AD-A061 333 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHO--ETC F/G 5/1
THE EFFECTS OF GOAL SETTING ON PERCEIVED JOB ENRICHMENT.(U)
SEP 78 D F STACK, E R WILLIAMS

UNCLASSIFIED AFIT-LSSR-30-78B NL

1 OF 1
AD A061333

END
DATE FILMED
1-79
DDC

AD A061333

DDC FILE COPY

(3) LEVEL II

SC

DDC
RECEIVED
NOV 17 1978
B

UNITED STATES AIR FORCE

AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

78 11 07 017

AD A061333

DDC FILE COPY

(3) LEVEL II

(6) THE EFFECTS OF GOAL SETTING ON PERCEIVED JOB ENRICHMENT.

(10) David F./Stack, Captain, USAF
Eddie R./Williams, Major, USAF

(14) AFIT-LSSR 30-78B

(9) Master's thesis

(11) Sep 78 (12) 85p.

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DDC
RECEIVED
NOV 17 1978
B

JOB

012 250 78 11 07 017

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deliterious information are contained therein. Furthermore, the views expressed in the document are those of the author and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the United States Air Force, or the Department of Defense.

USAF SCN 75-20B AFIT Control Number LSSR 30-78B

AFIT RESEARCH ASSESSMENT

The purpose of this questionnaire is to determine the potential for current and future applications of AFIT thesis research. Please return completed questionnaires to: AFIT/LSGR (Thesis Feedback), Wright-Patterson AFB, Ohio 45433.

1. Did this research contribute to a current Air Force project?

   a. Yes b. No

2. Do you believe this research topic is significant enough that it would have been researched (or contracted) by your organization or another agency if AFIT had not researched it?

   a. Yes b. No

3. The benefits of AFIT research can often be expressed by the equivalent value that your agency received by virtue of AFIT performing the research. Can you estimate what this research would have cost if it had been accomplished under contract or if it had been done in-house in terms of manpower and/or dollars?

   a. Man-years _____ $ _____ (Contract).

   b. Man-years _____ $ _____ (In-house).

4. Often it is not possible to attach equivalent dollar values to research, although the results of the research may, in fact, be important. Whether or not you were able to establish an equivalent value for this research (3 above), what is your estimate of its significance?

   a. Highly Significant b. Significant c. Slightly Significant d. Of No Significance

5. Comments:

Name and Grade _____ Position _____

Organization _____ Location _____

AFIT/LSGR
WRIGHT-PATTERSON AFB OH 45433

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE AIR FORCE
DoD—314

AFIT/LSGR (Thesis Feedback)
Wright-Patterson AFB OH 45433

☆ U.S. Government Printing Office:1975-659-906
Region#5-11

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER LSSR 30-78B ✓	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) THE EFFECTS OF GOAL SETTING ON PERCEIVED JOB ENRICHMENT		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) David F. Stack, Captain, USAF Eddie R. Williams, Major, USAF		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Graduate Education Division School of Systems and Logistics Air Force Institute of Technology, WPAFB OH		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Department of Research and Administrative Management AFIT/LSGR WPAFB OH 45433		12. REPORT DATE September 1978 13. NUMBER OF PAGES 71
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

SEP 11 1978

Approved for public release; distribution unlimited (AFR 190-17)

Major, USAF

JOSEPH P. HIPPS, MAJOR, USAF, AFIT

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Motivation
Goal Setting
Job Enrichment
Job Design
Management

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

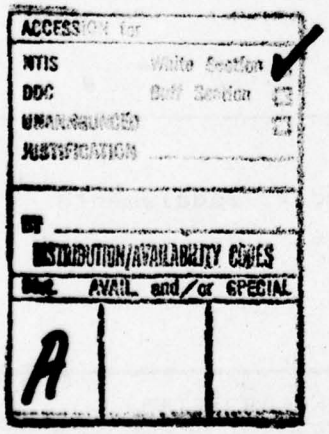
Thesis Chairman: Lieutenant Colonel Richard V. Badalamente

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Behavioral theories of work motivation and satisfaction are being applied increasingly with successful results in both the federal sector and private enterprise. Two prominent theories are job enrichment and goal setting. Past research has been conducted to test the effect of integrating these two management techniques with the intent of improving both productivity and worker satisfaction. This research study examined the effect that a goal setting program had on job enrichment as perceived by the workers involved in the experiment. A statistical analysis of the results of the experiment revealed that the goal setting program did not cause any significant change in perceived job enrichment. The authors concluded that the lack of positive results may be attributed (1) to contamination of a job enrichment program conducted prior to the goal setting intervention, and (2) to the nature of the goal setting program itself.



LSSR 30-78B

THE EFFECTS OF GOAL SETTING ON PERCEIVED JOB ENRICHMENT

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

David F. Stack, BA
Captain, USAF

Eddie R. Williams, BA
Major, USAF

September 1978

Approved for public release;
distribution unlimited

This thesis, written by

Captain David F. Stack

and

Major Eddie R. Williams

has been accepted by the undersigned on behalf of the faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

DATE: 8 September 1978

COMMITTEE CHAIRMAN

ACKNOWLEDGMENTS

The authors express their appreciation to those who were of valuable assistance to us in accomplishment of this thesis.

Lieutenant Colonel Badalamente, our thesis advisor, was especially helpful in formulating the research design, revising rough drafts, and providing considerable insight to help solve our problems. We express our gratitude to Lieutenant Colonel Denis Umstot who assisted us in the experimental intervention.

We also thank our wives, Andrea and Geanette, for their patience, understanding, and support during the long hours we spent on this research. Without their help, we would have had difficulty in completing this effort.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iii
LIST OF TABLES	vii
Chapter	
1. INTRODUCTION	1
Problem Statement	1
Justification	1
Definition of Terms	2
Scope	3
Delimitations	4
Objectives	4
Hypotheses	4
2. LITERATURE REVIEW	5
Motivator-Hygiene Model	6
Hackman-Oldham Model	8
Locke's Goal Setting Theory	11
Umstot's Integrated Model	12
Interaction Between Goal Setting and Job Enrichment	14
Skill variety	14
Task identity	16
Task significance	16
Autonomy	16

Chapter Page

Feedback from the job 17

Summary 18

3. METHODOLOGY 19

Overview 19

Population and Sample 20

Variables 22

Independent variable 22

Dependent variable 22

Moderator variables 23

Measurement of the Variables 23

Demographic data 23

Job diagnostic survey 24

Goal setting measurement 25

Individual need strength measurement . . 25

Method of Data Analysis 26

Paired t-test 26

Two-way ANOVA 27

Other tests 29

Limitations 30

4. RESULTS 31

VM--Direct Goal Setting Group 31

t-test results 31

Two-way ANOVA results 33

Chapter Page

Analysis of covariance results 33

VM--Indirect Goal Setting Group 35

t-test results 35

Two-way ANOVA results 35

Analysis of covariance results 35

TMO--Control Group 40

Comparison Among Groups 40

5. CONCLUSIONS 43

Review of the Hypotheses 43

Implications to the Integrated Approach of Job Design 44

Discussion of the Findings 44

Job enrichment intervention 44

Nature of the goal setting program . . . 45

Repetitive surveying 46

6. RECOMMENDATIONS FOR FURTHER STUDY 48

APPENDIX

A. PRESURVEY-POST SURVEY QUESTIONNAIRE 50

BIBLIOGRAPHY 68

LIST OF TABLES

Table		Page
1.	Sample Groups	21
2.	t-Test of Goal Setting Group, n = 9, alpha = .05	32
3.	Two-Way ANOVA/Direct Goal Setting Group, n = 9	34
4.	Analysis of Covariance/Direct Goal Setting/ Independent Variable = GNS n = 9 . . .	36
5.	t-Test of Indirect Goal Setting Group, n = 11	37
6.	Two-Way ANOVA/Indirect Goal Setting Group, n = 11	38
7.	Analysis of Covariance/Indirect Goal Setting Group/Independent Variable = GNS n = 11	39
8.	Comparison of Group Means	41
9.	One-Way ANOVA/Between Direct Goal Setting Group and Control Group	42

Chapter 1

INTRODUCTION

Problem Statement

Considerable behavioral research has been conducted on the effects that job enrichment and goal setting have on task oriented organizations. Research studies have indicated a strong relationship between job enrichment and job satisfaction and between goal setting and productivity or performance (Latham & Yukl, 1975). There was limited but convincing evidence that an integrated job design approach (i.e., combining job enrichment and goal setting) may improve both satisfaction and productivity. Further, it has been found that goal setting did not cause any major adverse interactive effects when used in conjunction with job enrichment (Umstot, Bell, & Mitchell, 1976).

