

THE EFFECTS OF GOAL SETTING VIA A PERFORMANCE
MEASUREMENT OBJECTIVES MATRIX ON EMPLOYEES'
PERCEPTIONS OF JOB CHARACTERISTICS,
JOB SATISFACTION, MOTIVATION
AND GROWTH NEED STRENGTH

By

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PREFACE

One aspect of job characteristics that has rarely been studied is how employees' perceptions of job characteristics affect their attitudes and work outcomes. A program was implemented in a local bank which involved participation in selecting performance measurement criteria and setting goals. The employees' attitudes toward specific job characteristics were assessed both before the program was implemented, and at the conclusion of the four week experimental period, and the results were compared. While the results were not conclusive, they did provide some insight into the complexity of the relationship.

I would like to express my sincere gratitude to the faculty and staff of the Industrial Engineering and Management department. I am especially grateful to Dr. David Mandeville for all of his help and guidance. I would also like to thank Dr. Carl Estes and Dr. M. Palmer Terrell.

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CHAPTER I

INTRODUCTION

The effects of goal setting and job enrichment programs are widely studied aspects of organizational systems, and are an important part of the recent humanistic approach to management. Goal setting has traditionally been implemented as a method to increase worker productivity (e.g. Steers and Porter, 1974). Different tactics have been used, however, to increase worker satisfaction. Job enrichment is one such tactic that has been shown to have a significant impact on employee satisfaction (e.g. Hackman and Oldham, 1976).

While it is well known that goal setting leads to increased productivity, it has only recently been theorized that goal setting may possibly lead to increased satisfaction. Umstot, Mitchell and Bell (1978) have proposed that workers' perceptions of certain job characteristics affect satisfaction with their work, and to a smaller degree, their productivity. One perception that has not been adequately analyzed is how the outcomes of goal setting affect job satisfaction and other job characteristics.

It is proposed in this research that the implementation of goal setting and job enrichment into a single program may not only increase productivity, but also worker satisfaction. To test this theory, elements of both goal setting and job enrichment programs were implemented in a local work setting utilizing an objectives matrix

performance/productivity measurement system (Riggs, 1986). The development of the measurement system consisted of group participation in selecting performance criteria, setting goals for each of these criteria, and individual measurement of group performance. This paper discusses the proposed theory and its implementation, and analyzes the affects on employees' attitudes toward specific job characteristics when the criteria are measured and reported back to the employees.

CHAPTER II

LITERATURE REVIEW

Goal setting and job enrichment programs have become popular in recent years. These programs are usually studied in terms of their effects on productivity and satisfaction, respectively. Latham and Yukl (1975) in a review of the research literature found that goal setting led to increased productivity, particularly when the goals were accepted. The job enrichment-satisfaction relationship was demonstrated in Bishop and Hill's (1971) study. They found that satisfaction was significantly related to job enrichment. Only recently have the combined effects of these two programs, goal setting and job enrichment, been analyzed in respect to increasing both productivity and satisfaction. Umstot, Bell, and Mitchell (1976), studying the effects of goal setting and job enrichment, found that job enrichment was significantly related to satisfaction and that goal setting was significantly related to productivity. The interactive relationships, goal setting-satisfaction and job enrichment-productivity, while evident, were not as strong. Umstot, Mitchell, and Bell (1978) presented a model to explain these effects, as well as moderating variables and interactive effects. One aspect that has not been adequately studied or analyzed, is how the implementation of goal setting affects employee's attitudes toward specific job characteristics such as skill variety, task identity,

autonomy, and feedback. This study analyzes this relationship, and the resultant outcomes of satisfaction and productivity.

Riggs (1986) has proposed an objectives matrix performance measurement model which incorporates goal setting and job enrichment elements into a system which is purported to "motivate as it measures". The system consists of workers participating in a structured group process to establish performance criteria for their work unit, as well as objective achievement levels for each of the criteria. A structured group process for developing a prioritized consensus of ideas, such as the Nominal Group Technique (NGT), can be used to develop the performance measurement criteria for inclusion in the objectives matrix. The performance criteria may range from increasing production, to decreasing absenteeism, to broadening job skills. Responsibility for measuring performance against the goals set is assigned to the workers in the unit. It is assumed that the workers derive satisfaction out of selecting their own performance criteria, and establishing their own goals. Involvement by management is important in this process, not only in initializing the system, but also by showing support throughout the development and maintenance stages of the measurement system. In the initialization stage of the measurement system it is management's responsibility to convey to the work unit the importance of the performance criteria they develop in reference to the overall goals of the larger work group. This is done through the development by upper management of a performance matrix for the whole organization. This serves as a guide for the lower work units during the development of their own performance measurement matrixes. After the lower level work unit matrixes have been developed, upper management assigns a weight to each of the performance criteria chosen by

the work unit, out of 100 total points, based on each criteria's relative importance to the overall goals of the larger organization. Figure 1 displays an example of an objectives matrix with the performance criteria and goals as selected by a hypothetical group of production employees, as well as the weights assigned by management (see page 6).

