EXAMINING THE EFFECT OF EVALUATING PERFORMANCE WITH PERFORMANCE REPORT VARIANCES ON REPORTED PERFORMANCE: A FIELD RESEARCH APPROACH

by

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Dissertation submitted to the Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Business

with a major in Accounting

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August, 1987

Blacksburg, Virginia

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(ABSTRACT)

Past research in accounting has suggested that the use of budgets, for performance evaluation purposes, may result in either functional or dysfunctional behavior.

This study unlike those of the past utilizes a theoretical model. The theoretical model, developed from a synthesis of prior research, presents the path-goal relationships that may be expected to exist as related to the use of performance report variances.

The study was conducted using a field research approach involving interviews, observation, and questionnaires. The organizations which participated in the study were members of the furniture industry, and each organization was treated initially as an individual case study. The results of the study suggest that there is a positive relationship between the accepted use of performance reports, strong pay-performance linkage, and agreement regarding performance ratings.

A major limitation of this study was the small number of respondents on the negative path. As a result, little can be said regarding the generalizability of the negative path individuals' responses. Additionally, some of the comparisons between supervisors' perceptions and subordinates' perceptions had to be done visually since no statistical technique to my knowledge exists to compare observations that are not independent.

A major contribution of this research is the development of a theoretical model of the expected behavior of managers who are evaluated using performance report variances. As a result of this study future researchers may be able to employ this model as it is or expand and modify it to further explore the relationships between management accounting performance evaluation techniques and expected behavior.

ACKNOWLEDGEMENTS

I would like to thank the members of my committee for their guidance and encouragement. Without their helpful comments, suggestions, and patience the completion of this dissertation would never have been possible.

In regard to various issues surrounding the development of the theoretical model and the use of the organizational behavior research I am indebted to Dr. T. W. Bonham. Dr. Bonham's encouragement with respect to the use of organizational behavior research as it related to accounting laid the foundation for this dissertation.

Finally, to my Chairman, Dr. Larry Killough, a special word of thanks is necessary. He was always very supportive of the research approach taken in this study as well as its use of material outside of the accounting area. Without his help and support this project would never have been started or completed.

I dedicate this dissertation to my daughter, , who put up with and supported me through the long process of completing the Ph.D. program and to my parents,

who also provided morale and financial support.

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CHAPTER I- RESEARCH SUMMARY AND INTRODUCTION

Introduction

Past research in accounting has suggested that the use of budgets, for performance evaluation purposes, may result in either functional or dysfunctional behavior.¹ Although prior research has given some indication of the types of attitudes that may result from budget use in performance evaluation very little is known regarding the effect on actual performance.

To overcome some of the problems associated with prior research in the area this study utilizes a theoretical model. The theoretical model, developed from a synthesis of prior research, presents the relationships that may be expected to exist as related to the use of management accounting performance evaluation techniques. Although there exist a variety of organizational control mechanisms, the primary focus of this research is the use of accounting data for control purposes. In particular, this study will

¹ Hopwood, A. "An Empirical Study of the Role of Accounting Data in Performance Evaluation." Journal of Accounting Research Supplement, 10, 1972, 156-182; Otley, D. "Budget Use and Managerial Performance." Journal of Accounting Research, 16, 1978, 122-149; Brownell, P. "The Role of Accounting in Performance Evaluation, Budgetary Participation and Organizational Effectiveness." Journal of Accounting Research, 1982, 12-27.

concentrate on the use of performance report variances, and their impact on attitudes, motivation, and in turn performance.

The model was constructed based on previous research findings in the organizational behavior area regarding control systems, and accounting research regarding budgeting reactions and attitudes. The model indicates that individuals should be expected to form positive or negative attitudes regarding the equitability of the performance report. As a result, individuals will perceive the performance report to be instrumental or non-instrumental in terms of improving performance and increasing their reward (defined in this study primarily as pay).

If the performance report is deemed instrumental then the individual should perceive a positive path-goal relationship between performance and reward. On the other hand, if the performance report is deemed non-instrumental the individual should perceive a negative path-goal relationship between performance and reward. That is, the reward cannot be increased by improving performance via the In this instance individuals are performance report. expected to divert their attention from performance, as measured by the performance report, to areas where they believe they can increase performance and in turn their reward.

The study was conducted using a field research approach involving interviews, observation, and questionnaires. The organizations which participated in the study were members of the furniture industry, and each organization was treated initially as an individual case study.