The need exists to further explore the relationship between goal setting and perceived job enrichment.

Justification

A number of successful job enrichment and goal setting programs have been implemented in the Air Force and other federal organizations. Probably the most noteworthy job enrichment program was the project which began in 1974

at the Ogden Air Logistics Center, Hill AFB, UT (Herzberg & Rafalko, 1975). One of the longstanding goal setting projects in the Air Force was the Management by Objectives/ Results program of the Contract Management Division, Air Force Systems Command (Blinkard, 1975).

The success of these and other projects manifests the utility of goal setting and job enrichment programs in Air Force management. The purpose of this research study was to contribute to the understanding of the interactions between goal setting and job enrichment with the long range objective of improving the effectiveness of management techniques in the Air Force.

Definition of Terms

Job Design--the deliberate purposeful planning of a job, including any or all of its structural or social aspects. The two major identifiable approaches are job enrichment (defined below) and job engineering, which attempts to make jobs more efficient by improving work methods, tools, and task-goal structure through such activities as time and motion studies and goal setting (Umstot et al., 1976).

Job Enrichment--an activity or process of making jobs inherently more interesting and satisfying by adding such job characteristics as skill variety, task identity, task significance, autonomy, and feedback (Hackman & Oldham, 1976).

Skill Variety--the degree to which a job requires a worker to perform activities that challenge his skills and abilities. When several skills are involved, the job has the potential of appealing to the whole person and of

avoiding the monotony of performing a repetitive task no matter how much skill that task requires (Hackman, Oldham, Janson, & Purdy, 1975).

Task Identity—the degree to which a job requires completion of a whole and identifiable entity of work (i.e., doing the job from beginning to end with a tangible outcome) (Hackman et al., 1975).

Task Significance—the degree to which a job has a substantial and perceivable impact on the lives of other people whether in the immediate organization or the world at large (Hackman et al., 1975).

Autonomy—the degree to which a job gives the worker freedom, independence, and discretion in scheduling and planning work and determining how it will be accomplished (Hackman et al., 1975).

Feedback—information (verbal or otherwise) provided to a worker about the results and effectiveness of his efforts (Hackman et al., 1975).

Goal Setting—the process of developing and formalizing the targets or objectives that a worker is responsible for accomplishing. The goals may be either unilaterally assigned or the employee may negotiate and influence his goals via participative goal setting (Umstot et al., 1976).

Scope

This research study examined the effects that a goal setting training program had on perceived job enrichment of the Vehicle Maintenance Branch of an Air Force Transportation Squadron. The goal setting program was introduced to an existing organization which had also experienced a job enrichment intervention. The Traffic Management Office of the same squadron served as the

control group and did not receive the participative goal setting program.

Delimitations

This study did not investigate either the relationship between goal setting and productivity or the relationship between job enrichment and worker satisfaction. No attempt was made to compare the effects of participative goals versus assigned goals.

Objectives

1. To examine the effects that participative goal setting has on perceived job enrichment.

2. To identify, evaluate, and explain relationships between goal setting and the five characteristics of job enrichment.

Hypotheses

The implementation of a participative goal setting program will result in:

1. Improved perceived job enrichment as measured by Motivating Potential Score,

2. No change in Skill Variety,

3. Improved Task Identity,

4. Improved Task Significance,

5. Improved Autonomy,

6. Improved Feedback (from the job).

Chapter 2

LITERATURE REVIEW

In the past decade, management has shown increasing interest in human factors as part of the production process of goods and services (Mills, 1975). A widely accepted objective of most modern task-oriented organizations is to contribute to employee job satisfaction (Hackman & Oldham, 1976). One of the prominent theories of job satisfaction stated that jobs have five key characteristics which determine employee satisfaction. These characteristics or job dimensions are skill variety, task identity, task significance, autonomy, and feedback. Researchers found that if these characteristics were enriched, the employee was satisfied with his job (Hackman & Oldham, 1976). In other theories and experiments involving job design, it was found that goal setting often resulted in perceived job enrichment, thereby increasing job satisfaction (Umstot et al., 1977a).

This literature review will provide a background of job satisfaction, job enrichment, and goal setting by reviewing the works of Herzberg, Hackman and Oldham, Locke, and Umstot.

Motivator-Hygiene Model

One of the pioneers of job enrichment was Frederick Herzberg who built upon Maslow's hierarchy of needs to construct his motivator-hygiene theory. In his numerous writings about motivation, Herzberg developed and expanded his two-factor theory of motivation and satisfaction which formed the basis of orthodox job enrichment (OJE). According to Herzberg (1968), the factors which cause job satisfaction were distinct from those factors which cause job dissatisfaction.

The determinants of employee satisfaction, which Herzberg called motivators, are achievement, recognition for achievement, the work itself, responsibility, and growth or advancement. The determinants of employee dissatisfaction, called hygiene factors, are those factors extrinsic to the job and include: company policy and administration, supervision, interpersonal relationship, working conditions, salary, status, and security. Management can eliminate job dissatisfaction, but job satisfaction can only come from the factors intrinsic to the job—the motivator factors (Herzberg, 1968).

Both civilian and military management have accepted Herzberg's concepts as evidenced in many ongoing organizations. In 1970, United Airlines undertook a job enrichment project based upon the principles of Herzberg's

theory. The objective was to increase job satisfaction and productivity throughout the organization. The job enrichment program succeeded in increasing job satisfaction and marginally increasing productivity (Kemp & Prather, 1977).

In 1974, Herzberg initiated his program of OJE at the Ogden Air Logistics Center at Hill AFB, UT.

> The objective was to inaugurate projects that would impact on areas of fragmented jobs and heavy workload requirements typified by low job satisfaction and low productivity. Different functional areas also were included in order to observe the applicability of OJE in a diverse range of activities (Herzberg & Rafalko, 1975, p. 39).

Herzberg (1975) enriched jobs using such motivators as direct feedback, personal accountability, recognition, customer relationship, and responsibility.

The program at Ogden resulted in substantial monetary savings and increased job satisfaction. In interviews with participants in the program, Herzberg learned that supervisors felt that the enrichment program gave them a greater understanding of their subordinates' needs (Herzberg & Zautra, 1976).

Although many organizations have used Herzberg's theory with success, researchers have had difficulty trying to apply empirical measurements to the motivators. Porter, Lawler, and Hackman (1975) contended that Herzberg's failure to specify how motivators can be measured made a

test of his theory difficult to perform in an organization. Although Millar (1976) revealed that Herzberg's concept met both acceptance and rejection, the motivator-hygiene model laid the foundation for other job enrichment theories.

Hackman-Oldham Model

The Hackman-Oldham approach toward job enrichment built on and complemented the previous work by Herzberg, and provided the tools for diagnosing existing jobs. The Hackman-Oldham model asserted that three psychological states are critical in determining a person's motivation and satisfaction on the job (Hackman et al., 1975). The three states of experienced meaningfulness, experienced responsibility, and knowledge of results compose a person's internal motivation.

> . . . being turned on by one's work because of the positive internal feeling that we generate by doing well, rather than being dependent on external factors (such as incentive or compliments from the boss) for the motivation to work effectively (Hackman et al., 1975, p. 2).

The three psychological states consist of five measurable characteristics of a job called core job dimensions. Three of the five characteristics contribute to a job's meaningfulness—skill variety, task identity, and task significance. A fourth core dimension, autonomy, allows a worker to experience increased responsibility in

his job. Feedback, the fifth core dimension, is the degree to which a worker gets information from the job about the effectiveness of his efforts (Hackman et al., 1975).

