Job Satisfaction and Work Effort: A Study Involving Use of the Herzberg Two Factor Theory

Thomas J. McCann
Western Michigan University

Follow this and additional works at: https://scholarworks.wmich.edu/masters_theses

Part of the Industrial and Organizational Psychology Commons

Recommended Citation
https://scholarworks.wmich.edu/masters_theses/2603

This Masters Thesis—Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Master's Theses by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
JOB SATISFACTION AND
WORK EFFORT: A STUDY INVOLVING
USE OF THE HERZBERG TWO FACTOR THEORY

by

Thomas J. McCann

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
Kalamazoo, Michigan
August 1974
ACKNOWLEDGEMENTS

In writing this thesis I have benefited from the encouragement, advice, and constructive criticism of Professors Richard Schmidt, Frank Fatzinger, and John Nangle. My thanks go to them, as to the many others at Western Michigan University, who have given much needed help. It is not necessary to say that gratitude in no way divorces me from the sole responsibility for what is written here.

Thomas J. McCann
INFORMATION TO USERS

This material was produced from a microfilm copy of the original document. While the most advanced technological means to photograph and reproduce this document have been used, the quality is heavily dependent upon the quality of the original submitted.

The following explanation of techniques is provided to help you understand markings or patterns which may appear on this reproduction.

1. The sign or “target” for pages apparently lacking from the document photographed is “Missing Page(s)”. If it was possible to obtain the missing page(s) or section, they are spliced into the film along with adjacent pages. This may have necessitated cutting thru an image and duplicating adjacent pages to insure you complete continuity.

2. When an image on the film is obliterated with a large round black mark, it is an indication that the photographer suspected that the copy may have moved during exposure and thus cause a blurred image. You will find a good image of the page in the adjacent frame.

3. When a map, drawing or chart, etc., was part of the material being photographed the photographer followed a definite method in “sectioning” the material. It is customary to begin photoing at the upper left hand corner of a large sheet and to continue photoing from left to right in equal sections with a small overlap. If necessary, sectioning is continued again — beginning below the first row and continuing on until complete.

4. The majority of users indicate that the textual content is of greatest value, however, a somewhat higher quality reproduction could be made from “photographs” if essential to the understanding of the dissertation. Silver prints of “photographs” may be ordered at additional charge by writing the Order Department, giving the catalog number, title, author and specific pages you wish reproduced.

5. PLEASE NOTE: Some pages may have indistinct print. Filmed as received.

Xerox University Microfilms
300 North Zeab Road
Ann Arbor, Michigan 48106

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
MASTERS THESIS M-6168

McCANN, Thomas J.

JOB SATISFACTION AND WORK EFFORT: A STUDY INVOLVING USE OF THE HERZBERG TWO FACTOR THEORY.

Western Michigan University, M.A., 1974
Psychology, industrial

Xerox University Microfilms, Ann Arbor, Michigan 48106

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>STATEMENT OF THE PROBLEM</td>
<td>10</td>
</tr>
<tr>
<td>The Hypothesis</td>
<td>10</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>10</td>
</tr>
<tr>
<td>Explanation of the Two Factor Theory</td>
<td>12</td>
</tr>
<tr>
<td>METHOD</td>
<td>16</td>
</tr>
<tr>
<td>Subjects</td>
<td>16</td>
</tr>
<tr>
<td>Procedure</td>
<td>17</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>24</td>
</tr>
<tr>
<td>RESULTS AND DISCUSSION</td>
<td>30</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>34</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>36</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
INTRODUCTION

For centuries men have made an effort to improve the products of their labors. Workers, owners and managers have attempted to produce more with less effort, and later to produce more for less money. The emphasis began on production and moved toward the ultimate goal of greater profits. One thrust of the attempts has been the desire to obtain more and better work from the labor force. Many methods have been tried with varying degrees of success. One facet of the problem, however, has been studied with only inconclusive results. This area is the problem of productivity and its relationship to job satisfaction. It is the primary emphasis of this paper.

Studies including: Anderson, 1953; Blum, 1949; Bolanovich, 1948; Giese, 1949; Grauer, 1934, as well as a large number of others have considered the relationship between productivity and job satisfaction with what could be called limited success. Many of the studies found some correlation between the two variables, but most of the correlations were very low. Contrasted to this are studies including: Bass, 1954; Trist, 1951; Gadel, 1952; Kornhauser, 1932; Haire, 1951; and Katz, 1950 and many others concluding that job satisfaction is not related to productivity. In fact, in several cases (Katz, 1951) the studies reported that job satisfaction was inversely related to productivity. A literature review done by Herzberg et al. (1957) noted that 54% of the studies on productivity and job satisfaction found a positive relationship, but that most
of the correlations were very low. Additionally, 35% of the studies found job satisfaction and productivity unrelated. Beyond that, fully 11% of the studies found job satisfaction was actually related to low productivity. These data are inconclusive at best, and have been followed by further research with similar results. This paper represents one more attempt to the same end, but utilizing information provided by the "Two Factor Theory" of job satisfaction first put forth by Herzberg (1959).

It is worth noting that job satisfaction is a difficult concept to define and measure. For purposes of this paper, job satisfaction will be the arithmetic average of several satisfaction scores for employees across single facets of satisfaction on the job. The term will be used interchangeably with morale. Productivity will be defined as the amount of effort put forth by an individual on the job, as rated by his supervisor.

Increased productivity has been one of the major goals of industry since the time of the industrial revolution. It is an overriding principle, second only to the greater goal of increased profits, of which it is a direct factor. For this reason, owners, managers, and foremen have tried many techniques to improve the overall production of their facilities.