The NGT mentioned above is a structured group process consisting of five steps that are used to generate ideas and produce a group consensus. The first step is called Silent Generation. Approximately 10-15 minutes are allowed for each group member to write down responses to a task statement. The task statement for the example in Figure 1 was "List ideas or measures that you feel are significant to measuring the performance of your group." This step of the process is done individually, without consulting other group members. The second step is Round-Robin Feedback. During this phase, every idea that was generated in the first step is shared with the group, one at a time, until all ideas have been mentioned. As the ideas are mentioned, they are written on a board for everyone to see. This step takes approximately 20 minutes. The next step is Clarification of Ideas. Questions can be asked during this round to clarify the items that were written on the board in the previous step. It usually takes 20-30 minutes for this process. The fourth step consists of Individual Voting on ideas. Each member of the group chooses those items they feel are most significant. The item that is thought to be most significant by each worker is given a score of 5 by the worker, down to the least significant which is assigned a score of 1. The scores of each worker are then totalled for each item, and the five items with the highest scores are used as the performance criteria. The voting phase of the NGT takes approximately 10 minutes.


```

*****
*
*
*           PERFORMANCE CRITERIA
*
*****
* NO. OF   * RATING * NO. OF   * UNITS   * SICK   *
* UNITS    * BY     * UNITS   * SHIPPED * HOURS/ *
* PRODUCED/* CUSTOMERS * REJECTED/* LATE/   * TOTAL  *
* HOUR     *        * HOUR    * WEEK    * HOURS  *
*****
*           *           *           *           *           * PERFORMANCE
*           *           *           *           *           * AS OF
*           *           *           *           *           * / /
*   50     *   1     *   0.5    *   3     *   .005  * 10 -----
*-----*
*   48     *  1.7    *   1     *   4     *   .006  * 9  -
*-----*
*   46     *  2.4    *   1.5   *   5     *   .008  * 8  -
*-----*
*   44     *  3.1    *   2     *   6     *   .009  * 7  -
*-----*
*   42     *  3.8    *   2.5   *   7     *   .011  * 6  -
*-----*
*   40     *  4.5    *   3     *   8     *   .012  * 5  SCORES
*-----*
*   38     *  5.2    *   3.5   *   9     *   .014  * 4  -
*-----*
*   36     *  5.9    *   4     *  10    *   .015  * 3  -
*-----*
*   34     *  6.6    *   5     *  11    *   .017  * 2  -
*-----*
*   32     *  7.3    *   6     *  12    *   .018  * 1  -
*-----*
*   30     *   8     *   7     *  13    *   .020  * 0  -----
*=====
*           *           *           *           *           * SCORE
*-----*
*   .3     *   .1    *   .2    *   .25  *   .15  * WEIGHT (%)
***** (total=1)
*           *           *           *           *           * VALUE
*****

```

PERFORMANCE INDICATOR AS OF / / :
PREVIOUS INDICATOR :
PERFORMANCE INDEX :

Figure 1. Performance Measurement Objectives Matrix

Usually only five to seven items are chosen out of the original list. For the application in Figure 1 five items were chosen. The last step of this process is to Discuss the Results. The items chosen in the previous step are discussed and consensus is reached on the items to be used for performance measurement. Additionally, methods of measurement for each of the criteria are discussed and determined.

The criteria chosen, either by the NGT method or any other group process, should be specific to the work group, and methods for measuring each of the criteria should be established during the group process. The list of performance criteria should be narrowed down to the most important criteria. Five to seven items are suggested to make the system manageable. The objective goals that are achievable within a one year period are determined for each of the criteria, and inserted as level 10 of the matrix (see Figure 1). The present level of performance for each of the criteria is assessed based on the measurement methods established during the NGT process, and inserted into level 3 of the matrix. A minimal acceptable level of performance is decided on for level 0 at the bottom of the matrix. All remaining rows are calculated by interpolation. After the matrix has been developed, performance is measured on a weekly or monthly basis, depending on the organizational level of the work unit, and the performance criteria and methods of measurement that are chosen. Lower level work units would typically measure performance on a weekly basis, mid-level units on a monthly basis, and higher organization levels on a quarterly or yearly basis. The example given in Figure 1 is for a lower level work group, with performance measurements taken on a weekly basis. For each performance criteria, the current performance measurement is entered in the

performance row at the top of the matrix (see Figure 2). The corresponding levels of performance are then circled in the body of the matrix. If a performance level is between two values in the matrix, the value in the lower row of the matrix is circled. The performance measures are then converted to scores of zero through ten according to the score on the right side of the matrix that corresponds with the performance level circled in the matrix. These scores are then entered in the score row at the bottom of the matrix. Each score is then multiplied by its corresponding weight, and the product is entered in the value row. The present performance indicator is calculated by summing the values in the value row. An index of the change in performance from one time period to the next can be calculated by subtracting the previous performance indicator from the present, and dividing the difference by the previous indicator (see Figure 2). By keeping track of all performance indicators, the performance index can be calculated over any time period during the measurement phase to assess the change in performance during this period.

This process requires group participation in developing the performance measurement criteria, the setting of goals, management support and participation, and a mechanism for calculating performance indicators and indexes. One important question that can be asked, is: what importance does the matrix have on the job design/goal setting outcome interrelationship? Riggs and Felix (1983) propose that participation leads to motivation. Perhaps it is the participation in the matrix development that leads to motivation, which in turn leads to performance.

Umstot, Bell, and Mitchell (1976) proposed that the desired outcomes of increased satisfaction and productivity could result when both goal setting and enrichment programs were implemented simultaneously. The Job Characteristics theory developed by Hackman and Oldham (1976) was the basis for the enrichment portion of the research method. Umstot, Bell, and Mitchell (1976) found that skill variety, task identity, task significance, autonomy, and feedback, as measured by the Job Diagnostic Survey, have a significant effect on satisfaction. They also found that clear difficult goals were found to lead to higher productivity, and to a lesser degree, increased satisfaction.

Umstot, Mitchell, and Bell (1978) proposed an integrated model of job design to explain their earlier research. The model incorporated job enrichment and goal setting characteristics with the results of increased satisfaction and productivity, as well as other outcomes. These additional outcomes include improved attitudes, lower turnover, a higher level of attendance, higher quality work, decreased costs, and increased effort (see Figure 3). The arrows roughly indicate the relative strength of the relationships. Individual and organizational variables were included in the model as moderating the interaction of goal setting and job enrichment. The individual moderators identified included growth need strength, social need strength, cultural predisposition, goal acceptance, and goal commitment. Goal acceptance and goal commitment, however, are more related to goal setting than job enrichment. Organizational moderators included organizational climate, organizational structure, and technology. Interactive effects were also recognized between enrichment and goal setting, and satisfaction and productivity.

