiers, or motivators. Satisfiers lead primarily to job satisfaction and were usually found to be associated with the job content (that is, what a person does). Examples of these satisfiers include: achievement, advancement, recognition, responsibility, and the nature of the work itself. Herzberg found that the presence of these factors proved to be highly motivating toward better performance. The absence of these factors from job content did not result in job dissatisfaction, but rather in no satisfaction.

As can be seen from the following illustration one of the factors considered by Herzberg, pay, appeared almost as many times in the "percentage frequency of responses" as a satisfier as it did as a dissatisfier. Through what many writers have termed a "roundabout" interpretation of the results, however, Herzberg classified pay as a dissatisfier. Under this classification then, if an acceptable level of pay is not maintained dissatisfaction will result. By the same token, however, the Herzberg theory would suggest that even if pay were to be maintained at an acceptable level, it would not lead to satisfaction. Maintenance of an acceptable pay level would only prevent dissatisfaction.

Categorizing pay as a dissatisfier can be used by others as evidence that pay cannot be an effective motivator of good job performance. Porter and Lawler question the validity of categorizing pay as a maintenance factor. More specifically, as stated by Lawler,
Figure 12. Herzberg's Satisfiers and Dissatisfiers

According to this view, pay operates only as a maintenance factor and, as such, has no power to motivate job performance beyond some neutral point. However, this interpretation is not in accord with the results of the study. The study, in fact, found that pay may or may not be a motivator, depending upon how it is administered. A careful reading of Herzberg shows that where pay was geared to achievement and seen as a form of recognition by the managers, it was a potent motivator of good performance. It was only where organizations had abandoned pay as an incentive and were unsuccessful in fairly relating pay and performance that pay ceased to be a motivator and became a maintenance factor.\(^2\)

Thus, when pay was specifically mentioned as accompanying an individual's achievement on the job; as a form of recognition; or, as an indication that the individual was making progress in his work, Porter and Lawler state that pay appeared to be satisfying both higher- and lower-order needs. Lawler elaborated on this point as follows: "I would like to emphasize the neglected viewpoint that pay is a unique incentive—unique because it is able to satisfy both the lower-order physiological and security needs and the higher-order needs, such as esteem and recognition."\(^3\) In relating Herzberg's theory of motivation to the Porter-Lawler model, it is important to note that the model specifies that the only attitudes leading to effective performance on the job are those indicating that the individual perceives rewards as contingent on good performance. More specifically, pay can be an effective incentive for good performance when pay is seen by individuals as being related to effective job performance in such a way that it becomes a form of recognition for effective job performance.

\(^2\) Edward Lawler, III, "The Mythology of Management Compensation," op. cit., p. 230. Underscoring was added by this writer.

\(^3\) Ibid., p. 226.
Porter and Lawler believe that when the results of the Herzberg et al. study concerning pay and performance are considered in the manner presented above, they appear to be in agreement with and even predictable from the Porter-Lawler model. As such, the first hypothesis relative to pay as a satisfier (motivator) can be stated. It is based on the results of the Herzberg et al. study and the Porter-Lawler model.

**Porter-Lawler Hypothesis VI:** The more an individual see her pay as a satisfier, the more effort she will put forth to perform her job effectively.\(^{224}\)

As can be seen, Porter-Lawler Hypothesis VI assumes that attitudes toward pay as a satisfier reflect attitudes of how hard a person will work (effort) rather than actual job performance. However, the Porter and Lawler model conceptualizes effort as being influenced by role perceptions as well as abilities and traits in determining performance. With this in mind, a second hypothesis can be stated which deals with the relationship between attitudes toward pay as a satisfier and performance.

**Porter-Lawler Hypothesis VII:** Attitudes toward the degree to which pay is seen as a satisfier will be more closely related to the amount of effort an individual puts forth on her job than to the quality of her job performance.\(^{225}\)

The Porter-Lawler model predicts that there will be a stronger relationship between attitudes toward the perceived probability that pay depends upon performance and job performance for managers who say

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\(^{224}\)This is Hypothesis 4-E in Porter and Lawler, *op. cit.*, p. 66. The wording has been adapted to apply to the subjects of this study.

\(^{225}\)This is Hypothesis 4-F in Porter and Lawler, *ibid*. The wording has been adapted to apply to the subjects of this study.
pay is important to them than there will be for managers to whom pay is unimportant. Thus, it could be expected that the relationship between attitudes toward pay as a satisfier and performance will be stronger for those persons who say pay is important to them than for those persons for whom pay is relatively unimportant. Therefore, a third hypothesis concerning pay as a satisfier can be stated.

Porter-Lawler Hypothesis VIII: The relationship between an individual's attitudes toward pay as a satisfier and measures of self-rated performance and effort will be stronger for those faculty members who say their pay is important to them than for those who say their pay is relatively unimportant to them.226

Pay Program of the Organization Studied

The four campuses studied are all part of the Louisiana State University System, subject to the Board of Regents and ultimately to the state legislature and the governor for all funds. They are, therefore, subject to similar pay programs. The following description of those programs has been compiled from policy statements in faculty handbooks published by Louisiana State University and University of New Orleans.227

The universities involved do not operate on a fixed salary basis. Rather, there is an annual review of salary, and adjustment and/or increases thereof are recommended within the framework of available funds. The bases for salary increases are: promotion in rank, general

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226 This is Hypothesis 4-G in Porter and Lawler, ibid., p. 67. The wording has been adapted to apply to the subjects of this study.

raises throughout the university, or recognition of individual merit.  

"Recommendations for promotion are based upon achievement and competence in teaching, research, and other related professional endeavors." Merit increases are allocated in recognition of distinguished attainment and service. Seniority is considered, but it is never of itself a factor in the absence of other claims. The attempt is made to evaluate each individual in terms of his own ability and scholarly contribution or in terms of his creative and artistic contributions, rather than in terms of the renown of his degree-granting institution. Scholarly publications as well as participation in scholarly meetings and association activities are certainly major factors in salary determinations.

From the above description, it would seem reasonable to conclude that the pay program policy for the faculty of the campuses of the Louisiana State University System places greater relative emphasis on performance factors in determining salary. (Two of the three stated determinants of salary increases, promotions and merit, are based on performance.) Or, in Porter-Lawler terminology, monetary rewards are contingent on performance. However, there is some question as to whether or not the current pay program practices are similar to the policies. If there is a difference between policy and practice, the key to that difference seems to lie in the phrasing of one of the initial statements on salaries: salaries, their reviews, adjustments, and increases depend on the framework of available funds. Therefore, the

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228 Ibid. p. 32.
229 Ibid. p. 33.
230 Ibid.
current crunch on academic funding may not allow the stated policy to be implemented to its fullest extent in practice.

Attitude Measures

Three categories of attitude measures are needed to test the hypotheses concerning pay as a satisfier:

1. Index of pay as a satisfier
2. Reward value of pay (perceived importance)
3. Effort and performance measures

Pay as a Satisfier

Three items contained in Section III of the questionnaire were used to measure the degree to which faculty see their pay as a satisfier. The respondents were asked to indicate the degree of their agreement or disagreement with each of the following three items on a five-point Likert-type scale.

1. For me, raises have meant that I was progressing in my work.
2. The raises I have received were rewards for good performance.
3. In my job, pay is a form of recognition for a job well done.

In the 1968 Porter-Lawler study, Pearson product-moment correlation coefficients were used to determine the degree of relationship among the three above items. The substantial degree of intercorrelations found among the items indicated that they were homogeneous. This homogeneity, in turn, suggested that the items were reliable and could therefore be combined into a composite measure of "pay as a satisfier." A similar procedure was followed in this study. Table XVII presents the correlation coefficients of the items measuring the degree to which pay is seen as a satisfier. As can be seen by the
**TABLE XVII**

**CORRELATIONS AMONG ITEMS REPRESENTING THE DEGREE TO WHICH PAY IS SEEN AS A SATISIFIER IN THIS INVESTIGATION**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Item No. 2</th>
<th>Item No. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rewards for Good Performance</td>
<td>Recognition for a Job Well Done</td>
</tr>
<tr>
<td>1. For me, raises have meant that I was progressing in my work.</td>
<td>(.0001)*</td>
<td>(.0001)*</td>
</tr>
<tr>
<td></td>
<td>.7427</td>
<td>.7026</td>
</tr>
<tr>
<td>2. The raises I have received were rewards for good performance.</td>
<td>.7884</td>
<td></td>
</tr>
<tr>
<td>3. In my job, pay is a form of recognition for a job well done.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P<.01

magnitude of the correlation coefficients, there are substantial inter-correlations among the items indicating a high degree of homogeneity among the items. This indicated that the items are reliable and can therefore be combined into a meaningful composite measure (index) of pay as a satisfier. The index of pay as a satisfier was determined for each respondent by summing her score on the three items. The higher the score, the more pay is seen as a satisfier. The numerical value for this index can range from a low of 3 to a high of 15. Those scores in the range of 10-15 will indicate a high index of pay as a satisfier. A composite score of 8 or less will designate a low index of pay as a satisfier. Those respondents having a score of 9 on the index of pay as a satisfier were not included in the analysis. The reason for this is that a composite score of 9 reflects an "undecided" view about the degree to which that individual saw pay as a satisfier.

Reward Value (Perceived Importance) of Pay

The reward value, or perceived importance, of pay was measured by using the response to part "c" of the following question concerning pay satisfaction and pay importance:

The pay for my university position:

a. How much is there now? 1 2 3 4 5 6 7 (Min)
   b. How much should there be? 1 2 3 4 5 6 7 (Max)
   c. How important is this to me? 1 2 3 4 5 6 7

It will be noted that this item is included in the section of the questionnaire measuring need satisfaction. Specifically, it appears as question 7 in Section I.
Effort and Performance Measures

The quality of job performance and the amount of effort expended on the job were measured by asking the respondents to rate themselves on a seven-point scale for the two questions listed below. These questions can be found in Section IV of the questionnaire as numbers 1 and 3. The instructions for completing Section IV of the questionnaire read in part:

The purpose of this section is to determine how you rate yourself relative to others in your university with similar academic duties. You will be asked to rate yourself for characteristics on a seven-point scale which will look like this:

(LOW) 1 2 3 4 5 6 7 (HIGH)

Please circle the number on the scale that represents where you stand compared to others with similar university duties.