The following equation generates the Motivating Potential Score (MPS), an indicator of the degree to which the characteristics of the job will promote high internal work motivation.

$$MPS = \left[\frac{\text{Skill Variety} + \text{Task Identity} + \text{Task Significance}}{3}\right] \times \text{Autonomy} \times \text{Feedback}$$

A low MPS reflects those jobs that are good candidates for job enrichment. A high MPS is associated with those jobs which are considered to be already enriched (Hackman & Oldham, 1976).

The Hackman-Oldham model also introduced the concept of growth need strength (GNS) and social need strength (SNS). GNS is the link between the job characteristics and the work outcome. It is a measure of

> . . . individuals' need for personal accomplishment, for learning and developing themselves beyond where they are now (Hackman & Oldham, 1976, p. 254).

Individuals with high GNS will react enthusiastically to jobs with a high MPS, and will be more satisfied and productive than those with low GNS. An important advancement over previous job enrichment theories is this consideration

of individual attitudes and need strength in determining the applicability of job enrichment to a proposed target job (Kemp & Prather, 1977).

SNS is the measure of an individual's desire for meaningful relationships in the task organization setting. It is very similar to Steers and Braunstein's need for affiliation and Shultz's need for affection (Horstman & Kotzun, 1977).

Considerable empirical support for the Hackman-Oldham model has been provided by the results of the Job Diagnostic Survey (JDS). The JDS was developed by Hackman and Oldham in 1974 to measure the five job dimensions, MPS, GNS, and other job related characteristics. The JDS was administered to 1000 employees working at 100 diverse jobs in more than a dozen organizations. The results supported the fact that people who work in jobs with high MPS perform better and are more satisfied than are people who work in jobs with low MPS. The results also supported the GNS concept in that individuals with high GNS showed greater levels of internal work motivation for jobs with high MPS than did individuals with low GNS (Hackman et al., 1975).

Hackman and Oldham also conducted a job enrichment project at Travelers Insurance Companies to test their theory in an ongoing organization. The work group chosen

was a keypunching operation. Since the JDS indicated that the MPS of the job was extremely low, it was decided to attempt to improve the satisfaction and productivity of the work group through job enrichment. At the end of the project, the group's overall satisfaction score rose 16.5 percent and productivity increased 39.6 percent. Actual savings during the first year amounted to $64,305 (Hackman et al., 1975).

> . . . by almost any measure used—from the work attitudes of individual employees to dollar savings for the company as a whole—the Travelers test of the job enrichment strategy proved a success (Hackman et al., 1975, p. 13).

The Hackman-Oldham model provided a new understanding of job enrichment and how it can increase job satisfaction. Along with the increase in job satisfaction, a relationship was observed between job characteristics and goal setting. The basis for goal setting used in this research study was derived from the concepts of Edwin Locke.

Locke's Goal Setting Theory

The basic premise of Locke's goal setting theory is that an individual's conscious intentions regulate his actions or task performance. Locke's theory is divided into three main assertions. First, specific goals result in greater output than general goals. Second, difficult goals result in greater output than easy goals. Third,

goals serve to motivate performance, only if they are accepted (Locke, 1968).

Both laboratory and field studies have given considerable support to Locke's theory. Latham and Baldes (1975) as well as Latham and Kinne (1974) found that specific goals lead to higher productivity. Research by Latham and Yukl (1975) and by Steers and Porter (1974) indicated that performance is typically higher with difficult goals than with easy goals, as long as the difficult goals are accepted by the individual.

Ivancevich conducted many field experiments involving control groups in dealing with the problem of specific goal setting. He produced convincing evidence that specific goals can lead to improved performance (Ivancevich, 1974).

The empirical evidence supports the theory that goal setting increases productivity. Earlier in the literature review it was found that research also supported the theory that job enrichment increased job satisfaction. Umstot proceeded one step further in integrating both theories into his model of job design.

Umstot's Integrated Model

Umstot's integrated model is based upon the Hackman-Oldham model of job enrichment and Locke's model

of goal setting. Umstot (1977b) hypothesized that combining job enrichment and goal setting would improve both satisfaction and productivity. He also hypothesized that specific, moderately difficult goals, if accepted, would result in improvement in the job characteristics of task identity, task significance, autonomy, and feedback, but no improvement in skill variety.

To test and validate his integrated model, Umstot established a company called Cascade Management Service. The experiment used two designs and consisted of two phases. Phase one consisted of jobs being either enriched or unenriched and assigned either specific or nonspecific task goals. In Phase two the jobs were changed by adding either job enrichment or specific task goals to jobs that had not contained these characteristics during Phase one (Umstot, 1977b).

The results of the experiments supported the contention that an enriched job does result in a significantly higher level of work satisfaction than an unenriched job and that specific and challenging goals, if accepted by the worker, significantly increase the level of productivity. There was also a significant increase in perceived job enrichment when goals were added to an otherwise unenriched job. There was no significant change in

perceived job enrichment when goals were added to an already enriched job (Umstot et al., 1977b).

Figure 1 depicts the findings presented in this literature review. The heavy horizontal arrows indicate the strong relationship found between job enrichment and job satisfaction and between goal setting and productivity. The narrower diagonal arrows represent a weaker but perceptible relationship between job enrichment and productivity and between goal setting and job satisfaction. The effects of both job enrichment and goal setting are tempered by individual moderators (i.e., GNS, goal acceptance, etc.) and organizational moderators (i.e., climate, structure, etc.). The arrows which bracket the diagram on the left and right are indicative of the interactive effects of goal setting and job enrichment as described in the next section.

Interaction Between Goal Setting and Job Enrichment

Skill variety. The literature reviewed did not reveal any empirical results of a relationship between task goals and skill variety. Umstot (1977a) believed that task goals would have very little impact on this dimension unless the job was very bleak.