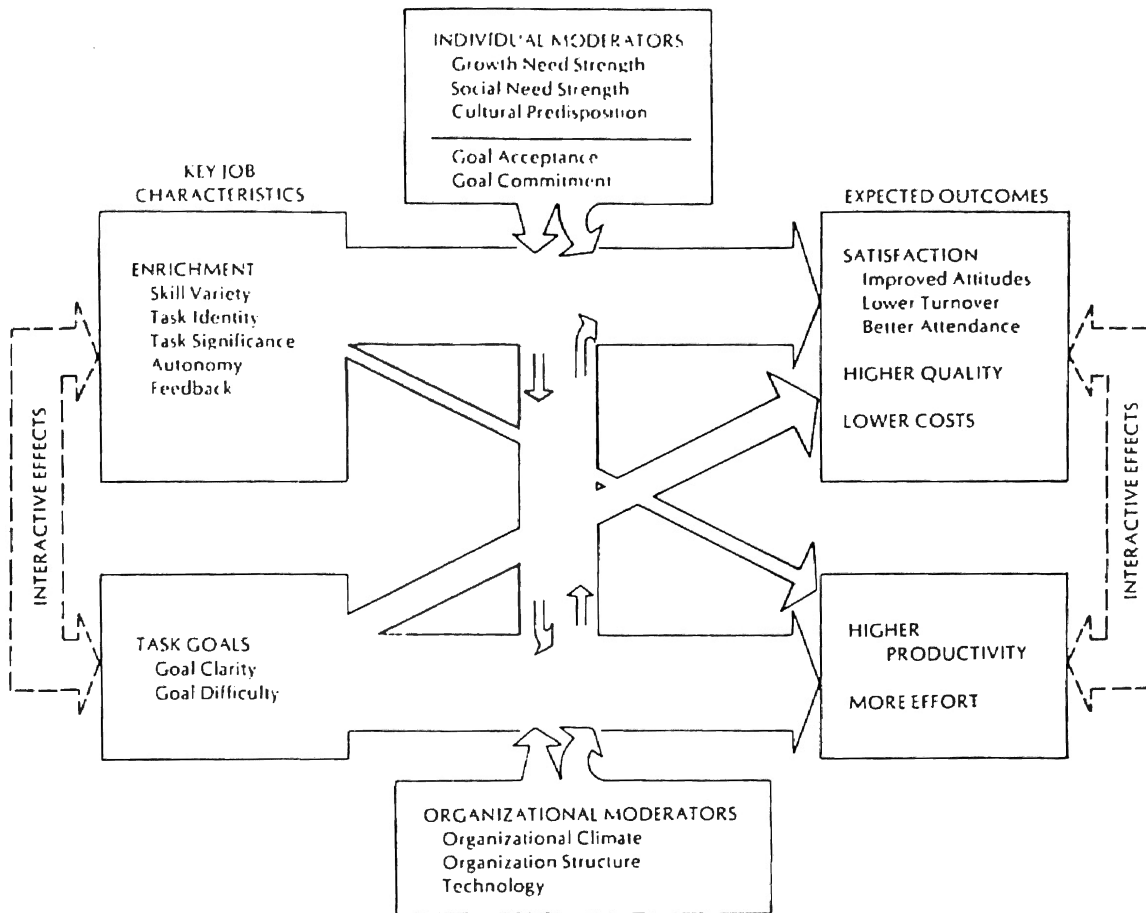


Figure 3. An Integrated Model of Job Design (Umstot, Mitchell, and Bell, 1978)

Umstot, Bell, and Mitchell's (1976) findings support their integrated model (Umstot, Bell, and Mitchell, 1978) and can be used to hypothesize the results of the present study. Riggs' matrix provides both feedback from agents, the physical matrix itself in this case, and knowledge of results, thus both characteristics would be expected to increase. Since employees participated in selecting their own performance measures and tracking them, employees should perceive that they have more autonomy on the job, are more responsible for work outcomes, and thus would be more internally motivated to work. According to Umstot, Bell, and Mitchell's (1976) findings, satisfaction might improve also. Skill variety, task identity, task significance, and feedback from the job are also expected to increase as a result of the employees' responsibility for performance measurement. As a measure of whether Riggs' matrix "motivates as it measures", the Motivating Potential Score of the Job Diagnostic Survey, a score which reflects "the potential of a job for eliciting positive internal work motivation", should be expected to increase.

The Job Diagnostic Survey provides measures for job characteristics not mentioned above. These characteristics include dealing with others, experienced meaningfulness of the work, pay satisfaction, security satisfaction, social satisfaction, and individual growth need strength. The experimental method does not affect these characteristics, thus no change is expected in these characteristics.

Hypotheses

Hypotheses for the present research in regard to job characteristics as measured by the Job Diagnostic Survey are summarized below:

Autonomy, experienced responsibility for the work, feedback from agents, feedback from the job, internal work motivation, general satisfaction, growth satisfaction, supervisory satisfaction, knowledge of results, motivating potential score, skill variety, task identity, and task significance:

H0: Post-experimental testing < Pre-experimental testing

H1: Post-experimental testing > Pre-experimental testing

Dealing with others, experienced meaningfulness of the work, pay satisfaction, security satisfaction, social satisfaction, and individual growth need strength:

H0: Post-experimental testing = Pre-experimental testing

H1: Post-experimental testing <> Pre-experimental testing

CHAPTER III

EXPERIMENTAL DESIGN

Introduction

This chapter discusses the experimental research design, giving details of the subjects involved, the instruments and procedures used, and the statistical methods that were applied to the results. The results of the study are presented in the next chapter.

Subjects

Nineteen employees of a local bank and its branch office participated in the study. The bank vice-president approved of the study and selected two groups to participate. Seven employees of the Loan Service department at the main office served as the experimental group. All members of this department were female. Twelve employees at a branch office were used as a control group. The members of this department consisted of nine females and three males. One female subject in the control group left the group before the experiment was completed, reducing its number to eleven.