1. Quality of your job performance.
   (LOW) 1 2 3 4 5 6 7 (HIGH)

3. Amount of effort you expend on the job.
   (LOW) 1 2 3 4 5 6 7 (HIGH)

Tests of Hypotheses and Results

Porter-Lawler Hypothesis VI

The first hypothesis dealing with pay as a satisfier, Porter-Lawler Hypothesis VI, predicts that the more an individual sees her pay as a satisfier, the greater the effort she will exert to perform her job effectively. In order to test this hypothesis the sample was divided into two groups (high pay as a satisfier and low pay as a satisfier) on the basis of their score on the index of pay as a satisfier. Those respondents with an index score of 10 to 15 were designated as the high index of pay-as-a-satisfier group (N = 63). The low
index of pay-as-a-satisfier group was composed of those individuals whose index score was 8 or below (N = 107). As was explained earlier, those with scores of 9 were excluded from the analysis since this represents an "undecided" view toward pay as a satisfier (N = 16). Two hypothesized relationships were then investigated and tested for significance: the relationship between high and low pay-as-a-satisfier groups and the mean of the self-ratings of effort for each group; and, the relationship between high and low pay-as-a-satisfier groups and the corresponding means of the self-ratings of the quality of job performance for each group.

The mean of the self-ratings of effort by the high pay-as-a-satisfier group (6.28) was compared with the mean of the self-rating of effort by the low pay-as-a-satisfier group (5.79). The results of the t-test indicate that the difference between the two groups was significant (t = 2.81, p = .005). In addition, the mean self-rating of performance by the high pay-as-a-satisfier group (6.07) was compared with the mean of the self-rating of performance by the low pay-as-a-satisfier group (5.76). The results of the t-test indicate that the difference between the high and low pay-as-a-satisfier groups concerning self-ratings of performance was also significant (t = 2.05, p = .04).

Figure 13 demonstrates that there is a consistent tendency for high self-ratings of both effort and performance to be associated with seeing pay as a satisfier. This is depicted in Figure 13 by the rise in the slope of the effort and performance lines as they move from left to right. Thus, in addition to being in the expected direction, the results are significant (effort:  t = 2.81, p = .005; performance:
INDEX OF PAY AS A SATISIFIER

Figure 13. Mean Self-Ratings of Job Performance and Effort for High and Low Pay-as-a-Satisfier Groups

N: Low Satisfier, Effort (LPSAT-E) = 107; High Satisfier, Effort (HPSAT-E) = 63; Low Satisfier, Performance (LPSAT-P) = 107; High Satisfier, Performance (HPSAT-P) = 63. Comparisons: LPSAT-E (5.79) vs. HPSAT-E (6.28): t = 2.81, p = .005; LPSAT-P (5.76) vs. HPSAT-P (6.07), t = 2.05, p = .04.

Porter-Lawler Hypothesis VII predicts that an individual's attitudes toward the degree to which pay is seen as a satisfier will be more closely related to the amount of effort on the job than to the quality of job performance. The test for this hypothesis is the same as that for the previous one (Porter-Lawler Hypothesis VI). For Porter-Lawler Hypothesis VII, however, the analysis focused on the degree (or strength) of the relationship between the attitudes toward pay as a satisfier compared with effort and performance. In comparisons of this nature, the greater the magnitude of the t-value and the higher the level of significance, the stronger the degree of relationship. In order for this hypothesis to be supported then, the data would have to demonstrate both of the following:

1. Individuals in the high pay-as-a-satisfier group have higher self-ratings of effort and performance than do individuals in the low pay-as-a-satisfier group. (It will be recalled that this condition was met by the significant relationships obtained for the results of Porter-Lawler Hypothesis VI.)

2. The difference between the high and low pay-as-a-satisfier groups will be larger for the self-ratings of effort than for the self-ratings of job performance. (This second condition is supported by the results presented in Figure 13.)

As shown in Figure 13, the difference between the high and low pay-as-a-satisfier groups is larger and is significant at a much higher level for the self-ratings of effort (high: 6.28 – low: 5.79 = .49;
than for the self-ratings of the quality of job performance (high: 6.07 - low: 5.76; t = 2.05, p = .04). In addition, the steeper slope of the line representing the effort self-ratings as compared with the slope of the line representing self-ratings of performance indicates that a stronger relationship exists between pay as a satisfier and effort as compared with that of pay as a satisfier and performance. It should also be noted that while the relationship between effort and pay as a satisfier is stronger than that between performance and pay as a satisfier, both are statistically significant. These significant results offer support for Porter-Lawler Hypothesis VII.

Porter-Lawler Hypothesis VIII

The third and last of the hypotheses to be tested in this section, Porter-Lawler Hypothesis VIII, predicts that the relationship between an individual's attitudes toward pay as a satisfier and measures of effort expended and quality of job performance will be stronger for those who say their pay is important to them than for those who say their pay is unimportant to them. In order to test this hypothesis, the sample was divided into two groups on the basis of their scores on the index of pay as a satisfier: high pay as a satisfier (Index: 10-15) and low pay as a satisfier (Index: 8 and below). Each of these high and low pay-as-a-satisfier groups was then divided into two groups again. The basis for this secondary division was the response to the question "How important to me is the pay for my university position?" Those responses that were greater than the mean (5.76) were designated as high pay importance while those responses that were less than the
mean were designated as low pay importance. Thus, the following four groupings were obtained:

1. High pay as a satisfier and High pay importance
2. Low pay as a satisfier and High pay importance
3. Low pay as a satisfier and Low pay importance
4. High pay as a satisfier and Low pay importance

The differences between these groups were then tested based first on the mean of the amount of effort expended and secondly on the mean of the quality of job performance. The greater the difference between the groups based on a second variable (that is, effort or performance), the stronger the relationship between the variables.

Figure 14 presents the data relevant to the effort variable of Porter-Lawler Hypothesis VIII. While the slope of the line representing the relationship between the index of pay as a satisfier and self-ratings of effort for the high pay importance condition is in the expected direction [that is, the mean self-rating of effort for the high pay-as-a-satisfier group (6.31) is greater than the mean self-rating of effort for the low pay-as-a-satisfier group (6.07)], the results are not statistically significant. Quite surprisingly, however, statistically significant relationships were obtained between the index of pay as a satisfier and self-ratings of effort for the low pay importance condition. The difference between the mean of the high pay-as-a-satisfier group's self-rating of effort (6.21) and the mean of the low pay-as-a-satisfier group's self-rating of effort (5.34) is significant at a $p = .006$ level, $t = 2.81$.

Figure 15 presents the data relevant to the performance aspect of Porter-Lawler Hypothesis VIII. Here again, while the results were in the expected direction concerning the relationship between the index
Figure 14. Mean Self-Ratings of Effort for High and Low Pay-as-a-Satisfier Groups with Two Levels of Pay Importance.

N: Low Satisfier, Low Importance (LPSAT-LI) = 41; High Satisfier, Low Importance (HPSAT-LI) = 19; Low Satisfier, High Importance (LPSAT-HI) = 66; High Satisfier, High Importance (HPSAT-HI) = 44. Comparisons: LPSAT-LI (5.34) vs. HPSAT-LI (6.21): t = 2.81, p = .006; LPSAT-HI (6.07) vs. HPSAT-HI (6.31): t = 1.18, n.s.

Figure 15. Mean Self-Ratings of Performance for High and Low Pay-as-a-Satisfier Groups with Two Levels of Pay Importance

N: Low Satisfier, Low Importance (LPSAT-LI) = 41; High Satisfier, Low Importance (HPSAT-LI) = 19; Low Satisfier, High Importance (LPSAT-HI) = 66; High Satisfier, High Importance (HPSAT-HI) = 44. Comparisons: LPSAT-LI (5.48) vs HPSAT-LI (6.00): t = 2.11, p = .03; LPSAT-HI (5.93) vs HPSAT-HI (6.11): t = 0.85, n.s.

of pay as a satisfier and self-ratings of performance for the high pay
importance condition [that is, the mean self-rating of performance for
the high pay-as-a-satisfier group (6.11) is greater than the mean self-
rating of performance for the low pay-as-a-satisfier group (5.93)], the
results are not statistically significant. Once again, however, sta-
tistically significant relationships were obtained between index of
pay as a satisfier and self-ratings of performance for the low pay
importance condition.

As presented above, the analysis of the data resulted in con-
sistently significant relationships in a direction opposite to that
predicted by Porter-Lawler Hypothesis VIII. Statistically significant
relationships were obtained between the index of pay as a satisfier and
effort and performance in the "low pay importance" condition. However,
it is important to note that only 19 observations comprised the high
pay as a satisfier, low importance condition. Thus, some caution must
be exercised in interpreting the results of the t-test. Since the
analysis of the difference between the means of effort and performance
for the high pay importance condition was in the expected direction
but did not reach an acceptable level of significance, it can be said
that Porter-Lawler Hypothesis VIII is not supported.

Discussion

The evidence from this investigation supports the existence of
a significant relationship between the degree to which pay is seen as
a satisfier and the motivation to perform a job effectively. This

Note: Seeing pay as a satisfier means that significant rewards
(pay as a form of recognition) are seen as being dependent on good job
performance. The specific items used to measure pay as a satisfier
were described earlier.
finding supports the Porter-Lawler interpretation of the Herzberg et al. results concerning money as a motivator. The finding also supports the Porter-Lawler model which states that money can act as a motivator of performance if it is seen as a form of recognition or reward for effective performance.