Certainly it is difficult to dispute the importance of productivity in our industrialized society. Increases in production allow for an increased standard of living, for profit, and for economic growth. Static production levels mean a static or deteriorating
economy. For this reason, productivity, and increases in productivity are important to everyone.

Early attempts were made to increase the work level of man. The first successful attempt to utilize and optimize man as a part of the production process came through the principles of what is now known as scientific management. First among the practitioners of the subject was Frederick W. Taylor, who Herzberg (1959) and others have called the "Father of scientific management." Taylor was an engineer and a scientist, who saw scientific management as a systematic or scientific investigation of all the facts and elements connected with the work being managed (Longenecker, 1964). Taylor concentrated his studies, which were carefully conducted and controlled, on such things as eliminating wasted motions and on improving tools. Simply by studying the best worker at a job, and by observing how that man did the job, Taylor was often able to show others doing the same work what motions not to make and which ones to make more often. One of Taylor's big successes was to improve the rates at which bricklayers could perform. His techniques are still used today.

The Gilbreths were contemporaries of Taylor. A husband and wife team, they had preparation in both engineering and psychology. They were shop oriented. That is, they were attuned to productivity increases (George, 1968).

Basically, and with help from other people, Taylor and the Gilbreths showed how to utilize and optimize man as a co-equal machine. They demonstrated, within limits, what can be done to
improve the production process when the human machine is carefully used and programmed to a given task. This science has become several different disciplines, including the very different fields of time and motion study and some areas of human engineering.

The Gilbreths and Taylor assumed the idea of man as a machine to be used scientifically in the production process. It was expected that a man offered his services for a fee, and would perform any given task to the best of his ability. He was basically a machine that operated for money. He was an economic man.

The Hawthorne studies, as later reported by White (1969), had a marked impact upon theorizing about behavior in industry. These studies, headed by Elton Mayo, found that production improved following almost any change in conditions affecting the employees. Mayo concluded finally, that the production improvements occurred as a result of attention being shown to the employees rather than because of any actual change in production conditions. He concluded from this that management had made some tacit assumptions about the nature of workers which were completely incorrect. Specifically, the worker was considered to have no aspirations to dignity, no natural desire to work co-operatively or diligently unless compelled to do so, and no revulsion to work which was boring or tiresome (Gellerman, 1963). The Hawthorne studies questioned these assumptions.

The effect of the Hawthorne studies was rapid. Following them there was a tremendous swing by management toward a deep preoccupation with the human and social aspects of work (Heyel, 1962). Some
managers and management experts adopted the human relations approach with such enthusiasm that they tended to go overboard in the opposite direction. The naive formula "be nice to people" was often adopted without concern for its limitations. On the other hand, some rather unscrupulous individuals viewed human relations as a clever way to manipulate personnel (Longenecker, 1964). Still, the principles survived. Human relations management became an important part of the management process.

Growing from the human relations theory was the question of supervisory style. Interest soon turned to this problem. Will a supervisor who is production oriented have better success at his work than one who is employee oriented? Early investigators clearly hoped to find that a supervisory style in line with democratic values would not only produce more job satisfaction for subordinates, but also higher productivity (White, 1969). To some extent this fact was supported. When all the data were in, a Michigan team found that supervisors characterized as production centered were likely to be in charge of low producing groups. It looked, in other words, as if a direct emphasis on getting the work done was the worst way to get it done (Gellerman, 1963). The question is not a simple one, though, and long and short term situations seem to have opposite results.

As early as the eighteenth century it was known and understood that a man who receives a piece rate is likely to out produce a man who receives a day wage (George, 1968). While this simple fact is undoubtedly true, its usefulness is easily overrated. Studies have shown clearly that despite a piece rate, workers will reduce and
control their output. It becomes clear that under this type of management control, and perhaps under others too, that the responsibility for production is inherently the province of the workers, not their supervisors. In any case, piece work has had limited success in limited areas of application, most notably the Scanlon Plan.

With early studies, and with the advent and development of psychology, it became obvious that the human animal works for reasons which are not always clear. For industry, this translated to "people are motivated to work". With this realization, a new emphasis came to management. Managers now asked the question, How do we motivate people to work? Strictly speaking, the answer to their question was: You don't. Rather, man is by nature motivated (McGregor, 1967).

Obviously, this answer was a disappointment to managers. They would have liked a simple answer in the man-is-a-machine tradition. This type of answer would tell them which buttons to push to obtain ever greater work levels from ever greater motivation levels. Unfortunately, the problem is more complicated still. The idea that motivation comes from inside each individual has been established and well supported by researchers in behavioral science (Pigors and Myers, 1956). It appears that people are motivated by needs of their own to a much greater extent than they are motivated by the pressure that management can bring to bear (Gellerman, 1963). To the shallow thinking managers, this information represented a closed door, and no hope for increasing productivity. Others saw it simply as a more complicated managerial problem. Motivated people work. We
must therefore find some way to get and keep motivated people. Faced with this difficulty, researchers began to question the principles of motivation. They found, for example, that even the average man is self-activated in certain ways. He expends energy in play, in pursuit of hobbies, and in other pleasure seeking activities (McGregor, 1967). For industry, the general consensus seems to have become to create an environment in which employees can be self motivated.