Instruments

The long form of the Job Diagnostic Survey (JDS) as developed by Hackman and Oldham (1976) was used to measure the subjects' perception

of specific job characteristics. The JDS was administered to both the experimental and control groups in separate meetings. Appendix A includes a copy of the JDS and the instructions that were given to both groups. Riggs' performance/productivity system objectives matrix (1986) was used to capture and report criteria outcomes of the performance measurement system developed and used by the participants in the experimental group. The implementation of this performance measurement system is described in detail in Chapter II.

Design and Procedures

Pre-experimental period. Both groups were administered the JDS in separate meetings to assess their perceptions of various job characteristics. The control group took the JDS during the last half hour of a work day while the experimental group took the JDS in a meeting held after working hours the following day. The meeting times were selected by the management of the bank with the employees' consent. The two groups were told that the data collected from the JDS would be used in a research project, and that it would also provide valuable feedback to them. Confidentiality of individual responses was assured, although the groups were informed that group averages would be reported to their supervisors. Following completion of the JDS, the experimental group was led through a group process to develop productivity/performance criteria for an objective performance measurement system for their group.

The experimental group was instructed in the steps of the Nominal Group Technique (NGT), a structured group process used to generate ideas and develop consensus, to generate productivity/performance measures for their group. The NGT was described in Chapter II. The group members

were asked to respond to the statement: "List measures or ideas that you feel are significant to measuring the performance of this group." The seven measures chosen during the NGT process, along with their associated scores, are shown in Figure 4.

The group was also instructed in the use of Riggs' (1986) objectives matrix. Performance levels for the matrix were determined by averaging group members' opinions for scores, and then reaching consensus on these averages. Short term goals, achievable in a six month period, were established for level 10 of the matrix. Present levels of performance and minimum acceptable levels of performance were also set for each of the performance criteria (levels 3 and 0 respectively). The remaining levels of performance were calculated by interpolation.

Measurement methods were determined by the group for each of the performance criteria. Five of the performance criteria were measured on a 10-point Likert-type scale (see Figure 5): 1) job organization; 2) good customer relations; 3) initiative in learning other jobs; 4) good relationship between employees and supervisor; and 5) completing jobs in a timely manner. "Input and preparation of accurate reports for management" was measured by dividing the number of reports sent to management by the number of reports that were returned for corrections. The performance criteria "relationships with other departments and workers" was measured by counting the number of complaints attributable to their department that were received per week. Performance was measured for four full weeks and reported back to the group on a weekly basis. Results were discussed during routine weekly departmental meetings.

| Performance Criteria | Individual Scores | Total Scores |
|----------------------------------------------------------|-------------------|--------------|
| Input and preparation of accurate reports for management | 5 5 6 6 6 6 7 | 41 |
| Job organization | 1 2 3 6 7 | 19 |
| Good customer relations | 2 2 4 6 6 7 | 27 |
| Initiative in learning other jobs | 1 1 2 2 3 3 3 | 15 |
| Good relationship between employees and supervisor | 3 4 4 4 5 5 | 25 |
| Completing jobs in a timely manner | 2 5 7 7 7 7 | 35 |
| Relationships with other departments and workers | 1 1 2 3 4 4 5 | 20 |

Figure 4. Nominal Group Technique Performance Criteria Results

JOB ORGANIZATION:

| | | | | | | | | | | |
|------|-------------|---|---|------|---|--------------|---|------------|---|----|
| none | very little | | | some | | considerable | | very great | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

GOOD CUSTOMER RELATIONS:

| | | | | | | | | | | |
|-------|--------|---|---|-----------|---|---------|---|--------|---|----|
| never | seldom | | | sometimes | | usually | | always | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

INITIATIVE IN LEARNING OTHER JOBS:

| | | | | | | | | | | |
|------|-------------|---|---|------|---|--------------|---|------------|---|----|
| none | very little | | | some | | considerable | | very great | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

GOOD RELATIONSHIP BETWEEN EMPLOYEES AND SUPERVISOR:

| | | | | | | | | | | |
|--------|--------------|---|---|------------------------|---|------------------|---|--------|---|----|
| seldom | occasionally | | | more often than not | | nearly always | | always | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

COMPLETING JOBS IN A TIMELY MANNER:

| | | | | | | | | | | |
|-------|--------|---|---|-----------|---|---------|---|--------|---|----|
| never | seldom | | | sometimes | | usually | | always | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Instructions: Circle the corresponding number.

Figure 5. Performance Measurement Criteria and Measurement Scale

Post-experimental period. At the conclusion of the fourth week of performance measurement, the JDS was readministered to both groups in separate meetings to assess the changes in perceptions of job characteristics, satisfaction, and motivation.

Statistical Methods

The correlated groups t-test was used to evaluate the employees' pre- and post-experimental responses to the JDS. This test is appropriate when there is a within-subjects independent variable with only two variables, and the dependent variable is quantitative. It is assumed that the sample is randomly selected, and that the scores are normally distributed within each population. The variables in this study consisted of the pre- and post-experimental JDS scores (the dependent variable) and job performance measurement (the independent variable). The JDS, which quantitatively measures a subject's perceptions of specific job characteristics, was administered to both the experimental and control groups at the beginning of the four week experimental period. The experimental group used a job performance measurement system for the four week period, and then both groups were readministered the JDS. The control group was utilized to monitor any extraneous uncontrolled variables that may have entered the study. Statistically significant differences in pre- and post-performance measurement JDS scores for the experimental group can be attributed to the introduction of the independent variable, the job performance measurement system, assuming that extraneous events equitably affect both groups.

CHAPTER IV

RESULTS

Results were evaluated using the correlated groups t-test to compare the pre- and post-experimental results from the JDS on the following job characteristics: skill variety, task identity, task significance, autonomy, feedback from the job, feedback from agents, dealing with others, experienced meaningfulness of work, experienced responsibility for the work, knowledge of results, general satisfaction, internal work motivation, and specific satisfactions (pay, security, social, supervisory, and growth). Scores were also calculated for motivating potential and two measures of individual growth need strength. These characteristics are defined in Appendix B.