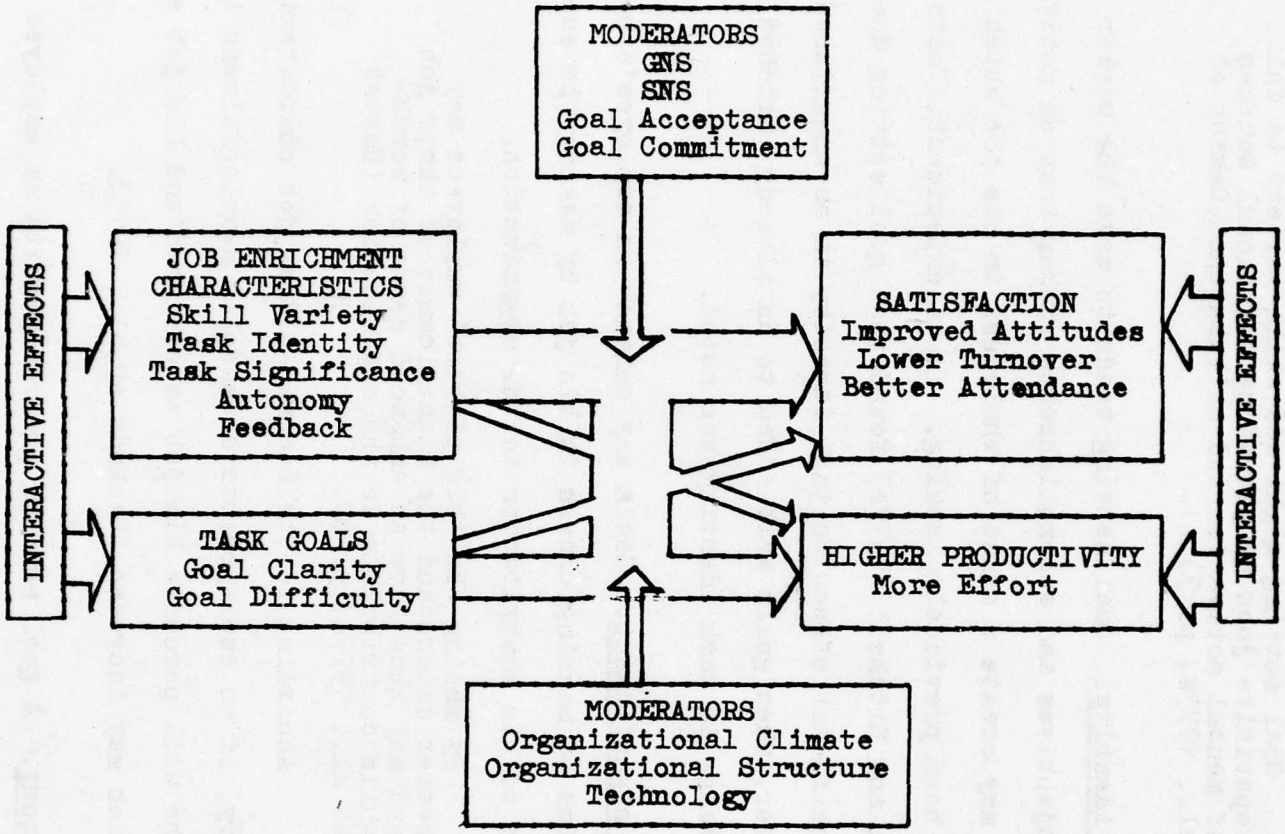


Figure 1

Integrated Job Design Model

> Goal setting might add skill variety to dull, repetitive jobs by providing additional sources of mental activation and stimulation (Umstot et al., 1977a, p. 7).

Task identity. Goal setting tends to make the worker focus on objectives and accomplishments rather than on activities. This may create a sense of wholeness in the job which may have been previously lacking. In an experiment, Umstot, Bell, and Mitchell (1977b) found that goal setting does have a significant effect on task identity in an unenriched job. However, when goals were added to an already enriched job, no change in task identity was noted.

Task significance. Goals may enhance an employee's perception of meaningfulness in his job by making the employee aware of his contribution to the organization.

> By seeing the 'big picture' employees may better understand the significance of their job and may thus have an enhanced sense of worthwhile contribution to the organization (Umstot et al., 1977a, p. 8).

According to the Hackman-Oldham job characteristic theory, if an employee has a sense of meaningfulness in his job he will perceive his job as enriched and his job satisfaction may increase (Hackman et al., 1975).

Autonomy. A goal setting program permits an employee to be responsible for the outcome of his work. Umstot found

that employees with assigned goals in newly created jobs had significantly higher autonomy scores than did employees who had neither goals nor an enriched job. When existing jobs were changed to add goals (with participation), there was no significant change in autonomy (Umstot et al., 1977a). This result leads us to believe that only participative goal setting results in a higher sense of autonomy.

Schuler and Kim (1976) surveyed a public utility where participation and goal setting were present. They found that an increase in autonomy occurred and employees were more satisfied with their work when employee participation took place.

Feedback from the job. "Feedback is most powerful when it comes directly from the work itself" (Hackman et al., 1975). Feedback provides vital information to energize the goal setting process and it reinforces progress toward meeting a goal. Without this reinforcement from feedback it seems unlikely that people would pursue goals as a desirable outcome (Umstot et al., 1977a).

Kim and Hamner (1976) tested the effects of feedback in a goal setting program and concluded that self-generated knowledge of results from the job enhanced the performance of the job.

Summary

Empirical research has shown that the management technique of job enrichment can result in improved job satisfaction, and that the technique of goal setting can result in increased productivity. A few studies have indicated that application of these techniques in an integrated fashion may improve both satisfaction and productivity. This thesis sheds additional light on the integrated approach to job design by examining the effects of goal setting on perceived job enrichment and job characteristics.

Chapter 3

METHODOLOGY

Overview

The purpose of this research was to further explore the relationships between goal setting and perceived job enrichment. To accomplish this goal, a vehicle maintenance branch was selected to serve as the experimental group. A goal setting program was administered to this group and the effect of the program on the participants' perceived job enrichment was measured using the Job Attitude Survey. A transportation management office branch (TMO) served as the control group, that is, they were not exposed to the goal setting program.

The experiment was conducted in three separate phases: (1) presurvey, (2) goal setting implementation, and (3) post survey. In the first phase, approximately two weeks prior to the goal setting, a survey questionnaire was administered to the vehicle maintenance branch and TMO. Scores of the five job characteristics and GNS were computed from the survey data. The initial MPS for each person was computed to indicate the amount of perceived enrichment already present in his/her job. In the second phase, a goal setting program was administered by the management

faculty of the Air Force Institute of Technology (AFIT) School of Systems and Logistics, Wright-Patterson AFB, OH to nine individuals of the vehicle maintenance branch. This program consisted of a six hour training session which stressed the importance of goal definition, goal priority, and the establishment of specific goals. In the third phase, approximately six months after the goal setting implementation, the identical survey questionnaire was administered to the same individuals who completed the presurvey. The results of these two surveys were analyzed to determine what effect goal setting had on MPS and the five job characteristics.

Population and Sample

The population of this research report was an Air Force transportation squadron. The selection of the squadron for experimentation was made by the faculty members of the AFIT School of Systems and Logistics. A squadron was selected which had not already implemented a goal setting program.

The sample was comprised of 20 individuals from the vehicle maintenance branch and 23 individuals from TMO as shown in Table 1. Nine of the vehicle maintenance personnel were non-randomly selected by the transportation squadron to actively participate in the goal setting program. These

Table 1

Sample Groups

	# Individuals
Treatment	
VM (directly participated in goal setting)	9
VM (indirectly participated in goal setting)	11
	20
Control	
TMO (no goal setting program)	23
Total	43

participants were also involved in a job enrichment intervention six months prior to the goal setting program. The remaining 11 individuals of vehicle maintenance were blue-collar workers who worked for the nine supervisors who received the goal setting program. Twenty-three individuals of TMO, who did not receive the goal setting program directly or indirectly, constituted the control group. The researchers had no control in the selection process for the sample.

Variables

Independent variable. The independent variable in this research was the goal setting program. Designated individuals from the vehicle maintenance branch participated in the goal setting program. After the implementation of the goal setting program, the relationship of the independent variable to the dependent variable, job enrichment, was analyzed.

Dependent variable. The dependent variables were perceived job enrichment (as measured by MPS) and the five job characteristics (skill variety, task identity, task significance, autonomy, and feedback). Scored responses were recorded from the presurvey and post survey. The differences

in presurvey and post survey scores were analyzed to determine if the dependent variables changed as significantly as a result of implementing a goal setting program.

Moderator variables. The independent moderator variable was GNS. This variable was measured on both the presurvey and post survey, although it was assumed there would be no significant difference between surveys since the variable is an indicator of inherent personality qualities which do not change appreciably over short time spans (Hackman & Oldham, 1976). The moderator variable was analyzed along with goal setting to determine if differences in GNS between subjects significantly affected the impact of goal setting on job enrichment.

Measurement of the Variables

The Job Attitude Survey questionnaire designed by Umstot and Rosenbach was the instrument used to create and gather data (Appendix A). The questionnaire is divided into nine sections, but the following areas were of utmost concern for this research: demographic data, JDS, goal setting measurement, and individual need strength measurement.

Demographic data. The demographic data section includes questions on age, highest educational level attained,

civilian grade or military rank, and years in present job. This section also included a control number to identify the participants so that reliable comparison between pre-survey and post survey could be achieved.

Job diagnostic survey. The JDS, developed by Hackman and Oldham, measures the level of enrichment in a job as perceived by the worker (Hackman & Oldham, 1974). The survey measures each of the five job characteristics on a Likert scale of one to seven. There are three questions pertaining to each job characteristic on the survey. The average score of the three questions is the individual's score for that job characteristic. The level of enrichment in a job is determined by the five job characteristics and may be quantified by calculating the MPS. The MPS can range from 1 to 343 with an "average" score being 124 (Hackman & Oldham, 1974). An enriched job would be expected to produce a high MPS, while an unenriched job would be expected to produce a low MPS (Kemp & Prather, 1977). A high level of any job characteristic acts to raise the MPS--it raises the level of enrichment. A low level of any job characteristic acts to lower the MPS--it decreases the level of job enrichment (Hackman & Oldham, 1976).

The JDS has received wide use in research, and empirical tests have shown it to be a valid and reliable

measure of enrichment present in a job (Hackman & Oldham, 1975).