To design such an environment, we must answer a question. The question is, Do people who are happy with their work produce at a higher rate than those who are not happy with their work? This question is the basis for the present study. The same question can be and has been phrased in many different ways by many different researchers and managers. It could read: Does high morale lead to high productivity? Again, it could be: Does job satisfaction help increase productivity? The answer to all these questions would seem to be obvious. Intuitively we are inclined to expect a strong positive correlation between job satisfaction and productivity. Yet a moment's reflection reminds us that a happy sociable employee may spend his time in socializing rather than working (Longenecker, 1964). Even so, the relationship between satisfaction and performance is one of the chief concerns of management, and at one time the two were assumed to be positively related (Fournet et al., 1967). It has been generally assumed that employees with favorable attitudes are in general better employees (in terms of productivity, job tenure, and other criteria) than are employees with less favorable
attitudes (Tiffin and McCormick, 1942). While the question of high morale leading to high productivity is still open, it seems obvious that at its worst, poor morale can lead to strikes, featherbedding, malingering, and other reactions which can undermine the productivity of any kind of job.

Research is proving that the relationship between morale, or job satisfaction, and productivity is an extremely complicated one. If high morale and high productivity go together, it is implied that dissatisfaction of any kind will usually lead to restricted output. A number of studies in a literature review lead to some doubt about this conclusion. Rather we are finding conflicting patterns of relationship between morale and productivity. In some situations there is high morale and high productivity; in others we find high morale and low productivity, or the converse (Herzberg, 1957).

The kind of conflicting answers presented here have led many researchers to abandon the field as unproductive. However, a study done in 1959 (Herzberg et al., 1959) has shown, or at least suggested, that the difficulties involved in such research may be the result of conceptualizing the problem incorrectly. Herzberg and his associates decided from their research, that job satisfaction is not a single dimensional quantity, which an employee either has or does not have. Instead, they suggested that job satisfaction exists along two dimensions rather than one. The two dimensions were labelled motivation and hygiene, and have come to be associated with intrinsic job factors and extrinsic job factors, respectively. The study, in 1959, has led to a great deal of research with still more conflicting
conclusions.

The results of previous research reported here have not led to a resolution of the question, and this brings us to the focus of the problem at hand.
STATEMENT OF THE PROBLEM

The Hypothesis

It is expected that this study will find a relationship between job satisfaction and work effort which is statistically significant. The Herzberg Two Factor Theory is being used in this study, and therefore, if the expected relationship is found, the Herzberg theory will be indirectly supported.

Specifically, the following hypothesis will be tested in this study:

That a direct correlation between job satisfaction and work effort can be found by measuring job satisfaction on several factors, where satisfaction data is ordered on the basis of internal consistency of response.

Statement of the Problem

It is apparent that many researchers have considered the relationship between job satisfaction and productivity to be significant and of importance. With all the interest shown, and with all the research that has been done, and with so many people expecting to find such a relationship, it is worth questioning why the relationship has not materialized in the magnitude expected. The answers to this question are several, and they relate to the various different aspects of the research problems involved, as well as to the hypothesis being tested in this treatise. Certainly logic leads us to
expect the relationship described. If we assume that we are trying to isolate the relationship, which others have previously tried to do, we can list some of the difficulties we expect to find:

1. Accurately measuring both productivity and job satisfaction.

2. Equating or scaling satisfaction and productivity measures from one individual to another so that there will be comparability of meaning.

3. Finding some way to differentiate between productivity in physical terms and the actual effort expended by individuals.

4. Utilizing the information provided by Herzberg, which treats job satisfaction as a two dimensional quantity.

Looking over these obvious problems, it is apparent why some studies have not found the results their designers had expected. Many of the early researchers failed to treat job satisfaction as a two, or multi-dimensional quantity. Further, the studies may have inadequately allowed for difficulties presented by the other problems listed. For example, in a factory, if a large group of people do exactly the same manual task using the same methods, the fastest operator would produce approximately twice as much in a given time as the slowest operator. From another point of view, Wechsler shows that the range of most physical and mental activities varies as two to one, if the rare exceptions are not considered. That is, the best has roughly twice the capacity of the worst (Barnes, 1937). For our purposes this means that when measuring productivity we must somehow allow for the fact that some people are twice as capable as others. How can you tell the difference between a man who is highly capable
but unmotivated, and a man who is almost incompetent, but who is very
highly motivated? It would appear that both men could be producing at
about the same pace, and it would be very difficult to decide whether
job satisfaction had anything to do with their similar production
levels.

We must also avoid problems involved in measuring the level
of individual job satisfaction and comparing it with the measure of
another man's job satisfaction. This is a problem of scaling and
it must be overcome through proper design of the measuring instrument.

Explanation of the Two Factor Theory

The Two Factor Theory, as devised by Herzberg, is a complicated
system of ideas, which is being challenged and revised by many
researchers. Basically, the theory, which has been described in
detail by Herzberg (1959), claims that job satisfaction is not a
single dimensional quantity as has been traditionally thought. Rather,
Herzberg suggests that satisfaction is a function of many factors
which organize themselves in two general clusters -- those things
intrinsic to the job, and those things surrounding the job, but not
directly part of it. These two areas have come to be known as
motivation and hygiene.

Herzberg lists the many factors in order of their relative
importance. The hygiene (extrinsic) group consists of:

1. Working conditions
2. Company policy
3. Supervisor's performance
4. Interpersonal relations -- supervisor
5. Salary
Natural questions concerning these factors might be fairly obvious. Is the work environment comfortable? Is it warm enough? Are parts available if needed? Is there enough light? Does the man have enough time for rest and for tending to his physical needs? Does the company have restrictive policies which upset the worker? Does his supervisor provide information and support when he needs it? Does his supervisor know enough about the job to be of assistance? Can he get along with his supervisor? Is his salary high enough to get by? All of these questions represent queries about the hygiene aspects of the job. These are the factors which can cause a man to work below his normal pace. If the room is too dark, obviously no one can work as fast as he wants to. If the room is too cold, or too hot, or if the supervisor is constantly changing orders, the same situation exists. These, then, are the hygienes.