The mean JDS scores for each job characteristic calculated for both the experimental and control groups are shown in Table I. Mean scores are shown for both pre- and post-experimental period JDS testing. The t-scores for each variable for both groups are shown in Table II. The results are mixed. None of the results were significant at the $p < .05$ level, however, several results were in the direction hypothesized.

The job enrichment variables of skill variety, task identity, task significance, and feedback, did not change significantly as the model predicted. The results for skill variety, autonomy, feedback from the job, and feedback from agents were all in the direction hypothesized. The change in perceived feedback from the job is significant ($t = -1.4691$,

TABLE I
PRE- AND POST-EXPERIMENTAL MEAN SCORES BY JOB CHARACTERISTIC

| Job Characteristic | Experimental Group | | Control Group | |
|--------------------------------------------|--------------------|--------|---------------|--------|
| | Pre- | Post- | Pre- | Post- |
| Skill Variety | 5.14 | 5.33 | 4.27 | 4.15 |
| Task Identity | 5.38 | 5.24 | 5.24 | 5.64 |
| Task Significance | 6.00 | 5.90 | 5.52 | 5.39 |
| Autonomy | 5.48 | 5.81 | 4.94 | 5.36 |
| Feedback From the Job | 5.14 | 5.62 | 4.85 | 5.15 |
| Feedback From Agents | 4.90 | 5.19 | 4.18 | 3.70 |
| Dealing with Others | 5.19 | 5.48 | 5.00 | 4.82 |
| Experienced Meaningfulness of the Work | 5.54 | 5.46 | 5.36 | 5.23 |
| Experienced Responsibility for the Work | 5.83 | 5.67 | 5.97 | 5.88 |
| Knowledge of Results | 5.14 | 5.25 | 5.23 | 4.77 |
| General Satisfaction | 5.46 | 5.46 | 5.11 | 4.82 |
| Internal Work Motivation | 5.88 | 5.69 | 5.88 | 5.44 |
| Specific Satisfactions: | | | | |
| Pay Satisfaction | 3.79 | 4.36 | 4.68 | 4.36 |
| Security Satisfaction | 5.50 | 5.76 | 4.27 | 4.82 |
| Social Satisfaction | 5.81 | 5.71 | 5.70 | 5.36 |
| Supervisory Satisfaction | 5.67 | 5.76 | 4.82 | 4.30 |
| Growth Satisfaction | 5.61 | 5.57 | 5.02 | 5.09 |
| Individual Growth Need Strength: | | | | |
| Would Like | 6.69 | 6.40 | 5.68 | 5.48 |
| Job Choice | 3.02 | 3.10 | 3.14 | 3.05 |
| Motivating Potential Score: | | | | |
| MPS Multiplied | 156.48 | 180.75 | 133.80 | 152.96 |
| MPS Added | 16.13 | 16.92 | 14.80 | 15.79 |

TABLE II
T-SCORES BY JOB CHARACTERISTIC

| Job Characteristic | Experimental Group | Control Group |
|-----------------------------------------|--------------------|---------------|
| Skill Variety | -1.0000 | 0.5990 |
| Task Identity | 0.4108 | -0.9573 |
| Task Significance | 1.0000 | 0.3881 |
| Autonomy | -1.2710 | -1.1356 |
| Feedback From the Job | -1.4691* | -1.0600 |
| Feedback From Agents | -1.3530 | 1.6573** |
| Dealing with Others | -0.6599 | 0.5486 |
| Experienced Meaningfulness of the Work | 0.4201 | 0.5644 |
| Experienced Responsibility for the Work | 1.2710 | 0.6073 |
| Knowledge of Results | -0.4021 | 1.2217 |
| General Satisfaction | 0.0000 | 1.2769 |
| Internal Work Motivation | 1.5492* | 1.4482** |
| Specific Satisfactions: | | |
| Pay Satisfaction | -0.7233 | 0.8876 |
| Security Satisfaction | -0.8799 | -1.4907** |
| Social Satisfaction | 0.4714 | 1.2360 |
| Supervisory Satisfaction | -0.2634 | 1.1737 |
| Growth Satisfaction | 0.1667 | -0.3235 |
| Individual Growth Need Strength: | | |
| Would Like | 2.4000** | 0.5602 |
| Job Choice | -1.1619 | 0.6926 |
| Motivating Potential Score: | | |
| MPS Multiplied | -1.9151* | -0.8905 |
| MPS Added | -1.8286* | -1.3274 |

* $p < .20$, two-tailed

** $p < .10$, two-tailed

$p < .10, df = 6$). Results for the control group were noticeably different, with feedback from agents significantly changing in the negative direction (decreasing over time). This change in perception of feedback from agents in the control group could be explained by some outside moderator such as a change in bank policy, unknown to the researcher.

Experienced responsibility for work and internal work motivation changed in the direction opposite of that predicted for both the experimental and control groups. The difference in internal work motivation is significant for both the experimental and control groups ($t = 1.5492, p < .10, df = 6$ and $t = 1.4482, p < .10, df = 10$, respectively).

General satisfaction did not change, while specific satisfactions varied between groups. The most significant findings were noted for satisfaction with security within the control group ($t = -1.4907, p < .10, df = 10$). This finding could be explained by the fact that several of the employees in the group were college students who were leaving for the summer. The full-time employees within the group could have felt more secure about their employment with the bank with the part-time employees leaving. None of the other results regarding specific satisfactions were significant ($p < .10$).

The perceived change in growth need strength measured on the JDS by what the employee indicates he would like, was significant ($p < .10$) for the experimental group. This significant result indicates support for the Umstot, Mitchell, and Bell (1978) job design integration model which includes growth need strength as an individual moderator.