Goal setting measurement. The goal setting questions of the survey measured the individual's ability to relate to the goal setting program. The questions measured the clarity, difficulty, and acceptance of the goals by the participants. The scores were measured on a Likert scale of one (very inaccurate) to seven (very accurate). The scores obtained in this thesis experiment were instrumental in interpreting and explaining changes in the MPS and the five dimensions.

The goal setting questions were developed by Steers and Porter (1974). Umstot (1976) modified the questions and validated them through factor analysis.

Individual need strength measurement. The questions in this section of the survey measure an individual's GNS. Scores of these questions can range from one (low individual needs) to seven (high individual needs). Composite GNS scores for each individual were computed by averaging responses to applicable questions. While the resultant scores were at the interval level, each composite score was reduced to a nominal scale (high/low) for purposes of statistical analysis.

The need strength questions were developed and tested by Umstot (1975), Steers and Porter (1974), and Hackman et al. (1975) and have proven to be reliable and valid.

Methods of Data Analysis

The data collected from the presurvey and post survey were analyzed using paired t-test, one and two-way analysis of variance (ANOVA), and analysis of covariance.

Paired t-test. The paired t-tests were used to analyze the effect of goal setting on job enrichment and on the five job characteristics. This test was appropriate since the survey was administered to the same individuals before and after the goal setting program (Nie et al., 1970).

> The purpose of the pairing is to reduce extraneous influences on the variables being measured, that is, pairing reduces the effect of subject-to-subject variability (Nie et al., 1970).

Separate paired t-tests were performed with the goal setting program as the independent variable and job enrichment (as measured by MPS), skill variety, task identity, task significance, autonomy, and feedback as the dependent variables. The presurvey and post survey scores were analyzed, the averages of the differences were calculated along with the variance of the differences, and the

appropriate test statistics were computed. The hypothesis test was:

$$H_o: \quad u_1 - u_2 = u_d = 0$$

$$H_A: \quad u_d \neq 0$$

The null hypothesis, H_o, states that the differences (u_d) between the presurvey scores (u_1) and post survey (u_2) scores is zero.

Statistical analysis of the paired t-test was performed using the Statistical Package for the Social Sciences (SPSS) subprogram t-test. A confidence level of .05 was used in all hypothesis tests utilizing the paired t-test. This confidence level has been both generally accepted and widely used in the social sciences (Emory, 1976).

Two-way ANOVA. The two-way ANOVA test was used to analyze the moderator effect of GNS on the goal setting-job enrichment relationship. The ANOVA was appropriate since it provided the statistics necessary for significance testing, the net effect of each variable, and the interactive effect between the variables (Nie et al., 1970).

Two-way ANOVA was performed to analyze the effects of the implementation of goal setting and GNS on job enrichment (as measured by MPS) and on the five job

characteristics. Separate tests were performed for the control group (TMO), the direct goal setting group, and the indirect goal setting group. In this analysis, GNS was stratified into two levels--high and low. These levels were obtained by dividing the sample in half using the median score of 5.17. Those scores on or above the median were considered high while those scores below the median were considered low.

A review of past experiments revealed that a three-way split of GNS is the most beneficial for analysis (Horstman & Kotzun, 1977). The observations which fell into the center of the distribution were considered too close to call as high or low and were eliminated from the analysis. Due to the small sample sizes in this study (9, 11), the two way high/low stratification, divided by the median score of 5.17, was employed so that no observations were lost. This procedure has been used in many experiments with one of the latest accomplished by Abadie and Laske (1978).

In the ANOVA, the total variation of the data was analyzed and the components of variation were identified. The F-ratio (mean square of the explained variation) was utilized to test the statistical significance of the interaction between goal setting and GNS. The

exact significance level was computed. Any test with an alpha level of .05 or less was considered significant. Any test with an alpha level between .05 and .10 was considered marginally significant and above .10 not significant. All the statistical analyses of the two-way ANOVA were accomplished with the sub-program ANOVA of SPSS.

The ANOVA test reveals if GNS has any main effect on job enrichment and on the five job characteristics. It also reveals the interactive effect of GNS and goal setting on job enrichment and on the five job characteristics.

Other tests. Other statistical tests employed in this research were one-way ANOVA which compared the presurvey scores among the groups and analysis of covariance.

Analysis of covariance is a means of statistical control to remove potential sources of bias in an experiment. Statistical control was achieved by measuring one covariate (presurvey score) in addition to the variate (post survey score) of primary interest. Analysis of covariance was used to help reduce the experimental errors. In this experiment, analysis of covariance compared the post survey scores among the groups to determine if any differences existed among the groups.

Limitations

The results of this research cannot be generalized beyond the sample for the following reasons:

1. The sample size 9 and 11 may be insufficient to provide for significant statistical leverage.

2. The sample of the transportation population used in this research is not necessarily representative of all transportation squadrons, or other squadrons in general.

Chapter 4

RESULTS

This chapter discusses the findings of the research study. The discussion will focus on the three groups involved in the experiment—direct goal setting group, indirect goal setting group, and control group. The results of the experiment are broken out according to the specific statistical tests and by groups. After the results have been presented, this chapter concludes with a comparison among the groups.

VM—Direct Goal Setting Group

t-test results. Statistical t-tests were performed with matched data to determine the effects of the goal setting program on perceived job enrichment and the five job characteristics. As shown in Table 2, there were no significant differences between the presurvey means and the post survey means at the .05 significance level. This indicates that the goal setting program did not have a significant effect on the supervisor's perception of job enrichment. It is interesting to note that both the pre and post survey MPS were relatively high (203.42 and 205.56, respectively). These high scores will be discussed later.

Table 2

t-Test of Goal Setting Group, n = 9, alpha = .05

Variable	Presurvey $\bar{X}$	Post Survey $\bar{X}$	t	t_c	Results*
Skill Variety	5.21	5.42	1.01	2.306	NS
Task Identity	5.58	5.25	-1.76	2.306	NS
Task Significance	6.16	5.96	- .77	2.306	NS
Autonomy	5.83	6.25	1.86	2.306	NS
Feedback from Job	5.79	5.80	.04	2.306	NS
MPS	203.42	205.56	.11	2.306	NS
MPS Root	5.82	5.83	.07	2.306	NS
Goal Clarity	5.96	5.58	- .83	2.306	NS
Goal Difficulty	4.50	4.66	.46	2.306	NS
Goal Acceptance	4.67	4.59	- .33	2.306	NS

*NS = not significant

In addition to the five job characteristics and MPS, t-tests were also performed on the goal setting characteristics—goal clarity, goal difficulty, and goal acceptance. No significant differences were noted between the presurvey and post survey scores (Table 2).

Two-way ANOVA results. The two-way ANOVA reinforces the results of the t-test showing that no significant changes in MPS or the job characteristics could be attributed to the goal setting program although autonomy might be considered marginally significant at .068 significance level.

Table 3 depicts treatment effects (goal setting, no goal setting) and the interaction of GNS with the goal setting treatment. GNS was divided into high and low stratifications using the presurvey median score of 5.17 as the dividing score. In all of the tests, there were no significant differences due to the interaction between GNS and the goal setting treatment.

Analysis of covariance results. Covariance was used to determine if the post survey scores were significantly different between the high and low GNS individuals. The presurvey scores served as the covariates to adjust the post survey scores for any differences in the presurvey scores. The presurvey median score of 5.17 separated the

Table 3

Two-Way ANOVA/Direct Goal Setting Group, n = 9

Job Characteristic	Main and Interactive Effects	Mean Square	F	Significance
Skill Variety	Treatment	.168	.126	.999
	GNS x Treatment	.088	.066	.999
Task Identity	Treatment	.393	.548	.999
	GNS x Treatment	.006	.008	.999
Task Significance	Treatment	.137	.290	.999
	GNS x Treatment	.041	.087	.999
Autonomy	Treatment	1.056	3.844	.068
	GNS x Treatment	.455	1.656	.217
Feedback	Treatment	.090	.107	.999
	GNS x Treatment	.197	.235	.999
MPS	Treatment	74.71	.027	.999
	GNS x Treatment	1661.48	.593	.999

high and low GNS stratifications. The results in Table 4 show that the goal setting program produced no significant differences between the high GNS individuals and the low GNS individuals even when adjusted for the presurvey scores. Again, autonomy was marginally significant at .068.