The other dimension of the Herzberg theory consists of the motivating (Intrinsic) factors. Herzberg lists the most important ones as:

1. Achievement
2. Recognition
3. Work itself
4. Responsibility
5. Chance for advancement

Any of these things, such as recognition for an outstanding job, or genuine satisfaction from doing an interesting and rewarding job, or added responsibility might inspire a man to expend additional effort.

When first released, the Herzberg study created a great deal of controversy. The work seemed logical. It had addressed itself...
to an important question. It found information and obtained positive results where other people had found nothing, and most important, it suggested that a large part of traditional theory might be in error. There was an immediate rush by researchers to study and test the Herzberg theory. In retrospect, it may be that part of the rush was intended to study and discredit the work rather than to study and test.

Despite the criticism, there is some value in the information provided by this theory. This present study will accept the theory, and use the factors provided by it as a basis for further research. That is, the factors suggested by the two factor theory will be measured, combined and averaged, and then compared to a measure of work effort.

The general consensus of research after Herzberg seems to be that the original study was method bound, and that for various reasons its results could not or should not be accepted. There is criticism of the approach used by the original team, as well as their methods for measuring attitudes and productivity. The researcher here has made the assumption that the Herzberg work can serve as an important tool in dealing with the question at hand, and as such, the work will be accepted and used.

If, then, a significant relationship is found between job satisfaction and work effort, two questions will have been answered. First, the long sought relationship does exist, and second, Herzberg's two factor theory is both valid and useful.

It is understood that if a relationship between job satisfaction
and work effort exists, it is not necessarily a casual relationship. Rather, several possibilities may exist. Job satisfaction may be causing higher effort, high effort may be causing job satisfaction, or both factors may be responding to a third or even group or other factors as yet unidentified.
METHOD

Permission to use employees was obtained from a medium sized automobile supply firm located in several states in the midwest. A particular plant in the state of Michigan was chosen for the study. An understanding was reached regarding anonymity for the corporation, and a provision for sending compiled results to the company was included.

Job satisfaction and work effort were measured by means of simple survey forms administered to employees and their supervisors respectively. Work effort was used in place of productivity because it was easier to measure and compare over a cross section of very different jobs. Further, work effort was thought to be a better measure of job involvement than would be actual productivity.

Subjects

Permission was obtained from a midwest based automobile electrical supplier to use its employees in the research. A careful screening of plant records produced 125 persons who fit the qualifications needed for the study. It was decided that only men would be used for the study. Further, an attempt was made to select only those men with between five and ten years seniority. Third, an attempt was made to screen out all men who were nearing retirement age. In the final study, nearly all subjects were between the ages of 25 and 40. A total sample of 73 resulted after attrition for various reasons.
There was no attempt made to select subjects from one specific area of the plant. Rather, a cross section of the plant was taken. Final selections involved over fifteen departments and three different shifts. Subjects selected performed every conceivable job in the plant. While supervisors were used to determine work effort of their employees, none were chosen as subjects to be used in the satisfaction sample.

A few of the subjects in the study were machine operators of one type or another. In some cases, the men were working on a piece rate. The majority, though, were scattered throughout the plant on jobs that could not be designed as piece rate work. The introduction of some subjects on piece rate made even more important the indirect measure of productivity (work effort) discussed earlier in this work. The emphasis was placed on effort expended by employees rather than on actual production. This makes all such measures directly comparable from one subject to another.

Procedure

The research consisted of several steps. First, as already noted above was the selection of subjects. Second was the preparation of materials. The materials included a survey form and a criterion sheet for supervisors (rating form), as well as instructions to insure understanding and to encourage the prompt return of all documents by as many subjects as possible. These documents are included as figure 1 and 2 on pages 18, 19, and 20. The third step was the distribution and explanation of all materials. After the return of the surveys and
EMPLOYEE INFORMATION SURVEY

DIRECTIONS

On the following page you will find a set of ten questions. Each question asks about some phase of your job. Please circle the number that most nearly describes the way you feel about the idea presented in the question. For example, if you are completely satisfied with something, you would circle number 9. If you are completely unhappy with an item you would circle number 1. If you feel any other way, you would circle one of the numbers between 9 and 1. When finished, please put the survey in the envelope and mail it.

Please be as honest as you can. This survey is being used as part of a research project being done under the direction of the Department of Psychology, Western Michigan University. The results are important, and only honest answers will produce the kind of information that is needed. Your answers will never be seen by anyone connected with your company in any way. Only the researchers themselves will see the completed forms.

Thank you very much for your co-operation. Your contribution will help make this project a success.
1) **How satisfied are you with the working conditions surrounding your job?**
   - 9 8 7 6 5 4 3 2 1
   - completely not at all

2) **How often do you feel a sense of achievement on your job?**
   - 9 8 7 6 5 4 3 2 1
   - always never

3) **How satisfied are you with company policy and the way it is administered?**
   - 9 8 7 6 5 4 3 2 1
   - completely not at all

4) **How often do you get the recognition you deserve for your work and service?**
   - 9 8 7 6 5 4 3 2 1
   - always never

5) **How satisfied are you with your supervisors performance?**
   - 9 8 7 6 5 4 3 2 1
   - completely not at all

6) **How well do you like the actual work you are doing?**
   - 9 8 7 6 5 4 3 2 1
   - very well not at all

7) **How well do you get along with your supervisor and other members of management?**
   - 9 8 7 6 5 4 3 2 1
   - very well not at all

8) **How much responsibility do you have in your job?**
   - 9 8 7 6 5 4 3 2 1
   - a great deal none at all

9) **How satisfied are you with your salary?**
   - 9 8 7 6 5 4 3 2 1
   - completely not at all

10) **How much chance for advancement do you have in your present job?**
    - 9 8 7 6 5 4 3 2 1
    - very good chance none at all
EMPLOYEE PRODUCTION SURVEY

For each of the employees listed, please circle the number that you feel most nearly describes the kind of worker they are. Notice that the numbers range from very good worker to very poor worker. Remember that these ratings will be used in a research project, and in no other way. No one from your company will see them, and there is no way they can either harm any of your workers, or reflect upon you. Please be as honest as you can and please be as accurate as possible. When finished, please place the form in the envelope provided and mail it. Thank you very much for your co-operation. Your contribution will help make this project a success.