The finding that most supports Riggs' (1986) statement that the objectives matrix motivates, is that the motivating potential score (MPS), calculated two different ways, showed a significant ($p < .20$)

increase over the time period for the experimental group. However, this appears to conflict with the previously noted decrease in internal motivation for the experimental group seemingly contradicting the MPS results. By analyzing what each variable measures, this difference can be explained. Internal work motivation measures self-motivation, while the MPS score measures the potential of a job of eliciting internal work motivation.

CHAPTER V

CONCLUSIONS

The significance of the results for the motivating potential score, and the direction of the results for the other job characteristics indicate that measuring performance with an objectives matrix system may motivate employees. This study suggests that there is a unique relationship between job characteristics, employee's perceptions of a job, and outcomes such as motivation, satisfaction, and job performance, when job performance is being measured. It is evident that more research needs to be done in this area to further understand the *interrelationships*.

There are several areas of the study which could have been changed to provide for an improved study. Due to the scheduling of the study by the bank, performance could only be measured for four weeks. It would have been desirable to measure performance over a longer period of time, preferably at least six months. The shorter experimental period could have resulted in familiarity with the JDS and could have affected the post results taken four weeks after the initial administration of the JDS. The knowledge by the experimental group that performance was going to be measured for only four weeks could have affected their motivation. If the experimental period had been unknown to them, or of a much longer period, changes in the measures assessed may have been more than those observed in this study. Another variable that could have been controlled

is the effect of participation in and of itself. The JDS could have been administered to a third group immediately after they had participated in the Nominal Group Technique to measure what type of effect participation may have had on employees' attitudes toward measured job characteristics.

An experimental design for future research that would be more suited for a controlled lab environment could manipulate such variables as goal specificity and difficulty, and individual job characteristics. To fully test the theory, the experiment would have to be extremely large, and of a long time duration. By manually manipulating individual job characteristics, it may be easier to see a direct relationship, although modifying effects may not be as evident.

It is hoped that by this research, further interest has been sparked. The issue is an important one, and can not be overlooked as we attempt to improve management's understanding and implementation of goal setting and job enrichment.

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APPENDIXES

APPENDIX A

JOB DIAGNOSTIC SURVEY

J O B D I A G N O S T I C S U R V E Y

This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

On the following pages you will find several different kinds of questions about your job. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 25 minutes to complete the entire questionnaire. Please move through it quickly.

The questions are designed to obtain your perceptions and your reactions to it.

There are no "trick" questions. Your individual answers will be kept completely confidential. Please answer each item as honestly and frankly as possible.

Thank you for your cooperation.

For more information about this questionnaire and its use, please contact:

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SECTION ONE

This part of the questionnaire asks you to describe your job, as objectively as you can.

Please do not use this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does your job require you to work with mechanical equipment?

| | | | | | | |
|-------------------------------------------------------------------------------------------------------|--------|--------|------------|--------|----------------|--------------------------------------------------------------------------------------|
| 1----- | 2----- | 3----- | 4----- | 5----- | 6 ----- | 7----- |
| Very little; the job requires almost no contact with mechanical equipment of any kind. | | | Moderately | | | Very much; the job requires almost constant work with mechanical equipment. |

You are to circle the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time -- but also requires some paperwork--you might circle the number six, as was done in the example above.

If you do not understand these instructions, please ask for assistance. If you do understand them, turn the page and begin.

1. To what extent does your job require you to work closely with other people (either clients, or people in related jobs in your own organization)?

| | | |
|----------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Very little; dealing with other people is not at all necessary in doing the job. | Moderately; some dealing with others is necessary. | Very much; dealing with other people is an absolutely essential and crucial part of doing the job. |

2. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

| | | |
|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Very little; the job gives me almost no personal "say" about how and when the work is done. | Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work. | Very much; the job gives me almost complete responsibility for deciding how and when the work is done. |

3. To what extent does your job involve doing a "whole" and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people or by automatic machines?

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service. | My job is a moderate-sized "chunk" of the overall piece of work; my own contribution can be seen in the final outcome. | My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service. |

4. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

| | | |
|-------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Very little; the job requires me to do the same routine things over and over again. | Moderate variety | Very much; the job requires me to do many different things, using a number of different skills and talents. |

5. In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

| | | |
|----------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Not very significant; the outcomes of my work are <u>not</u> likely to have important effects on other people. | Moderately significant. | Highly significant; the outcomes of my work can affect other people in very important ways. |

6. To what extent do managers or co-workers let you know how well you are doing on your job?

| | | |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Very little; people almost never let me know how well I am doing. | Moderately; sometimes people may give me "feedback"; other times they may not. | Very much; managers or co-workers provide me with almost constant "feedback" about how well I am doing. |

7. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing -- aside from and "feedback" co-workers or supervisors may provide?

| | | |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1-----2-----3-----4-----5-----6-----7 | | |
| Very little; the job itself is set up so I could work forever without finding out how well I am doing. | Moderately; sometimes doing the job provides "feedback" to me; sometimes it does not. | Very much; the job is set up so that I could get almost constant "feedback" as I work about how well I am doing. |

SECTION TWO

Listed below are a number of statements which could be used to describe a job. You are to indicate whether each statement is an accurate or an inaccurate description of your job. Once again, please try to be as objective as you can in deciding how accurately each statement describes your job -- regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

| | | | | | | |
|------------|------------|------------|-----------|----------|----------|----------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Very | Mostly | Slightly | Uncertain | Slightly | Mostly | Very |
| Inaccurate | Inaccurate | Inaccurate | | Accurate | Accurate | Accurate |

- ___ 1. The job requires me to use a number of complex or high-level skills.
- ___ 2. The job requires a lot of cooperative work with other people.
- ___ 3. The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.
- ___ 4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.
- ___ 5. The job is quite simple and repetitive.
- ___ 6. The job can be done adequately by a person working alone -- without talking or checking with other people.
- ___ 7. The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing my work.
- ___ 8. This job is one where a lot of other people can be affected by how well the work gets done.
- ___ 9. The job denies me any chance to use my personal initiative or judgement in carrying out the work.
- ___ 10. Supervisors often let me know how well they think I am performing the job.
- ___ 11. The job provides me the chance to completely finish the pieces of work I begin.
- ___ 12. The job itself provides very few clues about whether or not I am performing well.