Findings

Several of the hypotheses, which related to contingent variables which might affect path-goal perceptions were not supported by the results. The other hypotheses (path-goal pay-performance linkage) and visual perceptions and inspection of the data seems to indicate that there is a the perceived positive path and relationship between agreement between superiors and subordinates regarding performance rankings. Additionally, these research findings also confirm and support some of the conclusions drawn in Although Hopwood found that budget earlier research. evaluations resulted in poor relations between superiors and subordinates, low goal congruity, and a misunderstanding of the importance of the evaluation this study found just the opposite.

With respect to Otley's findings this study also tends to confirm the notion that the use of performance reports enhances communication and promotes functional behavior. Although Otley indicated that managers did not agree

regarding how they were evaluated this study found just the opposite. The findings in this study also tend to support Brownell's finding that increased emphasis on budget evaluation, or in the case of this study the performance report variances, resulted in increased satisfaction with the performance measure.

Outline of Research

First a statement of the research problem, issues regarding prior research, and the purpose of this research are addressed in Chapter Two. Next a review of the relevant literature and the development of a theoretical model, as well as its implications for the use of performance reports is presented in Chapter Three. Since this research involves a field study, an extensive discussion of field research design is contained in Chapter Four along with the research questions and statistical hypotheses developed from the theoretical model. Lastly, Chapter Five provides the research results, and Chapter six contains a discussion of the results along with concluding remarks and limitations.

CHAPTER II- NATURE OF THE RESEARCH PROBLEM

Introduction

In recent years a number of American businesses have lost their competitive edge in world markets. A major reason for this is declining productivity. Hayes and Abernathy have summed up the American productivity problem by suggesting that:

Responsibility for this competitive listlessness belongs not just to a set of external conditions but also to the attitudes, preoccupations and practices of American managers. By their preference for servicing existing markets rather than creating new ones and by their devotion to short-term returns and management by numbers, many of them have effectively forsworn long-term technological superiority as a competitive weapon. In consequence, they have abdicated their strategic responsibilities.²

Hayes and Abernathy's suggestion that part of American management's problem is managing by the numbers raises the question of management accounting's role in the performance problem.

In the past, substantial research effort has been devoted to providing management with more sophisticated information by expanding the analytical ability of management accounting, i.e., providing "better" numbers.

² Hayes, R., and W. Abernathy. "Managing Our Way to Economic Decline." Harvard Business Review, July-August, 1980, 70.

Unfortunately, the role these numbers play in the organization has received only limited attention, and as a result little is known regarding the effect of management's application of the numbers on organizational performance.

The Role Ascribed to Management Accounting

An overall role ascribed to management accounting is, however, implied by the following definition:

The process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of financial information used by management to plan, evaluate, and control within an organization and to assure appropriate use and accountability of its resources.³

This definition appears to have been, at least in part, influenced by theories from the general area of management control. Management control according to Anthony can be summarized as

the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's goals 4

The striking similarity between management control and management accounting theory is particularly evident in Lowe's definition of a management control system:

³ National Association of Accountants, Statements on Management Accounting, Statement Number 1A, New York, New York, National Association of Accountants, March 19, 1981.

Anthony, R. <u>Planning and Control Systems: A</u> <u>Framework for Analysis</u>. Boston, Massachusetts, Harvard University, 1965. a system of organizational information seeking and gathering, accountability and feedback designed to ensure that the enterprise adapts to changes in its substantive environment and that the work behavior of its employees is measured by reference to a set of operational sub-goals (which conform with overall objectives) so that the discrepancy between the two can be reconciled and corrected for ⁹

Association of Accountants' definition of The National management accounting has incorporated these notions of management control and management control systems, since one of its stated purposes is to provide management with a means to efficiently organize the use of all resources. In fact, the control function of management accounting is described as "... monitoring and measuring performance and inducing any corrective actions required to return the activity to its intended course."• This definition of management accounting implies that human, well as material as resources, may be controlled effectively by the same numbers.

Foundational concepts of management accounting, however, are grounded in Taylor's approach to "scientific management"⁷ which views human beings in line with

⁵ Lowe, E. "On the Idea of a Management Control System." Journal of Management Studies, February 1971, 1-12.

National Association of Accountants, op. cit., 1981.