Specifically, two hypotheses, Porter-Lawler Hypothesis VI and Hypothesis VII, were advanced to test the relationship between pay as a satisfier and the motivation to perform a job effectively. The results demonstrated that the more pay is seen as a satisfier the closer will be its relationship to effort and performance. Porter-Lawler Hypothesis VI demonstrated that the high pay-as-a-satisfier group had significantly higher self-ratings of effort and performance than did the low pay-as-a-satisfier group. Furthermore, as predicted by the Porter-Lawler model and as tested in Hypothesis VII, the relationship between these attitudes toward pay as a satisfier and the self-ratings of effort was stronger than the relationship between pay as a satisfier and self-ratings of performance. In other words, these results demonstrate that when pay is seen as a form of recognition for good performance it will be related to effort and performance.

Similar results were obtained in a study by Schuster, Clark, and Rogers.232 The purpose of their investigation was to test portions of the Porter-Lawler model regarding the motivational role of pay. One of the hypotheses tested by Schuster, et al. was worded in the same

manner as Porter-Lawler Hypothesis VI of this study, and as in the case of this study, the results offered support for this section (pay as a satisfier) of the model.

It is important to caution the reader as to the limits of the methodology employed in the present study insofar as it relates to the implications of the findings. This methodology tested whether a relationship existed, and if it did exist, what was the degree or strength of association between the variables in that relationship. This methodology did not allow for the testing of causality between attitudes and performance. As such, it would be incorrect to state that because attitudes toward pay as a satisfier and performance are related, the attitudes caused the performance. However, it would not be incorrect to state that seeing pay as a satisfier may have led to higher levels of performance. As stated by Porter and Lawler,

Such an interpretation makes possible the easy explanation of the finding that these attitudes are more highly related to effort than to quality of job performance. In addition, there is good evidence for believing that when an individual sees that an activity leads to the satisfaction of his needs, the perception of this relationship will cause him to persist in that activity.233

And, as stated by Professor Megginson,

In addition to serving as a reward for past performance, compensation serves as a motivator to future initiative and effort. ....the motivational role of compensation is based upon the "law of effect," which states that employee behavior which appears to lead to reward tends to be repeated, while behavior which appears not

to lead to reward, or seems to lead to punishment, tends not to be repeated.\footnote{234 Megginson, Personnel and Human Resources Administration, op. cit., p. 381. Note: Professor Megginson calls the reader's attention to the source of the "law of effect." See: Maison Haire, Psychology in Management, McGraw Hill, New York, 1964, p. 115.}

In addition to discussing the existence of the relationship between pay as a satisfier and effort and performance, the possible direction of the relationship also needs to be briefly mentioned. It could be proposed that performance "caused" the attitudes toward pay as a satisfier. However, insofar as directionality is concerned, this explanation cannot readily account for the stronger relationship between pay as a satisfier and self-ratings of effort than between pay as a satisfier and self-ratings of performance. This stronger relationship was demonstrated in Porter-Lawler Hypothesis VII.

The last of the hypotheses tested in this section, Porter-Lawler Hypothesis VIII, predicted that the relationship between an individual's attitudes toward pay as a satisfier and self-rated measures of effort expended and quality of job performance would be stronger for those persons who say their pay is important to them than for those who say their pay is unimportant to them. On the basis of the results of this study, this hypothesis could not be supported. The analysis of the data revealed mixed results. For the high pay importance condition, the relationship between pay as a satisfier and the self-ratings of both effort and performance were in the expected direction. The mean self-ratings of effort and performance were greater for the high pay-as-a-satisfier group than the mean self-ratings of
effort and performance for the low pay-as-a-satisfier group. While these results were in the expected direction, they were not statistically significant. The analysis of the data also revealed that when significant relationships existed between the attitudes toward pay as a satisfier and effort and performance, they occurred in the low pay importance condition. In other words, statistically significant results were generated in a direction opposite to that proposed by Porter-Lawler Hypothesis VIII. As was mentioned earlier, however, some caution must be exercised in interpreting these results since only 19 observations comprised the high pay as a satisfier, low importance condition. One area for future research would be to investigate with a larger number of observations the relationship between pay as a satisfier and effort and performance in the low pay importance condition. If these future investigations continued to demonstrate the existence of significant relationships in the low pay importance condition, it would certainly raise some question regarding the Porter-Lawler assertion that the value of reward (pay importance) and the perceived effort-reward probability (pay as a satisfier) combine in a multiplicative relationship to determine effort. The nature of a multiplicative relationship is one wherein if either variable is close to zero, the end result (effort) will also be low.

The results of the test of Hypothesis VIII were also mixed in the 1968 Porter-Lawler study. Porter and Lawler offered two explanations for this occurrence. One possible explanation is that a measure of the importance of pay may be different from a measure of importance of pay as a satisfier.
This would mean that seeing pay as a satisfier means more than just seeing pay as related to performance. It may mean that other rewards are seen to be tied to pay also, and that an adequate importance measure must be a measure of the importance of all these rewards.\footnote{235}

For example, Porter and Lawler cite research findings\footnote{236} which indicate that for any given employee the importance of the same amount of pay may vary considerably depending on how it is divided among fringe benefits, options, time off, frequency of promotions, and the number and size of raises. In other words, certain benefits are viewed as being more important than others because they fit the motive patterns of the individual more closely.

A second possible explanation for the mixed results obtained for Hypothesis VIII might be that in order for pay to be seen as a satisfier, it must be important to the individual. In other words, it is quite possible that individuals must view pay as important as a necessary precondition to its being seen as a satisfier. With this interpretation then, seeing pay as a satisfier means that pay is already viewed as being important. As such, the measure of the importance of pay would only operate to separate individuals on the degree to which they see pay as a satisfier. "Thus, it is obvious that before an adequate measure of the importance of pay as a satisfier can be

\footnote{235}Porter and Lawler, op. cit., pp. 90-91.

developed, further understanding is needed of what it means, in terms of the various psychological needs, for pay to be seen as a satisfier."²³⁷

Before ending this section on pay and its importance, two related areas need to be discussed: the amount of pay and its relationship to importance; and, the secrecy of pay and its relationship to importance. Neither of these areas were specifically focused on in this investigation, but are included primarily because they might prove to be of some further interest to the reader.²³⁸

Insofar as the first area is concerned, it is generally held that the amount of pay an individual receives is negatively related to the importance that individual attaches to financial rewards.²³⁹ Thus, poorly-paid workers would attach more importance to money than well-paid workers. Katz and Kahn²⁴⁰ cited a 1977 study by Hahn²⁴¹

²³⁷ Porter and Lawler, op. cit., p. 91.
²³⁸ For those readers interested in a broader perspective on compensation, three excellent overviews on pay theory and the behavioral sciences can be found in the following sources:
²⁴⁰ Ibid.
²⁴¹ Katz and Kahn note the source of the Hahn study as follows:
designed to test the proposed negative relationship between the amount of pay and its relationship to the importance attached to pay. Hahn's measure of over- or under-compensation was derived by comparing actual pay with that which the respondent might expect. The results of the study yielded mixed findings. For men, those who were either overcompensated or undercompensated attached less importance to pay than those equitably treated. For the female respondents the results demonstrated that those who were undercompensated attached more importance to pay than those who were equitably treated. These results, dealing with women, are in agreement with the proposed negative relationship between the amount of pay and its importance.

The second area mentioned above focused on the relationship between secrecy and the importance attached to pay. It is widely written that secrecy about pay is a rather common practice in organizations. Lawler has stated that "secrecy seems to be particularly prevalent with respect to management pay" and, that "one of the effects of secrecy may be to reduce the ability of pay to motivate." The reduction in pay's ability to motivate includes both the effort-reward probability and the value (importance) of pay.

One of the arguments advanced for keeping pay secret is that such a practice prevents friction, dissatisfaction, and feelings of

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See for example:


Tbid.
inequity. Miner has found this to be especially true when compensation programs are characterized by inequity and a lack of performance ties. It is further advanced that by keeping pay secret accurate comparisons cannot be made. However, this does not mean that a lack of public information on pay will prevent comparisons from taking place. The proponents of making pay public point out that the evidence gathered from research on pay secrecy demonstrates that when secrecy is employed there is a tendency for managers to overestimate the pay of their peers as well as their subordinates. Lawler's research in this area led him to conclude:

This had the effect of wiping out much of the motivational force of the differential reward system that was actually operating in the company. Almost regardless of how well the individual manager was performing, he felt that he was getting less than the average raise. This problem was particularly severe among the high performers, since they believed that they were doing well yet receiving a minimal reward. They did not believe that pay was in fact based on merit. This was ironic, since pay did reflect their performance. What actually existed did not matter as far as the motivation of the managers was concerned; they responded to what they thought existed. Thus, even though pay was tied to performance, these managers were not motivated because they could not see the connection.  

Furthermore, pay as a satisfier gains its importance (value) from its association with the satisfaction of status and recognition needs: needs which are "public" in nature. "By keeping pay secret, organizations are making it less directly instrumental for the satisfaction of these needs. .....and, if salary is truly kept secret,

\[245\] Miner, op. cit.

\[246\] Lawler, op. cit., p. 56.
then it is difficult to see how salary can be effectively related to
them. Rewards gain value through their ability to satisfy needs. Thus, by broadening the range of needs that pay can satisfy, the possibility exists for increasing its value (importance) to the individual and thereby improving its ability to motivate.