- ___ 13. The job gives me considerable opportunity for independence and freedom in how I do the work.
- ___ 14. The job itself is not very significant or important in the broader scheme of things.

SECTION THREE

Now please indicate how you personally feel about your job.

Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal feelings about your job by marking how much you agree with each of the statements.

Write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

- | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|----------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------|---------|-------------------|-------|-------------------|
| Disagree Strongly | Disagree | Disagree Slightly | Neutral | Agree Slightly | Agree | Agree Strongly |
| ___ | 1. It's hard, on this job, for me to care very much about whether or not the work gets done right. | | | | | |
| ___ | 2. My opinion of myself goes up when I do this job well. | | | | | |
| ___ | 3. Generally speaking, I am very satisfied with this job. | | | | | |
| ___ | 4. Most of the things I have to do on this job seem useless or trivial. | | | | | |
| ___ | 5. I usually know whether or not my work is satisfactory on this job. | | | | | |
| ___ | 6. I feel a great sense of personal satisfaction when I do this job well. | | | | | |
| ___ | 7. The work I do on this job is very meaningful to me. | | | | | |
| ___ | 8. I feel a very high degree of <u>personal</u> responsibility for the work I do on this job. | | | | | |
| ___ | 9. I frequently think of quitting this job. | | | | | |
| ___ | 10. I feel bad and unhappy when I discover that I have performed poorly on this job. | | | | | |
| ___ | 11. I often have trouble figuring out whether I'm doing well or poorly on this job. | | | | | |
| ___ | 12. I feel I should personally take the credit or blame for the results of my work on this job. | | | | | |
| ___ | 13. I am generally satisfied with the kind of work I do in this job. | | | | | |
| ___ | 14. My own feelings generally are <u>not</u> affected much one way or the other by how well I do on this <u>job</u> . | | | | | |

___ 15. Whether or not this job gets done right is clearly my responsibility.

SECTION FOUR

Now please indicate how satisfied you are with each aspect of your job listed below. Once again, write the appropriate number in the blank beside each statement.

How satisfied are you with this aspect of your job?

- | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---------------------------|--------------|--------------------------|---------|-----------------------|-----------|------------------------|-------------------------------------------------------------------------------------|
| Extremely Dissatisfied | Dissatisfied | Slightly Dissatisfied | Neutral | Slightly Satisfied | Satisfied | Extremely Satisfied | |
| ___ | | | | | | | 1. The amount of job security I have. |
| ___ | | | | | | | 2. The amount of pay and fringe benefits I receive. |
| ___ | | | | | | | 3. The amount of personal growth and development I get in doing my job. |
| ___ | | | | | | | 4. The people I talk to and work with on my job. |
| ___ | | | | | | | 5. The degree of respect and fair treatment I receive from my boss. |
| ___ | | | | | | | 6. The feeling of worthwhile accomplishment I get from doing my job. |
| ___ | | | | | | | 7. The chance to get to know other people while on the job. |
| ___ | | | | | | | 8. The amount of support and guidance I receive from my supervisor. |
| ___ | | | | | | | 9. The degree to which I am fairly paid for what I contribute to this organization. |
| ___ | | | | | | | 10. The amount of independent thought and action I can exercise in my job. |
| ___ | | | | | | | 11. How secure things look for me in the future in this organization. |
| ___ | | | | | | | 12. The chance to help other people while at work. |
| ___ | | | | | | | 13. The amount of challenge in my job. |
| ___ | | | | | | | 14. The overall quality of the supervision I receive in my work. |

SECTION FIVE

Now please think of the other people in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job which is most similar to yours.

Please think about how accurately each of the statements describes the feelings of those people about the job.

It is quite all right if your answers here are different from when you described your own reactions to the job. Often different people feel quite differently about the same job.

Once again, write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

| | | | | | | |
|----------------------|----------|----------------------|---------|-------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Disagree Strongly | Disagree | Disagree Slightly | Neutral | Agree Slightly | Agree | Agree Strongly |

- ___ 1. Most people on this job feel a great sense of personal satisfaction when they do the job well.
- ___ 2. Most people on this job are very satisfied with the job.
- ___ 3. Most people on this job feel that the work is useless or trivial.
- ___ 4. Most people on this job feel a great deal of personal responsibility for the work they do.
- ___ 5. Most people on this job have a pretty good idea of how well they are performing their work.
- ___ 6. Most people on this job find the work very meaningful.
- ___ 7. Most people on this job feel that whether or not the job gets done right is clearly their own responsibility.
- ___ 8. People on this job often think of quitting.
- ___ 9. Most people on this job feel bad or unhappy when they find that they have performed the work poorly.
- ___ 10. Most people on this job have trouble figuring out whether they are doing a good or a bad job.

SECTION SIX

Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs. We are interested in learning how much you personally would like to have each one present in your job.

Using the scale below, please indicate the degree to which you would like to have each characteristic present in your job.

NOTE: The numbers on this scale are different from those used in previous scales.

| | | | | | | |
|------------------------------------------------------------------|---|---|----------------------------------------|---|----------------------------------------------------|----|
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Would like having this only a moderate amount (or less) | | | Would like having this very much | | Would like having this <u>extremely</u> much | |

- 1. High respect and fair treatment from my supervisor.
- 2. Stimulating and challenging work.
- 3. Chances to exercise independent thought and action in my job.
- 4. Great job security.
- 5. Very friendly co-workers.
- 6. Opportunities to learn new things from my work.
- 7. High salary and good fringe benefits.
- 8. Opportunities to be creative and imaginative in my work.
- 9. Quick promotions.
- 10. Opportunities for personal growth and development in my job.
- 11. A sense of worthwhile accomplishment in my work.

SECTION SEVEN

People differ in the kinds of jobs they would most like to hold. The questions in this section give you a chance to say just what it is about a job that is most important to you.