<table>
<thead>
<tr>
<th>Very Good</th>
<th>Average</th>
<th>Very Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 8 7 6</td>
<td>5 4 3</td>
<td>2 1</td>
</tr>
<tr>
<td>9 8 7 6</td>
<td>5 4 3</td>
<td>2 1</td>
</tr>
<tr>
<td>9 8 7 6</td>
<td>5 4 3</td>
<td>2 1</td>
</tr>
<tr>
<td>9 8 7 6</td>
<td>5 4 3</td>
<td>2 1</td>
</tr>
<tr>
<td>9 8 7 6</td>
<td>5 4 3</td>
<td>2 1</td>
</tr>
</tbody>
</table>

Figure 2
ratings the data from the survey was transformed into a usable quantitative format suitable for statistical analysis. The fifth step was, of course, statistical analysis. Finally, the results were studied and conclusions were drawn, both about the hypothesis tested, and about the study in general.

Two separate instruments were needed. One for measurement of job satisfaction and one for measurement of work effort. They will be discussed separately.

The job satisfaction instrument was prepared first. Historically, job satisfaction has been measured in dozens of different ways. Everything from personal interviews to simple pictures have been tried. It was decided that a simple method of measurement would be used. This because success of the many previous methods was open to some doubt, and a simple method seemed as likely to succeed as a complicated one.

The form was labelled "Job Information Survey". It has ten questions, with each question referring to one of the specific areas which Herzberg considers to be either a motivator or a hygiene factor. The odd numbered questions refer specifically to the five most important hygiene factors. The even numbered questions refer to the five most important motivating factors. Each of the questions asked the employee to decide on a scale of nine points how well each of the job satisfaction factors was being fulfilled in his present job.

Each of the Job Information Survey forms was carefully coded.
and listed on a master sheet so that each survey could be identified when it was returned. This coding was necessary to compare results with supervisory ratings obtained later. The subjects were asked not to sign their names, were assured anonymity, but were never told about the coding. No lies were told to indicate the forms were not coded, but the information was not provided. The subjects were allowed to assume that their forms could not be identified. After the information was gathered and compiled, master lists were destroyed so information relating to individuals could not be reconstructed. It was felt that this was necessary and sufficient to fulfill the moral and ethical obligation of the researcher for the promise of anonymity.

After preparation of the Job Information Survey Forms and their careful coding, each was placed in an envelope with a particular subject's name on it. The envelopes also contained the letter of explanation and a self-addressed, stamped envelope so that the forms would be easily returned by mail to an address that was obviously not one related to the company in any way. Each survey form was then hand delivered by this researcher with a brief statement of explanation and an appeal for honest and prompt return of the instrument. Every subject was contacted personally. Every form was explained personally and all questions were answered honestly by the researcher.

The second form measured work effort. It is labelled Employee Production Survey, and it asks each supervisor to rate his employees according to how hard they work. This form, while extremely simple is critical to the study. It assumes that a supervisor can determine whether an employee is a hard worker or not. It was stressed verbally...
to the supervisors that the study was concerned with how hard an 
employee worked, rather than precisely with what his actual production 
might be.

This is important, because it helps reduce the effects of the 
differences in innate human ability as cited earlier (Barnes, 1937). 
As can be easily seen, the supervisors merely rated their employees on 
a numbered scale as to their effort levels. These forms also were 
scored on a basis of nine points with the lowest points indicating 
the poorest worker. In this way, the two survey forms produced data 
which were numerically similar and made analysis less complex.

When the Job Information Survey sheets (satisfaction forms) had 
been returned, each supervisor was contacted personally and given 
the Production Survey Sheets for those employees who had returned 
their satisfaction forms. Along with the sheets was a personal 
appeal for honesty, an assurance of anonymity and an explanation 
that emphasis was to be placed on effort expended by employees rather 
than on actual production. That is, employees were to be rated on 
how hard they worked, rather than on specific production. All 
survey materials were returned by mail to the same address, chosen 
for its complete disassociation from the company.

The subject group of 125 was reduced to 73 usable returns. The 
shrinkage was due to non-return, improper use (only two cases) and 
late return, as well as difficulty introduced by use of company 
records. The usable forms were then compiled and combined with the 
productivity forms and statistical analysis was begun.

Compilation of data for this study was direct. The survey
forms were identified and a simple average of intrinsic job satisfaction was obtained from the five questions on the subject. In a similar way, an average was obtained for extrinsic satisfaction. It was found that for many of the subjects, these two averages were vastly different. The two averages were then listed with the work effort scores as provided by the supervisors. A complete copy of the data is included as Appendix I.

Statistical Analysis

It has been the hypothesis of this work that a positive and statistically significant correlation should exist between job satisfaction and work effort. It has been the contention of this thesis that difficulty in measuring job satisfaction has prevented this relationship from appearing. For this work, two assumptions were made: First, if job satisfaction was properly measured, the correlation in question would be readily apparent and statistically significant; secondly, that by using information provided by the Herzberg Two Factor Theory, proper measurement of job satisfaction would be possible.