If, after reading this discussion concerning pay as a satisfier, the reader feels that more questions have been raised than have been answered, it is certainly not an uncommon experience! In a 1977 publication Patten states:

> It is quite clear that Porter and Lawler have set forth what many students of pay consider to be one of the most realistic and stimulating behavioral science models in the area of pay theory. The variables encompassed are so numerous that by the time the compensation specialist had identified and comprehended all that are operative in a specific situation, he may be as bewildered as he was when he first approached the situation.²⁴⁸

These feelings are also echoed by Opsahl and Dunnette in their article reviewing the role of financial compensation in motivation:

> Although it is generally agreed that money is the major mechanism for rewarding and modifying behavior in industry, we have seen that very little is known about how it works.²⁴⁹

As a possible solution to the problem of when, how, and why money motivates, Opsahl and Dunnette urge greater emphasis on laboratory experiments and highly controlled field settings as opposed to surveys.

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²⁴⁷ Porter and Lawler, *op. cit.*, p. 94.
²⁴⁸ Patten, *op. cit.*, p. 139.
and self-reportings. As such, the self-reports relied on in this study could certainly be considered a limiting factor --- especially insofar as causality is concerned.

Summary

Three hypotheses were tested in this section to determine for female faculty members the applicability of the "pay as a satisfier" section of the Porter-Lawler model. These hypotheses and their status (based on the results of this investigation) are presented in summary form in Table XVIII.

Two of the three hypotheses, Porter-Lawler Hypothesis VI and Hypothesis VII, focused on the relationship between pay as a satisfier and measures of effort and performance. The Porter-Lawler model predicted that seeing pay as a satisfier would be related to effort and performance. In addition, the model also predicted that the relationship between pay as a satisfier and effort would be stronger than that between pay as a satisfier and performance. Both of these predictions were supported by the statistically significant results obtained in this study. The third hypothesis tested the Porter-Lawler prediction that the importance of pay (value of reward) and pay as a satisfier (perceived effort-reward probability) combine in a multiplicative relationship to determine effort and subsequent performance. The results of Porter-Lawler Hypothesis VIII did not support this prediction.

On the basis of these findings, then, certain modifications need to be made in the Porter-Lawler model. They are depicted in Figure 16 and serve to make the model more accurate in describing the
TABLE XVIII

SUMMARY OF RESULTS: PAY AS A SATISIFIER

<table>
<thead>
<tr>
<th>PORTER-LAWLER HYPOTHESIS</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. The more an individual sees her pay as a satisfier, the more effort she will put</td>
<td>Supported</td>
</tr>
<tr>
<td>forth to perform her job effectively.</td>
<td></td>
</tr>
<tr>
<td>VII. Attitudes toward the degree to which pay is seen as a satisfier will be more</td>
<td>Supported</td>
</tr>
<tr>
<td>closely related to the amount of effort an individual puts forth on her job than to</td>
<td></td>
</tr>
<tr>
<td>the quality of her job performance.</td>
<td></td>
</tr>
<tr>
<td>VIII. The relationship between an individual's attitudes toward pay as a satisfier and</td>
<td>Not</td>
</tr>
<tr>
<td>measures of performance and effort will be stronger for those faculty members who</td>
<td>Supported</td>
</tr>
<tr>
<td>say their pay is important to them than for those who say their pay is unimportant to</td>
<td></td>
</tr>
<tr>
<td>them.</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, Table XVIII provides a summary of the results of the three hypotheses tested in this study to determine the applicability of the "Pay as a Satisfier" section of the Porter-Lawler model.
Figure 16. Modifications of the Porter-Lawler Model on the Basis of the Findings of the "Pay as a Satisfier" Section of the Investigation.
relationship between attitude and behavior variables for the subjects of this study: female university faculty. The most important of these modifications stems from the findings of Porter-Lawler Hypothesis VIII which showed no significant relationship in the expected direction between pay as a satisfier (perceived effort-reward probability) and the importance of pay (value of reward) as compared with effort and performance. This finding questions the Porter-Lawler theory that the value of reward and perceived effort-reward probability combine in a multiplicative relationship to determine effort.

This section concluded the tests undertaken in this investigation to determine the applicability of the Porter-Lawler model for female faculty members. The next section will serve as a final overview and conclusion as to what has been learned within the scope of this study concerning the applicability of Maslow's need hierarchy theory and the relationships set forth in the Porter-Lawler model.
The objective of this study was to determine for female faculty members the applicability of two popular motivational models: Maslow's need hierarchy theory and the Porter-Lawler motivational model. The purpose, then, of this final section is to briefly review and summarize the findings of this study. The details of the findings and a discussion thereof were presented earlier in Chapters II and IV. As such, only an overview of those findings will be presented here. In addition to reviewing the findings, the limitations of the study will be named, and possible directions for future research will be considered.

MASLOW'S NEED HIERARCHY THEORY: SUMMARY OF FINDINGS

Maslow's theory proposes that man's attempts to satisfy needs are the basis for all behavior. He identified and described five categories of needs which, according to the theory, are arranged in a hierarchy of importance, or strength. From lowest to highest, they are: physiological, security, social, esteem, and self-actualization. In addition to ordering these needs, Maslow also theorized how the satisfaction or nonsatisfaction of needs influenced the strength of those needs as well as the strength of the next higher level of needs in the hierarchy. Higher levels of needs emerge to dominate behavior only after lower level-needs are satisfied. In addition, the satisfaction of lower-level physiological, security, and social needs is related to
a decrease in importance, or strength, of those needs. A later revision of the theory specified that the satisfaction of higher-order esteem and self-actualization needs would not lead to a decrease in their importance. Rather, for growth-oriented people, satisfaction of esteem and self-actualization needs is related to continued importance of those needs. In addition, Maslow specified that all needs were never completely satisfied and would, therefore, re-emerge to influence behavior.

Given these theorized workings of Maslow's model, the first part of this investigation was directed at determining how applicable Maslow's theory was for the sample under consideration: female university faculty. Four hypotheses were formulated and tested to determine if need satisfaction and strength were related in the manner specified by Maslow. After need satisfaction and importance were measured, their degree of relationship, if any, was determined through the use of correlational coefficients.

The four hypotheses and their status on the basis of the findings of this study are as follows:

1. The strength (importance) of a given need level will be positively related to the satisfaction of the prior need level. Status: not supported.

2. University faculty with satisfied lower-level needs, occupying positions offering opportunity to fulfill higher-level needs on the job will consider these higher-level needs to be important on the job. Status: supported.

3. Satisfaction of lower-level physiological, security, and social needs is related to decreased importance of those needs. Status: supported.

4. Satisfaction of higher-level esteem and self-actualization needs will not lead to decreased importance of those needs, but rather, the strength (importance) of those needs will tend to remain constant. Status: not supported.
As can be seen above, two of the hypotheses were supported. However, it should be pointed out that the central idea underlying Maslow's theory was not supported. (Note: This central idea was tested in Hypothesis 1.) This central concept is that need importance as a motivator of behavior is related to the satisfaction of a prior need level in a predetermined five-level hierarchy. Instead, support was gathered for the operation of what might be termed a bi-level, or two level hierarchy. As was pointed out in the discussion, this finding runs parallel with the most recent research by Lawler and Suttle, Wanous and Zwany, and Wofford to determine the applicability of Maslow's need theory. The results suggest that higher-level needs emerge as important when lower-level needs are satisfied and when people are given the opportunity to fulfill higher-order needs (Hypothesis 2). However, the number of need categories, whether 2, 3, 4, 5, ... or n, remains to be determined. Also, some agreement needs to be reached on which categories comprise the "lower-level" needs and which comprise the "higher-level" needs. Further research must also be conducted to determine the variable which moderates the satisfaction-importance relationship. Specifically, do needs emerge as important on the hierarchy as soon as the prior level is satisfied? Does a particular category emerge depending on a person's age? Do differences in career stages account for the salience of different need categories? Or, does some other, as yet unknown, variable (or variables) moderate this relationship?

Unfortunately, the specifics and complexities of this relationship are beyond the scope of this investigation. This researcher cannot go beyond the limits of the methodology employed in this study and say
that a cause and effect relationship exists between lower-level need satisfaction and higher-level need importance. Nevertheless, support was gathered in this investigation for a bi-level hierarchy wherein those persons whose lower-level physiological, security, and social needs were satisfied and who had the opportunity to satisfy higher-level esteem and self-actualization needs found these higher-level needs to be important.

More complete support for the bi-level hierarchy might be generated by a corollary to Hypothesis 2. It could test whether those persons whose lower-level needs were not satisfied and whose jobs offered opportunity to satisfy both lower and higher-level needs would consider higher-level needs to be important. Maslow's theory, the results of previously cited investigations, and the data gathered in this study would predict that until lower-level needs are satisfied, higher-level needs will not be considered important as motivators of behavior.

Hypotheses 3 and 4 examined the relationship between the satisfaction of a need and the importance of that same need. The results of the test of Hypothesis 3 yielded statistically significant correlations in the expected direction and thus offered support for Maslow's theory that the satisfaction of physiological, security, and social needs is related to the diminished importance of those needs. Hypothesis 4 tested whether the same inverse relationship between satisfaction and importance applied to each of the higher-level esteem and self-actualization categories. Maslow's 1968 revised theory stated that satisfaction of higher-level needs did not lead to diminished
importance, but rather to increased importance. The findings for Hypothesis 4 revealed that satisfaction of esteem and self-actualization needs was related to decreased importance of those needs. These results were quite surprising in that they contradict the Maslow view that satisfaction of higher-level needs is related to increased importance of those needs.

Additional information was also gathered concerning mean importance, fulfillment, and satisfaction for each of the five need categories. This data was included solely for the purpose of giving the reader as complete a picture as possible of the respondents' need patterns. The means and subsequent category rankings were not intended to be a test of Maslow's theory per se. In summarizing the results of the mean rankings, it was shown that those needs with the lowest levels of fulfillment (physiological and security) were also those with the lowest levels of satisfaction. Furthermore, those needs with the highest levels of fulfillment (social and esteem) were also those with the highest levels of satisfaction. And, as one might expect, these two highly satisfied need levels were ranked by the female faculty members as having the least amount of importance to them. All of the above findings are consistent with Maslow's theory of the relationship between the satisfaction of a given level of needs and its respective importance. And, these results are also consistent with the findings of Hypotheses 3 and 4.