VM--Indirect Goal Setting Group

t-test results. The individuals in this group were blue-collar workers as contrasted to those who directly participated in the goal setting program who were supervisors. The results in Table 5 show that no significant differences existed between the presurvey and post survey means.

Two-way ANOVA results. The two-way ANOVA produced the same nonsignificant results as the goal setting group. No significant interaction was found between the goal setting treatment and high/low GNS as shown in Table 6.

Analysis of covariance results. Covariance indicated that there was no significant difference between high GNS individuals and low GNS individuals regarding the job characteristics and job enrichment (Table 7).

Table 4

Analysis of Covariance/

Direct Goal Setting/

Independent Variable = GNS n = 9

Dependent Variable	Mean Square	F	Significance
Skill Variety	.160	.362	.999
Task Identity	1.654	2.999	.142
Task Significance	.385	.558	.999
Autonomy	.797	5.325	.068
Feedback	1.971	2.441	.178
MPS	474.100	.141	.999

Table 5

t-Test of Indirect Goal Setting Group, n = 11

Variable	Presurvey $\bar{X}$	Post Survey $\bar{X}$	t	t_c	Result*
Skill Variety	5.15	5.06	- .24	2.201	NS
Task Identity	5.08	5.37	.74	2.201	NS
Task Significance	5.39	5.49	.16	2.201	NS
Autonomy	4.79	4.94	.31	2.201	NS
Feedback from Job	5.15	4.99	- .34	2.201	NS
MPS	136.68	132.53	- .17	2.201	NS
MPS Root	5.00	5.05	.12	2.201	NS
Goal Clarity	5.08	4.97	- .34	2.201	NS
Goal Difficulty	4.19	3.79	-2.05	2.201	NS
Goal Acceptance	4.50	4.64	.51	2.201	NS

*NS = Not Significant

Table 6

Two-Way ANOVA/Indirect Goal Setting Group, n = 11

Job Characteristic	Main and Interactive Effects	Mean Square	F	Significance
Skill Variety	Treatment	.045	.036	.999
	GNS x Treatment	.037	.030	.999
Task Identity	Treatment	.463	.513	.999
	GNS x Treatment	.904	1.003	.332
Task Significance	Treatment	.045	.025	.999
	GNS x Treatment	.900	.501	.999
Autonomy	Treatment	.124	.099	.999
	GNS x Treatment	3.829	3.078	.093
Feedback	Treatment	.128	.128	.999
	GNS x Treatment	.804	.800	.999
MPS	Treatment	95.014	.037	.999
	GNS x Treatment	4445.702	1.722	.204

Table 7

Analysis of Covariance/

Indirect Goal Setting Group/

Independent Variable = GNS n = 11

Dependent Variable	Mean Square	F	Significance
Skill Variety	.656	.970	.999
Task Identity	.030	.088	.999
Task Significance	.005	.002	.999
Autonomy	.473	.343	.999
Feedback	.308	.269	.999
MPS	2827.184	1.584	.243

TMO-Control Group

The members of TMO, who were neither directly nor indirectly involved in the goal setting program, functioned as the control group. The t-test, two-way ANOVA, and analysis of covariance substantiated that TMO responded like a control group in that no significant differences were noted in the job characteristics or MPS.

Comparison Among Groups

Table 8 shows the mean scores of selected variables which were derived from the Job Attitude Survey. Analysis of variance was employed to determine if any significant difference existed among the groups. Significant differences in MPS and feedback from the job were found between the goal setting group and the control group in the pre-survey scores. Autonomy was found to be marginally significant. Table 9 depicts the results of the analysis.

Table 8

Comparison of Group Means

Variable	Direct Goal Setting Group		Indirect Goal Setting Group		Control Group	
	Pre	Post	Pre	Post	Pre	Post
Skill Variety	5.21	5.42	5.15	5.06	4.54	4.46
Task Identity	5.58	5.25	5.08	5.37	5.01	4.91
Task Significance	6.16	5.96	5.39	5.49	5.35	5.73
Autonomy	5.83	6.25	4.79	4.94	4.97	4.84
Feedback from Job	5.79	5.80	5.15	4.99	4.74	4.80
MPS	203.42	205.56	136.68	132.53	123.99	122.90
Goal Clarity	5.96	5.58	5.08	4.97	5.23	5.76
Goal Acceptance	4.67	4.59	4.50	4.64	4.48	4.22
Goal Difficulty	4.50	4.66	4.19	3.79	3.95	3.50
GNS	5.44	5.75	5.33	4.80	5.18	5.07
JDS Job Satisfaction	4.96	4.25	4.88	5.00	4.70	4.87
Organization Climate	4.26	4.18	3.97	3.72	4.24	4.11
Psychological Climate	4.13	4.11	3.75	3.58	4.34	4.23

Table 9

One-Way ANOVA/Between Direct Goal Setting Group and Control Group

Variable	Mean Square	F Ratio	F Prob	Result
Skill Variety	2.6857	1.623	.210	Not Significant
Task Identity	1.9160	1.966	.168	Not Significant
Task Significance	3.9557	2.702	.107	Not Significant
Autonomy	4.414	3.616	.064	Marginally Significant
Feedback	6.57	7.274	.011	Significant
MPS	37451.03	9.494	.004	Significant

Chapter 5

CONCLUSIONS

The purpose of this chapter is to present the researchers' conclusions based on the analyses of the preceeding chapter. First, the hypotheses are reviewed in light of the research findings. Next, implications to the integrated approach to job design are described and, finally, a discussion of the validity of the findings is provided.

Review of the Hypotheses

Below is a restatement of the hypotheses and an indication of support/nonsupport from the findings of this research study.

The implementation of a participative goal setting program will result in:

Hypothesis	Support/Nonsupport
1. improved perceived job enrichment as measured by MPS	Not Supported
2. no change in skill variety	Supported
3. improved task significance	Not Supported
4. improved task identity	Not Supported
5. improved autonomy	Not Supported
6. improved feedback (from the job)	Not Supported

Implications to the Integrated Approach of Job Design

The findings of this experiment did not support the theory that a goal setting program will result in an improvement in perceived job enrichment. The analyses performed indicated that no statistically significant changes occurred in MPS or any of the job characteristics subsequent to the goal setting intervention. The results do imply, however, that participative goal setting has no adverse effect on job enrichment. The latter implication supports the assertion of Umstot that goal setting will not adversely affect job enrichment unless the goals are imposed on the participants (Umstot et al., 1977a).

Discussion of the Findings

Three major factors affected the outcome of the goal setting program conducted in this experiment: first, a job enrichment intervention; second, the nature of the goal setting program; and third, repetitive surveying.

Job enrichment intervention. The factor which most notably affected the outcome of the program was a separate and distinct job enrichment intervention, which began six months before the goal setting implementation. The job enrichment program was a detailed job redesign experiment which resulted in an overall significant improvement in the

perceived enrichment of the workers (Abadie & Laske, 1978). The most significant result was the improvement in MPS, especially of the supervisors. Many of these same supervisors were also members of the direct goal setting group of this research study. The statistical mean of the pre-survey MPS scores for the direct goal setting group was 203, considerably higher than the mean of 178 for supervisors in Hackman's research study which sampled 3059 personnel (Hackman & Oldham, 1974). Since the members of the goal setting group already perceived their jobs as enriched, the goal setting program could do little to improve their perceived job enrichment scores. Consequently, the effect of the goal setting program on job enrichment was inconclusive.

Nature of the goal setting program. The goal setting program of this research study was not a comprehensive intervention as, for example, is a Management by Objectives (MBO) program. The program did not address the goals of the overall transportation organization or how the goals of each echelon fit into the overall goal structure. The outcome of the program was the establishment of several one-time shop goals rather than individual oriented performance objectives. For example, three of the goals formulated

were: (1) obtain hydraulic 10 ton jacks for the maintenance shop, (2) obtain coveralls for the mechanics, and (3) obtain an electronic, computerized wheel balancer for the maintenance shop. Achievement of the goals would improve shop productivity, but it would not add to the personal meaningfulness and responsibility of an individual's job. Furthermore, by not focusing on day to day individual task performance, the established goals were not amenable to future assessment and redefinition. Interviews with the program participants revealed that the supervisors believed that achievement of the established goals made the work easier, but did little to contribute to the psychological aspects of their jobs.