7 Taylor, F. <u>The Principles of Scientific Management</u>, New York, New York, Harper Publishers, 1911.

Mcgregor's Theory X, that is, man is lazy and will not work unless forced to do so. Performance evaluation, using management accounting techniques, reinforces this notion through the use of budgets and variance analysis. Research. however, on attitudes toward budgets seems to indicate that labor is more satisfied when it participates in the budgeting process, and budgets which are merely handed down create conflict. 🕈 "outwit" the The strategies used to are well budaetina documented and include process manipulation, intentional errors, highlighting and a general phenomenon referred to as gaming.¹⁰ The findings regarding reactions to budgeting have implications for performance evaluation using management accounting techniques, such as the performance report, since the budget is the first step in the process.

Suggestions offered regarding the improvement of management accounting techniques aimed at making them more applicable to present problems, however, have basically looked for new or more sophisticated techniques without assessing the underlying problem which may be inherent in

McGregor, D. <u>The Human Side of Enterprise</u>, New York, New York, McGraw-Hill, 1960.

Schiff, M. and A. Lewin. "The Impact of Budgets on People." The Accounting Review, 45, 1970, 259-268.

¹⁹ Birnberg, J., L. Turpolec, and S. Young. "The Organizational Context of Accounting." Accounting, Organizations and Society, 8, 1983, 111-129.

the philosophy of management accounting. The fundamental notion that is repeatedly ignored is that management accounting data is provided to people by people and as such is affected by and affects its human counterparts.

To date the effect of management accounting performance evaluation techniques on the recipient's actual performance has not been researched. The general concept of organizational control and its affect on performance, however, has been studied extensively by organizational Research in this area has focused. behavior researchers. for example, on areas such as bureaucratic structure, leadership behavior, participation, task complexity, types of feedback, types of power exerted, locus of control, job satisfaction, and internal/external environment. Although these studies have not looked at accounting, the findings may provide some important insights into the question of whether or not management accounting performance evaluation techniques result in dysfunctional behavior within the organization and in turn decreased labor performance.

Most organizational researchers acknowledge that the process of control involves assessing the achievement of organizational goals, promoting efficiency and facilitating predictability.¹¹ Reflecting on these components, espoused

¹¹ McNeil, K. "Understanding Organizational Fower: building on the Weberian legacy." Administrative Science Quarterly, 23, 1978, 65-90; Otley, D., op. cit., 1978.

for a control process and the definition of management accounting, would seem to indicate that management accounting is a prime candidate for research in terms of organizational control and its affect on performance.

Management Accounting's Role in Organizational Control

In order to manage efficiently and achieve maximum performance it seems reasonable to consider control, in the organization, as a primary issue. The term control, however, has various connotations. It may infer choosing operating and enforcement rules which attempt to maximize a firm's objective function, or verifying and confirming directives, or actions to plans and prescribing interpersonal influence activities.¹² Additionally, control and behavior. has been equated with structure, power interpretation of control, Recardless of the it is considered to be a mechanism by which some predetermined goal is brought about.

Organizational control is the process by which the behavior of members in the organization is influenced. The principal reason for a control process or control mechanism is to facilitate assessing the achievement of goals or

¹² Flamholtz, E., T. Das and A. Tsui. "Toward an Integrative Framework of Organizational Control." Accounting, Organizations and Society, 10, 1985, 35-50.

forecasting to enhance predictability.¹³ The control process results in the following sequence:¹⁴



The application of management accounting techniques to the organization provides for such a sequence. The budget provides the goal/standard and the accounting system accumulates the actual production costs and then compares these to the budget. The result of this comparison is a performance report which presents variances (feedback). The variances provide an evaluation of actual performance in relation to expected (budgeted) performance and this report is used by management to correct problem areas.

The purpose of the control sequence is to promote effective performance, that is, appropriate (expected/budgeted) behavior. Feedback is a major source of information regarding work behaviors and the resultant

McNeil, K., op. cit., 1978; Otley, D., op. cit., 1978.

** Flamholtz, E., T. Das, and A. Tsui., op. cit., 1985.

outcomes. Feedback may be used as a control mechanism in two ways. It may function to direct behavior toward the appropriate work role or motivate performance through the promise of future rewards.¹⁰

that organizations can Mcauire suggest Ouchi and exercise control by using feedback on either outcomes or Additionally. to reinforce appropriate behavior. performance behavior rewards provided be either mav extrinsic or intrinsic. Extrinsic rewards are given by the organization after the individual has achieved the desired Intrinsic rewards, on the other hand. outcome. are experienced by the individual outside the organization's formal reward system. 14

Management accounting produces feedback based on readily quantifiable outcomes rather than on worker behavior in order to evaluate performance. This feedback has been used, for the most part, as a basis for providing extrinsic rewards. Thus, performance evaluation, under management accounting techniques, measures only one of the types of feedback and offers only one of the two important rewards for effective performance.