What is inconsistent with the theory are the results obtained for self-actualization needs. Self-actualization needs occupied a mid-point ranking of 3 insofar as mean fulfillment and satisfaction are
concerned. At the same time, however, that category which female faculty members viewed as most important was self-actualization needs. This finding follows neither from what one might expect from Maslow's theory (that is, those needs which are most important to the individual are those which are least satisfied) nor from the consistency of results from the comparison of the satisfaction-importance rankings of the four other need categories. All that can be said is that for the sample surveyed, female university faculty, self-actualization needs are the most important of the five need categories. The least amount of satisfaction, on the other hand, is indicated for the physiological and security need categories.

As was noted earlier, the mean scores for need fulfillment, satisfaction and importance were not intended to serve as a test of Maslow's need theory. On the other hand, the formulation and testing of Hypotheses 1 through 4 were. In concluding this summary, the question posed in the section pertaining to Maslow must be answered. Can Maslow's hierarchy of needs theory be dismissed as totally inoperative in describing the relationship between need satisfaction and importance for female university faculty? In this writer's opinion, the answer is "no." This opinion was formed on the basis of previously cited empirical findings as well as the findings of the current study. Here reference is made specifically to the results of Hypotheses 2 and 3. As presented and discussed, a great deal of empirical evidence exists to both affirm and disaffirm Maslow's hierarchical need theory. Obviously, contradictory empirical results are not sufficient to dismiss a theory. At the same time, however, the demonstrated shortcomings
of Maslow's five level need hierarchy theory cannot be overlooked. Before a theory can be completely abandoned not only must contrary results exist, but also a new theory must be advanced and supported. The final decision on the acceptance of any one theory over the other should rest upon whichever one best describes and/or predicts that which has been empirically generated. As yet, no one comprehensive theory can adequately account for the diversity of results.

THE PORTER-LAWLER MODEL: SUMMARY OF FINDINGS

Three sections of the Porter-Lawler motivational model were tested to determine their applicability for female university faculty members. These sections are: Need Satisfaction, Role Perceptions, and Pay as a Satisfier. Each of the following sections will contain a brief review of its respective theoretical background and then the findings will be summarized.

Need Satisfaction

The controversy as to whether satisfaction causes performance, or performance causes satisfaction, or whether these variables are in any way related has existed since 1955 when Brayfield and Crockett began to question the results of the Hawthorne studies. Simply stated these results suggested that satisfied workers were productive workers. The Brayfield and Crockett literature review as well as that of Vroom in 1964 resulted in a re-appraisal of the relationship between these two variables.

A central concept in the Porter-Lawler model is the relationship between performance and satisfaction. This theorized relationship
treats satisfaction as a dependent rather than an independent variable. After reviewing the satisfaction-performance controversy, Porter and Lawler concluded that performance can lead to rewards, both intrinsic and extrinsic, and that rewards are related to satisfaction. The amount of satisfaction derived from a given level of rewards depended on the perceived equity of those rewards.

The Porter-Lawler model specifies the conditions under which performance and satisfaction could expect to be related. Based on these conditions, three hypotheses were formulated and tested by t-tests to determine how applicable the theorized relationships were for female university faculty. These three hypotheses and their status on the basis of the findings of this study are as follows:

Porter-Lawler Hypothesis I. The higher an individual rates the quality of her own performance, the greater will be her expressed degree of need fulfillment. Status: not supported.

Porter-Lawler Hypothesis II. An individual's own rating of the quality of her job performance will be related more strongly to her expressed degree of need fulfillment than to her degree of need satisfaction. Status: partially disaffirmed for physiological need satisfaction.

Porter-Lawler Hypothesis III. An individual's self-rating of performance will be more strongly related to her degree of need fulfillment than will her self-rating of effort be related to her degree of need fulfillment. Status: partially disaffirmed for esteem and self-actualization fulfillment.

As indicated above, the results of the tests of these three hypotheses yielded no firm support for this section of the model. Where Porter and Lawler predicted significant relationships to exist between effort and performance self-ratings and need fulfillment and satisfaction, none were obtained in the expected direction.
The test of Porter-Lawler Hypothesis I demonstrated no difference between high and low self-rated performers and their level of need fulfillment. Differentials in performance were not perceived as being differentially rewarded and, for the subjects of this study, self-ratings of performance and fulfillment were not significantly related.

Porter-Lawler Hypothesis II directed its attention to two areas: to determine if a relationship existed between performance and satisfaction; and, to determine if, as the model predicts, performance would be more closely related to fulfillment than to satisfaction. The results showed that performance was not more closely related to fulfillment than to satisfaction. In addition, the results showed that, with the exception of physiological needs, performance and satisfaction were also not significantly related. For physiological needs, high self-rated performers perceived significantly higher levels of dissatisfaction than low self-rated performers.

Four possible reasons could account for this significant relationship. One possible explanation for the finding that high performers have a significantly higher level of dissatisfaction for physiological needs might be that their perceived equitable level of rewards is also higher. It will be recalled that the physiological category concerned itself with questions dealing with the ability of job income to adequately feed, house, clothe, and provide for the medical and dental needs of the faculty member and her family. Thus, the degree of dissatisfaction with these items could stem from the expectation that their higher levels of performance should have higher levels of physiological
rewards. Also, it should be noted that while not significant, the findings from Porter-Lawler Hypothesis I demonstrated that high performers had lower levels of physiological fulfillment than did low performers. Thus, a second possible reason for the lack of support for this hypothesis could be that the university reward system is not operating so that differentials in performance are indeed differentially rewarded. Faculty members do not feel that higher levels of performance are being rewarded by the university through salary increases. A third explanation for the finding stems from the fact that the Louisiana Legislature funded very little to state universities for salary increases during the academic year (1976-1977) in which this study was conducted. The fourth reason stems from the rising rate of inflation throughout the decade of the seventies. In the absence of raises, or, with a failure of increases in salary to at least keep pace with a rising inflation rate, the real buying power of each take home dollar of income would decrease. Thus, there would be a definite decline in income's ability to adequately feed, clothe, house, and provide for the medical and dental needs of the faculty member and her family. Therefore, a lower level of actual fulfillment combined with a higher perceived equitable level of rewards could account for the significantly greater level of dissatisfaction of physiological needs for high self-rated performers.

Finally, Porter-Lawler Hypothesis III explored the relationship between fulfillment and self-ratings of effort and performance. It was expected from the predictions of the model that effort would not be as closely related as performance to fulfillment. Effort is theorized to
interact with abilities and role perceptions and is separated in the model by more variables from fulfillment than is performance. The results showed that when significant relationships existed, they were in an opposite direction to that proposed by the model. Specifically, high self-ratings of effort were found to be significantly related to the fulfillment and esteem and self-actualization needs. None of the performance-fulfillment relationships were significant.

Role Perceptions

The Porter-Lawler model is designed to call attention to the importance of role perceptions as one of the variables which translates effort into performance. The model specifies that given equal levels of ability and effort, those individuals who have "correct" role perceptions will be more effective performers than those who do not. (Note: In the model, role perceptions are regarded as being "correct" when the individual's perceptions of what should be done to accomplish the job task are similar to what the organization believes should be done to accomplish the task.) One of the role perceptions thought to be relevant to job performance has been characterized along an "inner-, other-directed" dimension as first suggested in 1950 by the writing of David Riesman in *The Lonely Crowd*. Similar views concerning "correct" role perceptions were presented in 1956 by William Whyte, Jr. in *The Organization Man*. The writings of Riesman and Whyte suggested that successful performance in modern organizations depended on getting along with and being accepted by others; in other words, being other-directed. Individuality was "out" while conformity was "in."
In formulating and testing their model, Porter and Lawler thought it important to collect data relevant to the inner, other-directed dimension so as to ascertain the influence of role perceptions in determining performance. While Porter and Lawler emphasize role perceptions as an important variable in their model, they question whether other-directed qualities do in fact lead to successful performance. In doing so, they cited empirical evidence concerning the relative success of managers with inner- and other-directed values. The results of these studies did not support the views of Riesman and Whyte. The findings demonstrated that organizations rewarded individuals who demonstrated inner-directed characteristics, and that inner-directed persons tended to be better performers than those persons exhibiting other-directed traits.

Given the theorized relationship in the Porter-Lawler model of role perceptions (in general) to performance and of inner-directed role perceptions (in particular) to performance, two hypotheses were formulated and tested for applicability. These two hypotheses and their status on the basis of the findings of this study are as follows:

**Porter-Lawler Hypothesis IV.** The more faculty members see their jobs as demanding inner-directed behavior, the higher they will rate themselves on the quality of job performance. Status: not supported.

**Porter-Lawler Hypothesis V.** The relationship between role perceptions and performance will be greater (stronger) for those persons who rate themselves high on effort than it will be for those persons who rate themselves low on effort. Status: not supported.

As indicated above, the results of the tests of these hypotheses yielded no firm support for the model. The predictions derived from the Porter-Lawler model concerning the relationship between role perceptions
and performance as well as the relationship of effort and role perceptions to performance do not seem to be generally applicable to the female faculty members of this study. At the same time, however, the results by no means support the Riesman and Whyte views concerning the place of other-directed behavior at work. All that can be said concerning the findings is that where Porter and Lawler predicted significant relationships to exist between role perceptions and performance, none were obtained.

The test of Hypothesis IV demonstrated no significant difference between high and low inner-directed behavior and self-ratings of performance. While high inner-directedness was associated with higher self-rated levels of performance than was low inner-directedness, the difference was not significant.