In short, the researchers believe that the program was more of a problem-solving exercise than a bonefide goal setting intervention. Failure of this type of goal setting program to effect perceived job enrichment appears to be a logical outcome.

Repetitive surveying. Cook and Campbell (1976) noted that surveying may adversely affect the results of an experiment when the same survey is accomplished a number of times. Some of the participants of this research study completed the Job Attitude Survey four separate times. Although, it is assumed that all the participants completed the

questionnaires honestly, repetitive surveying cannot be overlooked as a possible cause of biased responses.

Chapter 6

RECOMMENDATIONS FOR FURTHER STUDY

The increasing success of job enrichment and goal setting techniques in both the federal and civilian sectors justifies continuing study of these powerful management tools. The effect of goal setting on the integrated job design model needs to be further explored to determine how to best integrate the techniques of job enrichment and goal setting. Future research should be undertaken utilizing sample groups which are clearly segregated into the categories of; goal setting only, enrichment only, and integrated. Each group must be completely free from the contaminating effects of the others. The experimental design of follow-on research should include the administration of a diagnostic pre-survey to determine which groups would likely benefit most from goal setting (i.e., those with relatively low scores of MPS, job characteristics, and goal related measurements). A goal setting intervention should be conducted along the lines of a formal MBO program and should include (1) the establishment of higher level goals, (2) the development of subordinate and individual task goals and action plans, (3) the intermediate review of goal progress and follow-on redefinition of objectives, and (4) the final review of goal accomplishment.

Further research of the effects of goal setting on perceived job enrichment would greatly enhance managers' understanding and application of the integrated job design model.

APPENDIX A

PRESURVEY-POST SURVEY QUESTIONNAIRE

JOB ATTITUDE SURVEY

This questionnaire is designed to assist in the study of your job and show how it affects you. The survey data will be used to improve your job.

The questions are designed to measure your perceptions of your job and your reactions to it. Please answer each item as honestly and frankly as possible.

Thank you for your cooperation and participation.

Lt Col Denis D. Umstot, PhD
Assistant Professor of Management
Air Force Institute of Technology
Wright-Patterson AFB OH 45433

Major William E. Rosenbach, PhD
Assistant Professor of Behavioral Sciences
and Leadership
US Air Force Academy CO 80840

USAF SCN 77-138 (Expires 1 Aug 1978)

PRIVACY ACT STATEMENT

In accordance with paragraph 30, AFR 12-35, Air Force Privacy Act Program, the following information is provided as required by the Privacy Act of 1974.

a. This survey information is authorized for solicitation by Federal Statute Title 10, United States Code, Section 8012, Executive Order 9397, 22 Nov 43, DODI 1100.13, 17 Apr 68, and AFR 178-9, 9 Oct 73.

b. The principal purpose for which this survey will be used is to measure specific motivational aspects of your work in an effort to allow for positive change where possible.

c. Routine use in addition to the above will include utilization of this data in the conduct of Air Force research in the area of organizational change.

d. The analysis of this questionnaire will be done at the Air Force Academy. Individual questionnaires will not be available to anyone in your organization. Summaries of the data will be reported to managers of your organization for the purpose of improving your job.

BIOGRAPHICAL DATA

All information in this section will be held in the strictest confidence; no one in your organization will have access to individual responses.

1. To be able to effectively measure changes in people's perceptions of their job, it is necessary to use some type of identification. The last four digits of the Social Security Number is a number that is easy to remember yet does not allow identification of an individual.

LAST FOUR DIGITS OF SSAN | | | | |

2. SEX: Male _____ Female _____

3. EDUCATION (Check highest level):

_____ Grade School
_____ Some Business School or College
_____ Some High School
_____ High School Graduate
_____ College Graduate

4. AGE (Check one):

_____ Under 20
_____ 40-49
_____ 20-29
_____ 50-59
_____ 30-39
_____ 60 or over

5. MARITAL STATUS: Single _____ Married _____

6. RANK/GRADE: Military _____ Civilian _____

7. UNIT WHERE YOU WORK (Check one):

Vehicle Ops _____ Vehicle Maintenance ____ TMO _____
Sqd Admin/Tng _____ Reports & Analysis ____ Mobility Ops _____

8. JOB TITLE: _____

9. YEARS IN SERVICE (Check one):

____ One year or less
____ Eight to twelve years
____ One to four years
____ Twelve to sixteen years
____ Four to eight years
____ Over sixteen years

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 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 the 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 not 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 any "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 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 Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very 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 in 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 judgment in carrying out the work.

_____10. Supervisors often let me know how well they think I am performing the 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 Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____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.

_____15. There is good rapport between superiors and the subordinates in this organization.

_____16. I am authorized to communicate with almost anyone in the entire organization.

_____17. My immediate supervisor communicates with me often.

_____18. For most situations there is an appropriate directive or regulation.

_____19. I am encouraged to be innovative in the performance of my tasks.

_____20. My supervisor provides me with adequate information to perform my job in the best manner.

_____21. Rewards and encouragement outweigh threats and criticism.

_____22. The working environment is relaxed.

_____23. The chain of command is strictly enforced.

_____24. It is hard to get people higher up in this organization to listen to people at my level.

_____25. I am encouraged to say what I really think.

_____26. Strict obedience of orders is important here.

_____27. The methods I use to do my job are specified in detail by my supervisor or by directives and regulations.

SECTION THREE

Every employee produces something in his or her work. It may be a "product" or it may be a "service". It is sometimes difficult, however, to identify that product or service. Listed below are some of the products or services produced at your unit.

Vehicles repaired	Records processed
Typed pages	On-time pickups
Vehicles dispatched	Reports prepared
Customers served	Records processed
Crates built	Procedures written

These are just a few of the products or services found at your unit. There are others, of course. We would like you to think carefully of the things you produce, and also of the things produced by those people who work with you in your work group (i.e., everyone who works for your boss).

There is a scale provided for each question. Select the response number (1 thru 5) that most accurately reflects the production in your work group.

1. Thinking now of the various things produced by the people you know in your work group, how much are they producing?

1	2	3	4	5
It is very low	It is fairly low	It is neither high or low	It is fairly high	Their production is very high

2. How good would you say is the quality of the products or services produced by the people you know in your work group?

1	2	3	4	5
The quality is poor	The quality is not too good	The quality is fair	The quality is good	The quality is excellent

3. Do the people in your work group seem to get maximum output from the resources (money, people, equipment, etc.) they have available? That is, how efficiently do they work?

1	2	3	4	5
They do not work efficiently	Not too efficient	Fairly efficient	They are very efficient	They are extremely efficient

SECTION FOUR

Now please indicate how you personnally 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.

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. In this organization people are rewarded in proportion to the excellence of their performance.

_____2. Generally speaking, I am very satisfied with this job.

_____3. There is a great deal of criticism in this organization.

_____4. I frequently think of quitting this job or asking for a transfer.

_____5. There are not enough rewards or recognition given in this organization for doing good work.

_____6. I am generally satisfied with the kind of work I do in this job.

SECTION FIVE

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 have received in my work.

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 <u>how much you personally would like</u> to have each one present in your job.

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

<u>NOTE</u>: 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. A high degree of job security.

_____2. Opportunities for personal growth and development on the job.

_____3. Fairly difficult and challenging work assignments.

_____4. Working as a member of a group rather than by myself.

_____5. Very high pay.

_____6. Chances to exercise independent thought and action in my job.

_____7. A low-risk job where I do not have to stick my neck out to get ahead.

_____8. Opportunities to socialize with my co-workers.

_____9. Stimulating and challenging work.

_____10. Working alone on the job instead of with a group of people.

_____11. A great deal of responsibility.

_____12. Generous retirement benefits.

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			Would like having this very much			Would like having this extremely much

_____13. Opportunities to be creative and imaginative in my work.

_____14. Working in an open area where I can see and talk to my associates or co-workers.

_____15. A sense of worthwhile accomplishment in my work.

_____16. A dangerous job.

_____17. Opportunities to learn new things from my work.

_____18. Chances to work together with others in carrying out the job.

SECTION SEVEN

For the following questions choose the response that best reflects your feeling about your job. Circle the number that most accurately reflects your feelings.