It was found, as expected that some subjects felt that all factors, both intrinsic and extrinsic were being well satisfied in their jobs. Also, of course, some subjects felt just the opposite. Almost none of the job factors was being satisfied. The vast majority of the subjects, though, felt satisfied on some factors and dissatisfied on others. The result is that the subjects themselves seemed unable to state in simple terms whether they were satisfied with their jobs or not. It was much too complicated a question for a yes or no, or
even for a "perhaps" kind of answer. Rather, the subjects were only able to answer on a factor by factor basis.

It seems that on this single point the success or failure of attempts to correlate job satisfaction with productivity may hang. No matter how satisfaction is measured, whether with forms, with pictures, with sophisticated scales, with personal interviews, or even with two or multiple scale techniques, the best that can be obtained is a kind of average satisfaction. While this may actually be a good measure, the significance seems to be that the employee himself may not have a clear notion of his own "average" satisfaction level. This may be one reason satisfaction level does not always relate to work effort.

By using a two factor system, however, along with careful analysis, this problem can be sidestepped. Two factors can be used to separate the subjects according to the consistency of their answers on the job satisfaction questions.

This procedure was used in the current study. The subjects were grouped not according to how satisfied or dissatisfied they were with their jobs, as might be expected. Rather, they were grouped according to the consistency of their answers.

To do this, the forms from each subject were analyzed. The questions relating to intrinsic factors, or as Herzberg calls them, motivators, were averaged. Then the same was done for the extrinsic or hygiene factors. The two averages were then used for further analysis.

For visual inspection, these averages were combined and plotted
on a scatter diagram with their corresponding work effort ratings. This diagram is attached as figure 3, and it seems to show that there is a definite relationship between work effort and satisfaction, although some of the pairs seem to be out of place.

After observing the pattern of scores, the difference in average intrinsic satisfaction and average extrinsic satisfaction was found for each subject. The difference in the two averages was used as a disparity measure for each subject. Results for each subject were ranked according to the magnitude of the differences between the average satisfaction scores on the intrinsic and extrinsic factors. That is, the subject with the smallest discrepancy in average scores was listed first, and all others were listed in order of discrepancy up to the subject with the greatest difference, which was ranked as number 73. The complete list of these averages is attached as Appendix I.

This listing of subjects was then used in calculating correlations between job satisfaction and work effort as previously defined. The ranking of subjects resulted in several natural break points. For example, all those whose intrinsic and extrinsic averages were equal represented a single group. Then all those whose averages were less than 0.2 points apart represented the next group and so on. In this way, the subjects were separated into smaller groups having similar discrepancy scores.

It was recognized that because of the moderately small sample size, breaking the subject group into smaller sub groups might seriously threaten the validity of results. All correlations were
<table>
<thead>
<tr>
<th>Work Effort</th>
<th>0-1</th>
<th>1.1-2</th>
<th>2.1-3</th>
<th>3.1-4</th>
<th>4.1-5</th>
<th>5.1-6</th>
<th>6.1-7</th>
<th>7.1-8</th>
<th>8.1-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7.1-8</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1-7</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1-6</td>
<td>1</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1-5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1-4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1-3</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1-2</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Job Satisfaction

Figure 3. Job Satisfaction and Work Effort Relationship
checked for statistical significance. The results of these correlations are listed as table 1.

The high initial correlations deserve further comment. All correlations for the groups were calculated using Spearman Rank Order techniques. Since the initial correlations were very high, and because the sample size was small, the figures were tested for significance and the correlations were repeated using other statistical techniques. From this work, it is felt that the original results were an accurate reflection of the relationship between the variables.
<table>
<thead>
<tr>
<th>Group No.</th>
<th>Max. Difference in Averages</th>
<th>No. of Subjects</th>
<th>Correlation</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>5</td>
<td>+.875</td>
<td>.10</td>
</tr>
<tr>
<td>2</td>
<td>0.2</td>
<td>4</td>
<td>+.800</td>
<td>ns</td>
</tr>
<tr>
<td>3</td>
<td>0.4</td>
<td>10</td>
<td>+.606</td>
<td>.10</td>
</tr>
<tr>
<td>4</td>
<td>0.6</td>
<td>5</td>
<td>+.300</td>
<td>ns</td>
</tr>
<tr>
<td>5</td>
<td>1.0</td>
<td>11</td>
<td>+.546</td>
<td>.10</td>
</tr>
<tr>
<td>6</td>
<td>1.4</td>
<td>9</td>
<td>-.042</td>
<td>ns</td>
</tr>
<tr>
<td>7</td>
<td>1.6</td>
<td>8</td>
<td>+.482</td>
<td>ns</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
<td>6</td>
<td>+.171</td>
<td>ns</td>
</tr>
<tr>
<td>9</td>
<td>2.2</td>
<td>7</td>
<td>-.500</td>
<td>ns</td>
</tr>
<tr>
<td>10</td>
<td>4.2</td>
<td>8</td>
<td>-.643</td>
<td>.10</td>
</tr>
</tbody>
</table>

Table 1. Correlation of Average Job Satisfaction and Work Effort
RESULTS AND DISCUSSION

The results of this study can be discussed as they relate to the hypothesis put forth, to Herzberg's Two Factor Theory, and to future possible studies that might be attempted.

The hypothesis as stated earlier in this study was:

That a direct correlation between job satisfaction and work effort can be found by measuring job satisfaction on several factors, where satisfaction data is ordered on the basis of internal consistency of response.