The purpose of Hypothesis V was to vary effort to determine its effect on the role perception-performance relationship. Porter and Lawler specify that effort, ability, and role perceptions combine in a multiplicative relationship to determine performance. The nature of a multiplicative relationship is one wherein if either effort, or ability, or the correctness of role perceptions is low, the end result (performance) will also be low. Since no relationship was found between role perceptions and performance in Hypothesis IV, it was not expected, given the operation of a multiplicative relationship, that one would be found when effort was varied. As the results showed, there was no significant relationship of effort and role perceptions to performance.

Finally, a ranking of the importance of the inner-, other-directed characteristics by both the sample as a whole as well as by
high and low self-rated performers revealed that a mixture of both inner, and other-directed characteristics were thought to be important for success on the job. The sample ranked the characteristics from most important to least important as follows: cooperative, self-confident, adaptable, imaginative, tactful, decisive, agreeable, independent, forceful, cautious.

Pay as a Satisfier

The Porter-Lawler model singled out the role of pay as a motivator for special attention. In considering the relationship between performance, rewards, and satisfaction, Porter and Lawler noted that rewards are valued (considered important) only to the extent that they satisfy needs. Pay functions in the Porter-Lawler model to satisfy several need levels. In fact, their model is based on the empirically supported assumption that pay satisfied not only lower-order needs, but higher-order needs as well. Therefore, as a result of the broad need satisfaction capabilities of monetary rewards, pay is important enough in most cases to be a significant motivator of behavior.

The question to which Porter and Lawler addressed themselves was to determine those conditions under which pay would motivate effective performance. As can be seen in the Porter-Lawler model on page 98, two kinds of attitudes must exist if pay is to function as an incentive: pay must be important to the person, and secondly, that person must believe that performance will lead to monetary rewards.

In further specifying the motivational role of pay, Porter and Lawler criticized Herzberg's "roundabout" interpretation of pay as a maintenance factor instead of a motivational factor. Porter and Lawler
point out that classifying pay as a maintenance factor eliminates the possibility of using pay beyond some neutral point as an effective motivator of good performance. They further point out that a careful reading of the Herzberg results reveals that pay may or may not be a motivator, depending on how it is administered. When pay was specifically mentioned as accompanying an individual's achievement on the job; as a form of recognition; or, as an indication that the individual was making progress in his work, Porter and Lawler state that pay appeared to be able to satisfy higher-order (in addition to lower-order) needs. In relating Herzberg's theory of motivation to the Porter-Lawler model, it is important to note that the model specifies that the only attitudes leading to effective performance on the job are those indicating that the individual perceives rewards as contingent on good performance. More specifically, pay can be an effective incentive to good performance when pay is seen by individuals as being related to effective job performance in such a way that it becomes a form of recognition for that performance.

Given these theorized workings of pay as a satisfier in the Porter-Lawler model, the last section of this investigation was directed at determining how applicable this part of the model was for the sample under consideration: female university faculty members. Three hypotheses were formulated and tested by t-tests to determine if attitudes toward pay as a satisfier and effort and performance were related in the manner specified by Porter and Lawler. These three hypotheses and their status on the basis of the findings of this study are as follows:
Porter-Lawler Hypothesis VI. The more an individual sees her pay as a satisfier, the more effort she will put forth to perform her job effectively. Status: supported.

Porter-Lawler Hypothesis VII. Attitudes toward the degree to which pay is seen as a satisfier will be more closely related to the amount of effort an individual puts forth on her job than to the quality of her job performance. Status: supported.

Porter-Lawler Hypothesis VIII. The relationship between an individual's attitudes toward pay as a satisfier and measures of performance and effort will be stronger for those faculty members who say their pay is important to them than for those who say their pay is unimportant to them. Status: not supported.

Two of the three hypotheses, Porter-Lawler Hypothesis VI and Hypothesis VII, focused on the relationship between pay as a satisfier and measures of effort and performance. The Porter-Lawler model predicted that seeing pay as a satisfier would be related to effort and performance. In addition, the model predicted that the relationship between pay as a satisfier and effort would be stronger than that between pay as a satisfier and performance. Both of these predictions were supported by the statistically significant results obtained in this study. The third hypothesis tested the Porter-Lawler prediction that the importance of pay (value of reward) and pay as a satisfier (perceived effort-reward probability) combine in a multiplicative relationship to determine effort and subsequent performance. In other words, when the value of a potential reward is high and when perceived effort-reward probability is high, effort should also be high. The results of Porter-Lawler Hypothesis VIII did not support this prediction and thus questions their contention of the existence of a multiplicative relationship.
Taken as a whole, the results of this study concerning Need Satisfaction, Role Perceptions, and Pay as a Satisfier do not support the Porter-Lawler model. On the basis of these findings, then, certain modifications need to be made in the model to make it more accurate in describing the relationship between attitude and behavior variables for the subjects of this study: female university faculty members. These modifications are depicted in Figure 17.

LIMITATIONS

As in the case of any research project, there are limits and boundaries to which both the research and findings are subject. The present study is, of course, no exception and at its conclusion three areas of limitation are apparent. The limitations can be categorized under the following headings: method of data analysis, research instrument, and sample.

Method of Data Analysis

The first of the three areas of limitation centers on the research model. Since this research is a correlational study, causality can only be inferred. Correlational studies focus on the relationship between two variables at a fixed point in time. While correlational coefficients cannot prove whether a cause and effect relationship exists between the variables being investigated, they can demonstrate whether the variables are related to one another, as well as the degree, or strength, of that relationship. However, while correlational studies are limited in their ability to prove causality, their value lies in the fact that they can highlight relationships which can later be
*High Effort Related to Fulfillment of Higher-Level Needs

Perceived Equitable Rewards

Performance (Accomplishment)

Intrinsic Rewards

Extrinsic Rewards

Satisfaction

Figure 17. Modifications in the Porter-Lawler Model on the Basis of the Findings of this Study

investigated by experimental or longitudinal designs. Furthermore, if the theory being tested predicts that a relationship between variables exists, but no such relationship were to be found, then it is possible for a correlational study to disprove part of the model. Correlational coefficients were employed in the test of Maslow's need hierarchy theory.

While correlational coefficients could have been used in the test of the Porter-Lawler model, they posed some disadvantages in testing attitude and performance relationships specified therein. These disadvantages center around the fact that correlational coefficients require that both variables be scaled on equal interval scales. (As can be seen in Appendix I, the scales for "Pay as a Satisfier" and "Role Perceptions" differ from those of "Need Satisfaction" and the "Self-Rating Form.") Secondly, correlational coefficients do not readily lend themselves to graphic presentations. Porter and Lawler believed, however, that graphic presentations would be needed to display the results of the attitude-performance investigation.

The above disadvantages were eliminated through the selection of a different statistical method to test for significant relationships in the Porter-Lawler model. The method employed involved dividing the sample into high and low groups on the basis of one variable and then comparing these high and low group scores on a second variable. In utilizing the high-low comparison method, the greater the difference between the groups on the second variable, the stronger is the relationship between the variables. The statistical test used to determine the significance of difference between the mean scores of the high and low groups was a t-test. The t-test investigates the absolute difference
between the two means in comparison with the standard error.

Two limitations are associated with this test of significance. First, tests of significance are subject to Type I and Type II errors. A Type I error (alpha) is the probability of rejecting an hypothesis when in fact it is true. The probability of making a Type I error is the level of significance, or risk, to be employed. Type I errors can be limited by properly choosing a level of significance. The level of significance used in this study was $\alpha = 0.05$. In other words, if the null hypothesis were to have been rejected, there existed a 95 percent level of confidence that this was the correct action. There would then be only a 5 percent probability that the null hypothesis (no significant difference) should have been accepted; that is, was "true."

A Type II error (beta) is the probability of accepting an hypothesis when in fact it is false.

The second limitation stems from dividing the group under consideration into highs and lows. This investigation split the responses to the self-rated performance and effort items into three groups in the hope that two clearly different levels would emerge: high, the top third grouping, and low, the bottom third group. The basis for this division was the number of respondents and their self-ratings. Perhaps with a larger number of respondents the differences between groups (which in many cases were in the expected direction) would have reached statistical significance.

The most likely area to have influenced the findings was the sole reliance on self-ratings to measure the amount of effort expended and the quality of job performance. More accurate evaluations of these
two items may have been obtained through the use of peer-ratings or superior-ratings. Furthermore, research indicates a rather low correlation between self-ratings of performance and superior-ratings of performance. However, in an academic environment these kinds of ratings would have been difficult to obtain. To encourage as high a response rate as possible, the researcher guaranteed perspective respondents complete anonymity. In many departments there is only one female faculty member. Use of peer and superior-ratings could have been construed as violating the guarantee of anonymity, thus jeopardizing a favorable response rate.

Research Instrument

A second possible area of limitation is the nature of the research instrument used to gather the data for this investigation: a questionnaire. One problem in this area is the possibility that some of the respondents may have considered the questions to be ambiguous. Others may have considered the questions to be emotionally loaded. Still other respondents may have given answers that they thought were "wanted" by the researcher. However, it was exactly for this last possible "limitation" that a questionnaire instead of an interview was chosen as the research instrument. This researcher has had no formal training in conducting interviews and could possibly have biased the results through her involvement in this aspect. In addition, in an attempt to obtain the more honest answers possible it was felt that complete anonymity should be assured to each member of the sample. Questionnaires seemed to be more conducive to anonymity than did face-to-face interviews. Finally, usage of a questionnaire was supported by
the nature, size, and location of the sample under consideration:
four hundred eighteen female faculty members of the Louisiana State
University System and located on campuses in Baton Rouge, New Orleans,
Shreveport, and Alexandria.