The information system is an integral part of the

¹⁴ Ouchi, W. and M. McGuire "Organizational Control: two functions." Administrative Science Quarterly, December, 1975, 559-569.

¹⁵ Ibid.

environment and as such communicates information that is the result of producers' and users' perceptions of reality.¹⁷ Thus, the implementation and use of management accounting as a control system which ignores human behavior may lead to inappropriate member behavior. If so, the process is dysfunctional and cannot be used to promote effective performance.

The primary emphasis in the development of management accounting theory has focused on measuring objectives or measuring progress toward them, rather than the development of predictive models for expected behavior and performance.¹⁰ As a result the role of management accounting, in particular management's use of it, has been explored only to a limited extent.

Although management accounting's role, as defined by the National Association of Accountants, only alludes to the behavioral aspects of applying accounting numbers, some researchers have suggested that management accounting is a primary tool for employee socialization in the

Birnberg, J., L. Turpolec, and S. Young., op. cit., 1983.

Otley, D. and A. Berry. "Control, Organisation and Accounting. Accounting, Organizations and Society, 5/2, 1980, 240.

organization.^{1*} That is, management uses the budget to prescribe normative behavior (expected performance) and then evaluates the actual performance and bases rewards on performance relative to the budget (performance report). This application implies that management perceives management accounting to be a social control mechanism which can be used to improve performance. The ability of management accounting data, however, to effectively motivate individual performance has not been substantiated due to conflicting research findings.

Budget Evaluation and Attitudes

The results of Hopwood, Otley, and Brownell's studies suggest that management should be careful in attempting to use management accounting data as a social control mechanism. Although traditional budgeting theory has suggested that the budget may be used to promote organizational goal congruence,²⁰ Hopwood, Otley and

¹ Collins, F. "Managerial Accounting, Systems and Organizational Control: a role perspective." Accounting, Organizations and Society, November 1982, 107-122; Ronen, J. and J. Livingstone. "An Expectancy Theory Approach to Motivational Impacts of Budgets." The Accounting Review, October 1975, 671-685.

²⁰ Killough, L. and W. Leininger, <u>Cost Accounting</u>-<u>Concepts and Techniques for Management</u>, New York, New York, West Publishing Company, 1987; Horngren, C. <u>Cost</u> <u>Accounting- A Managerial Emphasis</u>, Englewood Cliffs, New Jersey, Prentice-Hall, 1982.

Brownell's findings indicated that, in some instances, the budget results in reduced goal clarity, increased job ambiguity, and increased tension between superiors and subordinates.²¹

Hopwood, Otley and Brownell's research findings also suggest the existence of a communication problem with respect to the budget, i.e., that subordinates and superiors are not in agreement regarding how the budget is used for performance evaluation purposes. The ability of the budget to function as a motivator toward expected performance is also questionable, since Hopwood and Brownell's studies indicate that decreased budget emphasis is related to higher performance, while Otley's indicates the opposite.

The conflicting findings from Hopwood, Otley and Brownell's studies may, however, have resulted from methodological problems and may not be an indication of true differences. Since so many differences exist between these three researchers' studies Figure 1, on the following page, was constructed in an attempt to isolate methodological similarities and differences.

²¹ Hopwood, A., op. cit., 1972; Otley, D., op. cit., 1978; Brownell, P. "The Role of Accounting in Performance Evaluation, Budgetary Participation and Organizational Effectiveness," 1982.

Otley Brownell Hopwood U.S. cost center English profit U.S. cost subjects center manucenter manufactmanufacturing facturing uring managers managers managers used a number NA budget use 10 years-well accepted of years job-related ISR measure NM Kahn measure tension NM self developed NM. cost tension measure supervisor NM NM LBDQ relations. Hopwood's NM self developed performance measure, what is? measure plus evaluation what should be? perceived vs. criterion. intended style NM budget interview interview manipulation information information NM Kahn- Job doal clarity Do you know what is expected ambiguity of you in your job? measure NM Read measure NM trust Mean % budget Mahoney-NM performance self-rated error Hofstede and NM participation NM Milani MSO NM job satisfaction NM LBDQ (Leadership Behavior Description Questionnaire) MSQ (Minnesota Satisfaction Questionnaire) NA Not available NM Not Measured