For the sample taken in this study, the correlation between job satisfaction and work effort, as defined here, ranged from a high positive of .875 downward through zero to a high negative of .643. Correlation for the entire group is a low +.159. While the correlation for the entire group of .159 is far from an exciting figure, the higher correlations, both positive and negative are very interesting. Further, there seems to be a general decline of correlation as discrepancy of response increases, with correlation reaching zero and then increasing in a negative direction. This is significant because of the effect it has on the correlation for the entire sample.

In general, it seems that the hypothesis as written is supported by the findings. It is clear, though, that the findings are not simple. There are positive and negative correlations. There seems to be a trend from high to low positive, approaching zero, and then to negative.
From the information obtained in this study, it would seem that perhaps the hypothesis offered is too simple to properly incorporate the information that was obtained. It would seem that the question of relationship between job satisfaction and work effort is a complex one, not always yielding correlations that are positive, but rather which are sometimes so low as to be insignificant, and sometimes highly negative.

The reason for the change from positive to negative correlation as discrepancy of answers increases is not clear. One explanation might be that as the two measures move further apart, at least one of them and often both, approach extreme levels. That is, the subject is either very satisfied or very dissatisfied with some part of his work or work environment. In these cases, the subject is at an extreme level of satisfaction (either high or low), and one single factor can control his feelings. That is, his average satisfaction level may be fairly high, but intense dissatisfaction with a single factor may be more important to him than all the other factors combined. Since all the subjects in the high discrepancy groups have extreme scores, it is possible that a simple average may actually be masking true feelings. Rather, some kind of a weighted average may be needed. Unfortunately, the sample in this study does not provide enough cases to establish a pattern. In a very large study, such a procedure might be possible.

The present study does seem to indicate some kind of relationship as suggested by the hypothesis put forth. It would seem that further study, designed to avoid problems encountered in this one
might be needed to resolve the issue. Such a study would have to be much larger than the present one, to increase the significance of correlations obtained, and also to allow for more effective subgrouping. A follow-up study could also try to measure actual productivity of subjects to examine the relationship of work effort and productivity. This would make the study more consistent with others done in the same area.

With regard to the Two Factor theory, the results of the study are intriguing. By using information provided by the theory, partially successful results have been obtained. Since the results also fit the logical model developed historically, the Two Factor theory seems to be supported. Obviously the type of study done here has been very different from other studies as related to the Two Factor theory. This is especially true since only the specific rating questions from Herzberg were used. No attempt was made to utilize further information provided by Herzberg, and hence the support of the Two Factor model is weak. It does seem, however, that the satisfaction factors provided by the theory are significant and may be used successfully by others.

Finally, the work has provided suggestions for further study. The original question of interest, was whether job satisfaction was related to productivity. This study dealt instead with job satisfaction and work effort. Work effort and productivity are not necessarily the same thing.

One major question remains unanswered. Why does separating subjects by discrepancy of answers facilitate discovery of correlation
between satisfaction and work effort? At least two possible answers suggest themselves. Perhaps the problem is one of data analysis. An average of several factors with very little discrepancy may be providing a better measure than an average of widely disparate factors. As factor discrepancy increases, problems of weighting and relative importance are introduced. These problems are avoided when nearly all factors are rated at about the same level. In simple terms, then, simple averaging may be a poor use of the data gathered. Perhaps a more complicated, weighting system must be employed.

A second possible answer to the question is that wide discrepancy of answers may indicate difficulty on the subject's part to really feel either satisfied or dissatisfied in his work.

Further studies could look into both of these possibilities, while at the same time utilizing suggestions made earlier in this section. That is, increased sample size, better use of sub-grouping to look for patterns, and a careful examination of those subjects who show a negative correlation between satisfaction and work effort. Also, of course, the survey forms could be changed to avoid ambiguity introduced in this study.

Certainly any further study should look carefully at the trend of correlation outlined in this work and examine in particular the change from positive to negative.
APPENDIX I