Sample

The last area that could limit the findings is related to the sample itself. The generalizability of the findings is somewhat limited. Thus, any conclusions drawn must be restricted to the sample under consideration. The questionnaire used in this investigation was distributed to four hundred eighteen female faculty members at the four campuses named above. This represented all of the female faculty employed by the four campuses of the Louisiana State University System as listed in the 1976-1977 Staff-Student Directories. These directories are published once a year in the Fall Semester by each of the universities. From this total, one hundred eighty-six usable questionnaires were returned, yielding a total response rate of 44.49 percent. The faculty positions represented in this study included instructor, assistant professor, associate professor, full professor, and special lecturer. Of course, the sample used in this study cannot be said to represent the attitudes of all female faculty members currently employed in universities. As such, the conclusions were confined to the sample under consideration. However, consideration of the following factors would indicate that the sample did represent a reasonable cross-section of female faculty. First, the sample was drawn from both large and small campuses which vary in their offerings from two-year degree programs to doctoral programs and from every department in which a female
faculty member was employed. Secondly, the trend in hiring practices is for universities to seek faculty inputs from all over the country and to refrain from permanently hiring their own graduates. Lastly, it was hoped that the response rate, 44.49 percent, would indicate an adequate sampling of female faculty members.

DIRECTIONS FOR FUTURE RESEARCH

The results of the tests of Maslow's need hierarchy theory and the Porter-Lawler motivational model have suggested some areas for future research. Specific areas for future research were pinpointed in the discussion sections of each of the parts of this study. In general terms, however, one of the most promising areas is the design and implementation of a longitudinal study. In such a study, changes in need satisfaction over time could be correlated with changes in need importance. This would help provide a better test of the relationships specified in the Maslow theory. It could also be used to test the relevance of the proposed bi-level hierarchy. Maslow, himself, suggested that the hierarchy might take a long time, quite possibly a lifetime, to completely unfold and develop. In testing Maslow's theory, Hall and Nougaim also stressed the time element by suggesting that need importance depended on the particular stage in the development of an individual's career.

Longitudinal studies would also be helpful in further investigating and refining causality in the Porter-Lawler model. In fact, Porter and Lawler acknowledge that the most important area for future research is to collect data and use analysis methods which will provide
evidence on the direction of causality. A second important area for longitudinal research of the Porter-Lawler model is the feedback loop from satisfaction to the value of the reward. How do changes in satisfaction affect the value of a reward?

It is also hoped that some better measure of performance could be developed, thus eliminating the sole reliance on self-ratings or superior-ratings or peer-ratings. Using any one to the exclusion of the other has its disadvantages. Yet, each has some relevance as a measure of performance. Perhaps some composite measure, or index, of performance which would incorporate all three ratings could be developed.

Another area for expanded research would be a broader sampling, perhaps statewide, or, within a tri-state area of the attitudes of female university faculty. Other areas might, for example, include: an investigation of the possibility of male-female differences in the application of both models; an investigation of differences between disciplines; and, an investigation of differences between academic ranks and/or tenured versus non-tenured faculty. It would also be very interesting to investigate whether differences existed in the application of both models for women in non-academic organizations. This line of research could be expanded to cover women in managerial positions as compared with women in nonmanagerial positions. It is this writer's opinion that with additional time and financial resources this research on the motivation of academic personnel could be expanded and built upon much as Porter and Lawler did with their original research published in 1961.
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APPENDIX I -- THE QUESTIONNAIRE
SECTION I

In the section below you will see several characteristics or qualities associated with your academic position. For each such characteristic, you will be asked to give three ratings:

a. How much of the characteristic is there now connected with your university position?

b. How much of the characteristic do you think should be connected with your university position?

c. How important is this position characteristic to you?

Each rating will be on a seven-point scale, which will look like this:

(MINIMUM)  1  2  3  4  5  6  7  (MAXIMUM)

Please circle the number on the scale that represents the amount of the characteristic being rated. Low numbers represent low or minimum amounts, and high numbers represent high or maximum amount. If you think there is "very little" or "none" of the characteristic presently associated with the position, you would circle numeral 1. If you think there is "just a little," you would circle numeral 2, and so on. If you think there is a "great deal but not a maximum amount," you would circle numeral 6. For each scale, please circle only one number.

Please do not omit any scales.

1. The feeling of self-esteem a person gets from being in my university position:

   a. How much is there now?  (Min)  1  2  3  4  5  6  7  (Max)

   b. How much should there be?  1  2  3  4  5  6  7

   c. How important is this to me?  1  2  3  4  5  6  7

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2. The opportunity for personal improvement and development in my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

3. The feeling that my income from the university allows me to adequately house and clothe myself and my family:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

4. The feeling that my income from the university allows me to adequately feed myself and my family, and to adequately meet our medical and dental needs:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

5. The authority connected with my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

6. The prestige of my university position within the university (that is, the regard received from others in the university):
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7
7. The pay for my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

8. The opportunity for independent thought and action in my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

9. The feeling of security in my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

10. The feeling of self-fulfillment a person gets from being in my university position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities):
    a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
    b. How much should there be? 1 2 3 4 5 6 7
    c. How important is this to me? 1 2 3 4 5 6 7

11. The prestige of my university position outside the university (that is, the regard received from others not in the university):
    a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
    b. How much should there be? 1 2 3 4 5 6 7
    c. How important is this to me? 1 2 3 4 5 6 7
12. The feeling of worthwhile accomplishment in my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

13. The opportunity, in my university position, to give help and assistance to other people:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

14. The opportunity, in my university position, for participation in the setting of goals:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

15. The opportunity, in my university position, to do work that is challenging and yet is easy enough for me to do a decent job at it:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

16. The opportunity, in my university, to develop close friendships:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7
17. The opportunity available to me in my university position for participation in determining methods and procedures:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

18. The opportunity, in my university position, to get all the help and guidance I need:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

19. The feeling of being informed in my university position:
   a. How much is there now? (Min) 1 2 3 4 5 6 7 (Max)
   b. How much should there be? 1 2 3 4 5 6 7
   c. How important is this to me? 1 2 3 4 5 6 7

PLEASE CHECK THAT YOU HAVE CIRCLED 57 ANSWERS
SECTION II

In the section below, you will see several characteristics or qualities that are often used to determine individuals' pay. Please indicate how important you think your university considers these for determining your present pay. This can be done by using the seven-point scale below each characteristic, which looks like this:

(Unimportant) 1 2 3 4 5 6 7 (Important)

Circle the number on the scale that represents the importance of the characteristic being rated. Low numbers represent low or unimportant characteristics. High numbers represent high or important characteristics. For example, if you think the university considers a given characteristic as unimportant in determining the pay for your university position, you would circle numeral 1. If you think it is "Just a little important" you would circle numeral 2, and so on. For each scale circle only one number.

Please do not omit any scales.

1. Length of your service in the university.
   (Unimportant) 1 2 3 4 5 6 7 (Important)

2. Your education, training, and experience.
   (Unimportant) 1 2 3 4 5 6 7 (Important)

3. Your administrative skill.
   (Unimportant) 1 2 3 4 5 6 7 (Important)

4. Amount of responsibility and pressure in your job.
   (Unimportant) 1 2 3 4 5 6 7 (Important)
5. Quality of your job performance.
(Unimportant) 1 2 3 4 5 6 7 (Important)

6. Your productivity on the job.
(Unimportant) 1 2 3 4 5 6 7 (Important)

7. Amount of effort you expend on the job.
(Unimportant) 1 2 3 4 5 6 7 (Important)

8. Scarcity of your skills in the labor market.
(Unimportant) 1 2 3 4 5 6 7 (Important)

9. Your contribution to the technical and scientific knowledge of your university.
(Unimportant) 1 2 3 4 5 6 7 (Important)

PLEASE CHECK THAT YOU HAVE CIRCLED 9 ANSWERS
SECTION III

In the section below you will see a series of statements designed to measure your attitude about the pay you receive for your present job. Please indicate your agreement or disagreement with each statement. Use the scale below each statement. For example:

It is easier to work in cool weather than in hot.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you think it is easier to work in cool weather, put an X above "Agree." If you think it is much easier to work in cool weather, put a mark above "Strongly Agree." If you think it doesn't matter, put a mark above "Undecided," and so on. Please put your mark in a space, not on the boundaries.

There are no right or wrong answers. This research is only concerned with your opinion about the statements which follow.

1. For me, raises have means that I was progressing in my work.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. The raises I have received were rewards for good performance.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. In my job, pay is a form of recognition for a job well done.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLEASE CHECK THAT YOU HAVE MARKED 3 ANSWERS
SECTION IV

The purpose of this section is to determine how you rate yourself relative to others in your university with similar university duties. You will be asked to rate yourself for characteristics on a seven-point scale which will look like this:

(Low) 1 2 3 4 5 6 7 (High)

Please circle the number on the scale that represents where you stand compared to others with similar university/academic duties. If you think that you are a little less than average as compared with others with similar academic/university duties, you would circle the numeral 3, and so on. For each scale, circle only one number.

Please do not omit any scales.

1. Quality of your job performance.
   (Low) 1 2 3 4 5 6 7 (High)

2. Your productivity on the job.
   (Low) 1 2 3 4 5 6 7 (High)

3. Amount of effort you expend on the job.
   (Low) 1 2 3 4 5 6 7 (High)

PLEASE CHECK THAT YOU HAVE CIRCLED 3 ANSWERS
SECTION V

The purpose of this part of the questionnaire is to obtain a picture of the traits you believe are most necessary for success in your present university position.

Below is a list of 12 traits arranged randomly. Rank these 12 traits from 1 to 12 in the order of their importance for success in your present university position.

For example, if you thought "Intelligent" was the most important trait for success in your present university position, you would put the number 1 in the space in front of "Intelligent." If you thought "Efficient" was the second most important trait, you would put the number 2 in front of "Efficient," and so on until the last space that is left would get the number 12 since it is the least important trait in your estimation.