1. Which one of the following shows how much of the time you feel satisfied with your job?

   1. All the time.
   2. Most of the time.
   3. A good deal of the time.
   4. About half of the time.
   5. Occasionally.
   6. Seldom.
   7. Never.

2. Choose the one of the following statements which best tells how well you like your job.

   1. I hate it.
   2. I dislike it.
   3. I don't like it.
   4. I am indifferent to it.
   5. I like it.
   6. I am enthusiastic about it.
   7. I love it.

3. Which one of the following best tells how you feel about changing your job?

   1. I would quit this job at once if I could.
   2. I would take almost any other job in which I could earn as much as I am earning now.
   3. I would like to change both my job and my occupation.
   4. I would like to exchange my present job for another one.
   5. I am not eager to change my job, but I would do so if I could get a better job.
   6. I cannot think of any jobs for which I would exchange.
   7. I would not exchange my job for any other.

4. Which one of the following shows how you think you compare with other people?

   1. No one likes his job better than I like mine.
   2. I like my job much better than most people like theirs.
   3. I like my job better than most people like theirs.
   4. I like my job about as well as most people like theirs.
   5. I dislike my job more than most people disklike theirs.
   6. I dislike my job much more than most people dislike theirs.
   7. No one dislikes his job more than I dislike mine.

SECTION EIGHT

Listed below are a number of statements which could be used to describe your 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.

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

_____1. I am allowed a high degree of influence in the determination of my work objectives or standards.

_____2. I do not have too much difficulty in reaching my work standards; They are fairly easy.

_____3. I receive a considerable amount of feedback concerning the amount of work I do.

_____4. I accept the work standards or goals for my job.

_____5. My work standards are very clear and specific; I know exactly what is expected of me.

_____6. My work standards will require a great deal of effort from me to complete them.

_____7. I really have little voice in formulation of my work standards.

_____8. I am provided with a great deal of feedback and guidance on the quality of my work.

_____9. I accept the specific goals or standards set for my job.

_____10. My work standards are unclear.

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 Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____11. It will take a high degree of skill and know-how on my part to fully attain my work standards.

_____12. My boss seldom lets me know how well I am meeting my work objectives.

_____13. I always try to meet the goals or work standards established for my job.

_____14. I understand fully which of my work standards or objectives are more important than others; I have a clear sense of priorities on these goals.

_____15. My work objectives are quite difficult to attain.

_____16. My supervisor usually asks for my opinions and thoughts when determining my work objectives or standards.

SECTION NINE

Listed below are a number of statements which could be used to describe a job.

* If a statement describes your job place a "Y" beside that item.

* If a statement does not describe your job place a "N" beside that item.

* If you cannot decide if a statement describes your job place a "?" beside that item.

_____ Fascinating

_____ Routine

_____ Satisfying

_____ Boring

_____ Good

_____ Creative

_____ Respected

_____ Hot

_____ Pleasant

_____ Useful

_____ Tiresome

_____ Healthful

_____ Challenging

_____ On your feet

_____ Frustrating

_____ Simple

_____ Endless

_____ Gives sense of accomplishment

BIBLIOGRAPHY

Abadie, P. J., & Laske, R. W. A field experimental study of the effects of job enrichment on job satisfaction and performance in the air force environment. Unpublished master's thesis, Number LSSR 14-78A, AFIT/LS, Wright-Patterson AFB, OH, 1978.

Cook, T. D., & Campbell, D. T. The design and conduct of quasi-experiments and true experiments in field settings. In M. D. Dunnett (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand McNally College Publishing Company, 1976.

Emory, C. W. Business Research Methods. Homewood, Illinois: Richard D. Irwin, Inc., 1976.

Hackman, J. R., & Oldham, G. R. Motivation through the design of work: test of a theory. Organizational Behavior and Human Performance, 1976, 16(2), 250-279.

Hackman, J. R., & Oldham, G. R. The job diagnostic survey: an instrument for the diagnosis of jobs and the evaluation of job redesign projects. Technical Report No. 4, Department of Administrative Sciences, Yale University, 1974. AD779828.

Hackman, J. R., Oldham, G. R., Janson, R., & Purdy, K. A new strategy for job enrichment. California Management Review, 1975, 17(4), 57-71.

Herzberg, F. One more time: how do you motivate employees? Harvard Business Review, 1968, 67-76.

Herzberg, F., & Rafalko, E. A. Efficiency in the military: cutting costs with orthodox job enrichment. Personnel, 1975, 52(6), 38-48.

Herzberg, F., & Zautra, A. Orthodox job enrichment: measuring true quality in job satisfaction. Personnel, 1976, 53(5), 54-68.

Horstman, D. M., & Kotzun, J. J. The impact of growth and social needs on the job enrichment process--a laboratory experiment. Unpublished master's thesis, Number LSSR 9-77B, AFIT/LS, Wright-Patterson AFB, OH, 1977.

Ivancevich, J. M. Changes in performance in a management by objectives program. Administrative Science Quarterly, 1974, 19(4), 563-574.

Kemp, R. C., & Prather, J. L. An experimental design to evaluate the effects of job enrichment and goal setting on satisfaction and productivity. Unpublished master's thesis, Number LSSR 22-77B, AFIT/SL, Wright-Patterson AFB, OH, 1977.

Kim, J. S. & Hamner, W. C. Effect of performance feedback and goal setting on productivity and satisfaction in an organizational setting. Journal of Applied Psychology, 1976, 61(1), 48-57.

Latham, G. P., & Baldes, J. J. The practical significance of Locke's theory of goal setting. Journal of Applied Psychology, 1975, 60, 122-124.

Latham, G. P., & Kinne, S. B. Improving job performance through training in goal setting. Journal of Applied Psychology, 1974, 59, 187-191.

Latham, G. P., & Yukl, G. A. The review of research on the application of goal setting in organizations. Academy of Management Journal, 1975, 18(4), 824-845.

Locke, E. A. Toward a theory of task motivation. Organizational Behavior and Human Performance, 1968, 3(1), 157-189.

Millar, J. Motivational aspects of job enrichment. Management International Review, 16, 1976, 37-46.

Mills, T. Human resources--why the new concern? Harvard Business Review, 1975, 120-134.

Nie, N. H., Hull, C. C., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. Statistical Package for the Social Sciences. New York: McGraw-Hill Book Company, 1975.

Porter, L. W., Lawler, E. E., & Hackman, J. R. Behavior in Organizations. New York: McGraw-Hill Book Company, 1975.

Schuler, R. S., & Kim, J. S. Interactive effects of participation in decision making, the goal setting process, and feedback on employee satisfaction and performance. Academy of Management Proceedings, 1976, 114-117.

Slinkard, J. D. Tailoring management by objectives to an organization and its environment: MBO/R in Air Force contract management division. Unpublished master's thesis, Report No. 5758, Air War College, Maxwell AFB, AL, 1975. AD B003880L.

Steers, R. M., Porter, L. W. The role of task-goal attributes in employee performance. Psychological Bulletin, 81, 1974, 434-452.

Umstot, D. D., Bell, C. H., & Mitchell, T. R. Goal setting and job enrichment: an integrated approach to job design. Unpublished research report, unnumbered, AFIT/LS, Wright-Patterson AFB, OH, 1977a.

Umstot, D. D., Bell, C. H., & Mitchell, T. R. Goal setting and job enrichment: an integrative approach to job design. Unpublished technical report, number LS-2-77, AFIT/LS, Wright-Patterson AFB, OH, 1977b. AD A041072.

Umstot, D. D., Bell, C. H., & Mitchell, T. R. Effects of job enrichment and task goals on satisfaction and productivity: implications for job design. Journal of Applied Psychology, 61(4), 1976, 379-394.