For each question, two different kinds of jobs are briefly described. You are to indicate which of the jobs you personally would prefer -- if you had to make a choice between them.

In answering each question, assume that everything else about the jobs is the same. Pay attention only to the characteristics actually listed.

Two examples are given below.

| <u>JOB A</u> | <u>JOB B</u> |
|-----------------------------------------------------------------|---------------------------------------------------------|
| A job requiring work with mechanical equipment most of the day. | A job requiring work with other people most of the day. |
| 1-----2-----3-----4-----5 | |
| Strongly Prefer A | Slightly Prefer A |
| | Neutral |
| | Slightly Prefer B |
| | Strongly Prefer B |

If you like working with people and working with equipment equally well, you would circle the number 3, as has been done in the example.

* * * * * *

Here is another example. This one asks for a harder choice -- between two jobs which both have some undesirable features.

| <u>JOB A</u> | <u>JOB B</u> |
|-------------------------------------------------------------------------|----------------------------------------------------|
| A job requiring you to expose yourself to considerable physical danger. | A job located 200 miles from your home and family. |
| 1-----2-----3-----4-----5 | |
| Strongly Prefer A | Slightly Prefer A |
| | Neutral |
| | Slightly Prefer B |
| | Strongly Prefer B |

If you would slightly prefer risking physical danger to working far from your home, you would circle number 2, as has been done in the example.

Please ask for assistance if you do not understand exactly how to do these questions.

JOB AJOB B

1. A job where the pay is very good.

A job where there is considerable opportunity to be creative and innovative.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

2. A job where you are required to make important decisions.

A job with many pleasant people to work with.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

3. A job in which greater responsibility is given to those who do the work.

A job in which greater responsibility is given to loyal employees who best have the most seniority.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

4. A job in an organization which is in financial trouble -- and might have to close down within the year.

A job in which you are not allowed to have any say whatever in how your work is scheduled, or in the procedures to be used in carrying it out.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

5. A very routine job.

A job where your co-workers are not very friendly.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

JOB AJOB B

6. A job with a supervisor who is often very critical of you and your work in front of other people.

A job which prevents you from using a number of skills that you worked hard to develop.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

7. A job with a supervisor who respects you and treats you fairly.

A job which provides constant opportunities for you to learn new and interesting things.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

8. A job where there is a real chance you could be laid off.

A job with very little chance to do challenging work.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

9. A job in which there is a real chance for you to develop new skills and advance in the organization.

A job which provides lots of vacation time and an excellent fringe benefit package.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

10. A job with little freedom and independence to do your work in the way you think best.

A job where the working conditions are poor.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

JOB AJOB B

11. A job with very satisfying teamwork.

A job which allows you to use your skills and abilities to the fullest extent.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

12. A job which offers little or no challenge.

A job which requires you to be completely isolated from co-workers.

1-----2-----3-----4-----5
 Strongly Slightly Neutral Slightly Strongly
 Prefer A Prefer A Prefer B Prefer B

SECTION EIGHT

Biographical Background

1. Sex: Male _____ Female _____
2. Age (check one):
_____ under 20 _____ 40-49
_____ 20-29 _____ 50-59
_____ 30-39 _____ 60 or over
3. Education (check one):
_____ Grade School
_____ Some High School
_____ High School Degree
_____ Some Business College or Technical School Experience
_____ Some College Experience (other than business or technical school)
_____ Business College or Technical School Degree
_____ College Degree
_____ Some Graduate Work
_____ Master's or higher degree
4. What is your brief job title? _____

APPENDIX B

JOB DIAGNOSTIC SURVEY VARIABLE DEFINITIONS

JOB DIAGNOSTIC SURVEY VARIABLE DEFINITIONS

Skill Variety - The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.

Task Identity - The degree to which the job requires completion of a "whole" and identifiable piece of work -- i.e., doing a job from beginning to end with a visible outcome.

Task Significance - The degree to which the job has a substantial impact on the lives or work of other people -- whether in the immediate organization or in the external environment.

Autonomy - The degree to which the job provides substantial freedom, independence, and discretion of the employee in scheduling the work and in determining the procedures to be used in carrying it out.

Feedback from the Job Itself - The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.

Feedback from agents - The degree to which the employee receives clear information about his or her performance from supervisors or from co-workers. (This dimension is not, strictly speaking, a characteristic of the job itself. It is included to provide information to supplement that provided by the Feedback from the Job Itself dimension.)

Dealing with Others - The degree to which the job requires the employee to work closely with other people in carrying out the work activities (including dealing with other organization members and with external organizational "clients".)

Experienced Meaningfulness of the Work - The degree to which the employee experiences the job as one which is generally meaningful, valuable, and worthwhile.

Experienced Responsibility for Work Outcomes - The degree to which the employee feels personally accountable and responsible for the results of the work he or she does.

Knowledge of Results - The degree to which the employee knows and understands, on a continuous basis, how effectively he or she is performing the job.

General Satisfaction - An overall measure of the degree to which the employee is satisfied and happy with the job.

Internal Work Motivation - The degree to which the employee is self-motivated to perform effectively on the job -- i.e., the employee experiences positive internal feelings when working effectively on the job, and negative internal feelings when doing poorly.

Specific Satisfactions - A number of short scales which provide separate measures of satisfaction with:

- (a) job security
- (b) pay and other compensation
- (c) peers and co-workers ("social" satisfaction)
- (d) supervision
- (e) opportunities for personal growth and development on the job ("growth" satisfaction)

Individual Growth Need Strength - The strength of the respondent's desire to obtain "growth" satisfaction from his or her work.

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Thesis: THE EFFECTS OF GOAL SETTING VIA A PERFORMANCE MEASUREMENT OBJECTIVES MATRIX ON EMPLOYEES' PERCEPTIONS OF JOB CHARACTERISTICS, JOB SATISFACTION, MOTIVATION AND GROWTH NEED STRENGTH

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