IMPORTANT:
1. Number 1 stands for the most important, and 12 for the least important trait.
2. Be sure that each space is filled by a different number, corresponding to your rank of the trait.

TRAITS TO BE RANKED FROM 1 TO 12

Efficient
Forceful
Cooperative
Adaptable
Imaginative
Independent
Cautious
Intelligent
Self-Confident
Agreeable
Decisive
Tactful

PLEASE CHECK:
HAVE YOU USED ALL THE NUMBERS FROM 1 TO 12?

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SECTION VI

The purpose of this final section of the questionnaire is to gather demographic data to help in the statistical analysis of your answers.

1. CHECK ONLY ONE:
   __________ Single Female
   __________ Separated, Divorced
   __________ Married with Dependents
   __________ Married without Dependents

2. AGE ON LAST BIRTHDAY (CHECK ONE):
   __________ 20-24
   __________ 25-29
   __________ 30-34
   __________ 35-39
   __________ 40-44
   __________ 45-49
   __________ 50-54
   __________ 55-59

3. EDUCATIONAL ATTAINMENT (CHECK ONE):
   __________ Bachelor's Degree
   __________ Some Graduate Work Beyond Bachelor's Degree
   __________ Master's Degree
   __________ Some Graduate Work Beyond Master's Degree
   __________ Doctoral Degree
   __________ Post-Doctoral Work

4. TOTAL TIME IN PRESENT UNIVERSITY POSITION (CHECK ONE):
   __________ 0-½ Year
   __________ ½-1 Year
   __________ 1-2 Years
   __________ 2-3 Years
   __________ 3-4 Years
   __________ 4-5 Years
   __________ 5-10 Years
   __________ 10-15 Years
   More than 15 Years
5. TOTAL TIME WITH THE UNIVERSITY (CHECK ONE):

_______0-1 Year  __________ 6-10 Years
_______1-2 Years  __________ 11-20 Years
_______3-5 Years  __________ Over 20 Years

6. APPROXIMATELY WHAT IS YOUR YEARLY SALARY FROM YOUR UNIVERSITY POSITION BEFORE TAXES AND OTHER DEDUCTIONS? (PLEASE CHECK ONE.)

__________Under $6,000  __________ $15,000-17,999
__________$6,000-8,999  __________ $18,000-20,999
__________$9,000-11,999  __________ $21,000-23,999
__________$12,000-14,999  __________$24,000 and over

7. POSITION TITLE (CHECK ONE):

_____ Instructor
_____ Assistant Professor
_____ Associate Professor
_____ Full Professor
_____ Other (Please specify: ____________________________)

8. DESCRIPTION OF DUTIES IN CURRENT POSITION (CHECK ONE):

_____ Teaching Responsibilities and Committee Assignments
_____ Administrative Responsibilities and Committee Assignments
_____ Combined Teaching and Administrative Responsibilities
_____ Research
_____ Combined Research and Teaching Responsibilities
_____ Other (Please specify: ____________________________)

PLEASE CHECK THAT YOU HAVE ANSWERED ALL QUESTIONS

END OF QUESTIONNAIRE *** END OF QUESTIONNAIRE *** END OF QUESTIONNAIRE

Allow me to thank you once again for taking the time to complete this questionnaire. Your cooperation is very much appreciated.

Karen K. Arnold
April 20, 1977

Dear Faculty Member:

Allow me to introduce myself. My name is Karen K. Arnold, and I am a doctoral candidate in the Department of Management at Louisiana State University. The purpose of this letter is to ask for your cooperation in gathering data for my dissertation research.

Enclosed with this letter you will find a questionnaire. This questionnaire is part of a research study of women in academics throughout the state. It has been reviewed and approved for distribution by my graduate dissertation committee. Its purpose is to gather information from female faculty members concerning their attitudes towards various elements of their academic position.

It is important to point out that this is not a study of individual persons or of individual departments or colleges. It is a study of the faculty members as a professional group. Your answers on this questionnaire will in no way affect your academic position since the information gathered will be used in writing my dissertation for the doctoral degree in management. No one associated with either the faculty or administration at the University will have access to your completed questionnaire or know how any one individual responded. To further guarantee your anonymity, you are asked not to identify yourself in any questionnaire section.

On the following pages you will find several different questions. There are no "trick" questions. Your opinion is the only right answer. All that is asked is that you try to answer as honestly and candidly as possible. Specific instructions will be given at the beginning of each section. Your completed questionnaire should be mailed directly to the researcher, Karen K. Arnold, in the enclosed envelope as soon as possible.

The success of this research depends on each and every questionnaire being completed as honestly as possible and returned for analysis. Won't you now please take a few minutes to complete the enclosed questionnaire? It's through faculty cooperation in studies such as this one that we are all able to advance our levels of knowledge and understanding.

In closing, I would like to thank you in advance for your participation in this study. Your cooperation is greatly appreciated.

Sincerely,

Karen K. Arnold
Department of Management
April 25, 1977

Dear Faculty Member:

Allow me to introduce myself. My name is Karen K. Arnold, and I am a former UNO graduate. At the present time I am a doctoral candidate in the Department of Management at Louisiana State University. The purpose of this letter is to ask for your cooperation in gathering data for my dissertation research.

Enclosed with this letter you will find a questionnaire. This questionnaire is part of a research study of women in academics throughout the state. It has been reviewed and approved for distribution by my graduate dissertation committee. Its purpose is to gather information from female faculty members concerning their attitudes towards various elements of their academic position.

It is important to point out that this is not a study of individual persons or of individual departments or colleges. It is a study of faculty members as a professional group. Your answers on this questionnaire will in no way affect your academic position since the information gathered will be used in writing my dissertation for the doctoral degree in management. No one associated with either the faculty or administration at the University will have access to your completed questionnaire or know how any one individual responded. To further guarantee your anonymity, you are asked not to identify yourself in any way on the questionnaire.

On the following pages you will find several different questions. There are no "trick" questions. Your opinion is the only right answer. All that is asked is that you try to answer as honestly and candidly as possible. Specific instructions will be given at the beginning of each section. Your completed questionnaire should be mailed directly to the researcher, Karen K. Arnold, in the enclosed envelope as soon as possible.

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In closing, I would like to thank you in advance for your participation in this study. Your cooperation is greatly appreciated.

Sincerely,

Karen K. Arnold
Department of Management

a member of the louisiana state university system
APPENDIX III - LETTERS OF PERMISSION FROM PUBLISHERS
Ms. Karen K. Arnold  
Department of Management  
College of Business Administration  
Louisiana State University  
Baton Rouge, Louisiana 70803

Dear Ms. Arnold:

This will acknowledge receipt of your letter of October 12, asking permission to use my "Pay Questionnaire," "Need Satisfaction and Role Perception Questionnaire," and "Self-Rating Form" as set forth on pages 185-194 of Managerial Attitudes and Performance. I am happy to grant you permission to use these instruments and wish you the best of luck in your research.

Sincerely yours,

[Signature]

Dean

LWP:em
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Based on your request for use of ___ pages, ___ tables, ___ figures, the total fee is $______. You will be billed for this amount.

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☐ e. Other: ________________________________

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☐ g. No permission or fee is necessary, material is now in the public domain. However, No. lc above is required.

☐ h. No fee is necessary for authors using their own material. However, lc above is required.

☐ i. Author's permission and fees are waived but No. lc above is required.

☐ j. Fees are waived, but No. la and c above are required.

For: dissertation ________________________________

Ellen E. Moffett, Permissions Office
November 4, 1976

Ms. Karen K. Arnold
Department of Management
College of Business Administration
Louisiana State University
Baton Rouge, Louisiana 70803

Dear Ms. Arnold:

Permission is granted to reproduce the "Pay Questionnaire" from pages 155-94 of Porter and Lawler's MANAGERIAL ATTITUDES AND PERFORMANCE for inclusion in your doctoral dissertation for the Louisiana State University.

Proper acknowledgment must be given to the authors, title, and publisher.

Sincerely yours,

Jeanine Amsrson
Permissions Editor
Karen Kathryn Arnold was born on March 16, 1950 in Oakland, California. She was raised in New Orleans, Louisiana and attended public and Catholic schools. In May 1967, Karen graduated from Mount Carmel Academy. Later that same year, she began her college work at what was then called Louisiana State University in New Orleans, now known as the University of New Orleans. At Louisiana State University in New Orleans, Karen majored in Management and was active in many campus-related activities. She was twice elected to Who's Who Among Students in American Colleges and Universities and was also selected as the most outstanding woman graduate in business. At the time of her graduation in 1971, she was awarded a Bachelor of Science degree cum laude for maintaining a 3.76 overall average and a 4.00 average in her major: Management.

In the Fall Semester of 1971, Karen Arnold entered graduate school at Louisiana State University in New Orleans as a student in the Master of Business Administration program. While pursuing a Master's degree, Karen was employed by the Department of Management and Marketing as a graduate research assistant. In December of 1972, she was awarded a Master of Business Administration degree with a perfect 4.00 overall average in all graduate course work.

Karen entered the doctoral program in Management at Louisiana State University in Baton Rouge in 1973. At Louisiana State University she was employed as a graduate teaching assistant and, later, as an
Instructor of Management. Her primary areas of interest include organizational behavior and the history of management thought. Karen will receive her Ph.D. in management at the Summer, 1979 commencement exercises, again having maintained a perfect 4.00 overall average in all doctoral course work. She is a member of the Academy of Management, Beta Gamma Sigma, and Phi Kappa Phi.

Following graduation, Karen Arnold will be retained by Louisiana State University as Assistant Professor of Management to teach organizational communication. She has co-authored a textbook chapter in this area with Professor Herbert G. Hicks.
Candidate: Karen Kathryn Arnold

Major Field: Management


Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

May 4, 1979