Table of Data

<table>
<thead>
<tr>
<th>Subject</th>
<th>Discrepancy Score</th>
<th>Average Satisfaction</th>
<th>Work Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
<td>5.4</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>0.0</td>
<td>9.0</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>0.0</td>
<td>1.0</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>0.0</td>
<td>4.8</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>0.0</td>
<td>1.0</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>0.2</td>
<td>5.7</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>0.2</td>
<td>3.1</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>0.2</td>
<td>4.5</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>0.2</td>
<td>1.1</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>0.4</td>
<td>4.6</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>0.4</td>
<td>8.6</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>0.4</td>
<td>4.4</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>0.4</td>
<td>3.8</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>0.4</td>
<td>2.8</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>0.4</td>
<td>6.2</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>0.4</td>
<td>2.0</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>0.4</td>
<td>6.8</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>0.4</td>
<td>4.8</td>
<td>8</td>
</tr>
<tr>
<td>19</td>
<td>0.4</td>
<td>7.0</td>
<td>8</td>
</tr>
<tr>
<td>20</td>
<td>0.6</td>
<td>3.7</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>0.6</td>
<td>3.1</td>
<td>5</td>
</tr>
<tr>
<td>22</td>
<td>0.6</td>
<td>5.7</td>
<td>5</td>
</tr>
<tr>
<td>23</td>
<td>0.6</td>
<td>5.1</td>
<td>5</td>
</tr>
<tr>
<td>24</td>
<td>0.6</td>
<td>4.3</td>
<td>9</td>
</tr>
<tr>
<td>25</td>
<td>0.8</td>
<td>1.7</td>
<td>5</td>
</tr>
<tr>
<td>26</td>
<td>0.8</td>
<td>6.6</td>
<td>7</td>
</tr>
<tr>
<td>27</td>
<td>0.8</td>
<td>6.6</td>
<td>9</td>
</tr>
<tr>
<td>28</td>
<td>0.8</td>
<td>4.2</td>
<td>3</td>
</tr>
<tr>
<td>29</td>
<td>0.8</td>
<td>6.2</td>
<td>4</td>
</tr>
<tr>
<td>30</td>
<td>0.8</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>0.8</td>
<td>2.3</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>1.0</td>
<td>5.6</td>
<td>6</td>
</tr>
<tr>
<td>33</td>
<td>1.0</td>
<td>7.4</td>
<td>5</td>
</tr>
<tr>
<td>34</td>
<td>1.0</td>
<td>5.5</td>
<td>5</td>
</tr>
<tr>
<td>35</td>
<td>1.0</td>
<td>7.3</td>
<td>5</td>
</tr>
<tr>
<td>Subject</td>
<td>Discrepancy Score</td>
<td>Average Satisfaction</td>
<td>Work Effort</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------</td>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>36</td>
<td>1.2</td>
<td>4.4</td>
<td>6</td>
</tr>
<tr>
<td>37</td>
<td>1.2</td>
<td>3.8</td>
<td>5</td>
</tr>
<tr>
<td>38</td>
<td>1.2</td>
<td>5.4</td>
<td>7</td>
</tr>
<tr>
<td>39</td>
<td>1.2</td>
<td>5.6</td>
<td>7</td>
</tr>
<tr>
<td>40</td>
<td>1.2</td>
<td>5.6</td>
<td>4</td>
</tr>
<tr>
<td>41</td>
<td>1.4</td>
<td>3.1</td>
<td>6</td>
</tr>
<tr>
<td>42</td>
<td>1.4</td>
<td>5.3</td>
<td>7</td>
</tr>
<tr>
<td>43</td>
<td>1.4</td>
<td>3.9</td>
<td>2</td>
</tr>
<tr>
<td>44</td>
<td>1.4</td>
<td>1.7</td>
<td>8</td>
</tr>
<tr>
<td>45</td>
<td>1.6</td>
<td>4.6</td>
<td>8</td>
</tr>
<tr>
<td>46</td>
<td>1.6</td>
<td>5.2</td>
<td>5</td>
</tr>
<tr>
<td>47</td>
<td>1.6</td>
<td>5.0</td>
<td>7</td>
</tr>
<tr>
<td>48</td>
<td>1.6</td>
<td>7.4</td>
<td>9</td>
</tr>
<tr>
<td>49</td>
<td>1.6</td>
<td>4.4</td>
<td>5</td>
</tr>
<tr>
<td>50</td>
<td>1.6</td>
<td>1.8</td>
<td>2</td>
</tr>
<tr>
<td>51</td>
<td>1.6</td>
<td>3.2</td>
<td>6</td>
</tr>
<tr>
<td>52</td>
<td>1.6</td>
<td>5.2</td>
<td>5</td>
</tr>
<tr>
<td>53</td>
<td>2.0</td>
<td>5.3</td>
<td>5</td>
</tr>
<tr>
<td>54</td>
<td>2.0</td>
<td>3.5</td>
<td>8</td>
</tr>
<tr>
<td>55</td>
<td>2.0</td>
<td>4.7</td>
<td>5</td>
</tr>
<tr>
<td>56</td>
<td>2.0</td>
<td>4.7</td>
<td>5</td>
</tr>
<tr>
<td>57</td>
<td>2.0</td>
<td>6.3</td>
<td>6</td>
</tr>
<tr>
<td>58</td>
<td>2.0</td>
<td>6.2</td>
<td>8</td>
</tr>
<tr>
<td>59</td>
<td>2.2</td>
<td>3.4</td>
<td>6</td>
</tr>
<tr>
<td>60</td>
<td>2.2</td>
<td>3.5</td>
<td>9</td>
</tr>
<tr>
<td>61</td>
<td>2.2</td>
<td>6.4</td>
<td>4</td>
</tr>
<tr>
<td>62</td>
<td>2.2</td>
<td>4.7</td>
<td>9</td>
</tr>
<tr>
<td>63</td>
<td>2.2</td>
<td>5.3</td>
<td>8</td>
</tr>
<tr>
<td>64</td>
<td>2.2</td>
<td>3.0</td>
<td>8</td>
</tr>
<tr>
<td>65</td>
<td>2.2</td>
<td>5.8</td>
<td>5</td>
</tr>
<tr>
<td>66</td>
<td>4.2</td>
<td>5.5</td>
<td>7</td>
</tr>
<tr>
<td>67</td>
<td>4.2</td>
<td>2.7</td>
<td>8</td>
</tr>
<tr>
<td>68</td>
<td>4.2</td>
<td>7.1</td>
<td>4</td>
</tr>
<tr>
<td>69</td>
<td>4.2</td>
<td>5.9</td>
<td>2</td>
</tr>
<tr>
<td>70</td>
<td>4.2</td>
<td>6.0</td>
<td>5</td>
</tr>
<tr>
<td>71</td>
<td>4.2</td>
<td>2.4</td>
<td>7</td>
</tr>
<tr>
<td>72</td>
<td>4.2</td>
<td>4.0</td>
<td>9</td>
</tr>
<tr>
<td>73</td>
<td>4.2</td>
<td>4.3</td>
<td>9</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


Hinton, B. L., "An Empirical Investigation of the Herzberg Methodology and Two Factor Theory." Organizational Behavior and Human Performance, (1968), No. 3.