FIGURE 1 METHODOLOGY COMPARISON CHART

appears to have used the measure of Brownell job satisfaction as a surrogate for several variables measured different instruments. bv Hopwood and Otley usina three researchers obtained their measures Additionally, all in a different manner. of performance Hopwood defined performance in terms of interpersonal relations, Otley used a mean percentage of the budget error, and Brownell used a measure of self-reported performance. Since Otlev's research was an attempt to replicate Hopwood's findings and intended reconcile the Brownell's research was to conflicting findings between Hopwood and Otley's studies Figure 1 suggests some interesting questions;

- 1.) Can supervisor relations be equated with trust and in turn job satisfaction?
- 2.) Is goal clarity equal to job ambiguity?
- 3.) Are feelings and beliefs (intended performance) equal to self-reported performance and/or actual performance?
- 4.) Is job satisfaction equal to job related tension?
- 5.) Does participation allow budget manipulation?

Additionally, all three researchers seem to equate leadership style with the use of budget data (high or low use). Unfortunately perceived leadership style will incorporate many other factors, one of which may be the degree to which accounting data is used. Thus, it may be likely that the effect of using budgetary data was not adequately isolated. Furthermore, the use of the term budget may have been too global a concept since perceptions regarding it are based not only on its use but also its preparation. In an attempt to overcome the difficulty associated with the term "budget" this research will focus on the performance report.

Neither Hopwood, Otley nor Brownell provide a theoretical model of the organizational relationships that could be expected to exist and the outcomes of these relationships. Instead, the relationships under study were described in a very general manner. As a result their hypotheses tended to be stated in vary general terms and may not have provided the basis necessary for rigorous analysis of the various relationships. Their hypotheses were as follows:

- Hopwood- If a cost center head perceives that he is evaluated on the basis of a Budget Constrained style he is
 - (a) more likely to experience job related tension,
 - (b) more likely to report having poor relations with his supervisor,
 - (c) more likely to report having poor relations with his peers,
 - (d) more likely to engage in falsification of the accounting data and dysfunctional decision making,

than if he perceives that he is evaluated on the basis of

either a Profit Conscious or a Non-accounting style.²²

- <u>Otley</u>- When a manager perceives that he is evaluated primarily on his ability to meet his budget (rather than on the basis of a more flexible use of budgetary information), he is more likely to
 - (a) experience job-related and budget related tension
 - (b) distrust his superior
 - (c) be clear about how his performance is evaluated
 - (d) consider his evaluation to be unfair

His response to such feelings will be such that he is more likely to

- (e) bias his budget estimates by building in "slack"
 so the budget is easier to attain
- (f) have a short-term view of his job in that his performance measure is short-term
- (g) perform poorly, particularly on those aspects of performance which yield only long-term benefits.²³

Brownell-

- (a) There is no significant interaction between supervisory evaluative style and budgetary participation affecting performance.
- (b) There is no significant interaction between supervisory evaluative style and budgetary participation affecting job satisfaction.²⁴

22 Hopwood, A., op. cit., 1972, 163.

23 Otley, D., op. cit., 1978, 126.

24 Brownell, P. "The Role of Accounting Data in Performance Evaluation, Budgetary Participation, and Organizational Effectiveness," 1982, 14-15.

Although Hopwood and Otley's hypotheses are similar, Brownell's are quite different. This is particularly disturbing since Brownell's work was an attempt to reconcile the conflicting results of Hopwood and Otley's studies.

Purpose of the Research

In view of the differences regarding subjects, hypotheses, variables, and instruments it seems plausible that these factors caused the conflicting results rather than the phenomenon under study. To overcome some of the prior difficulties associated with this research area, a theoretical model of the expected relationships and their outcomes was developed. Additionally, information regarding the variables of interest was gathered with instruments which have previously demonstrated reliability and validity, in field tests, conducted in the organizational behavior area.

CHAPTER III- DEVELOPMENT OF A THEORETICAL MODEL-LITERATURE REVIEW

Introduction

Perhaps one reason that prior research in the area of budgeting produced inconclusive or toward attitudes conflicting findings may have been due to the researchers' adequately specify the organizational failure to relationships that could be expected to exist. To overcome this problem and provide a theoretical basis for exploring the relationship between management accounting performance reports and actual performance a theoretical model (Figure 2, p. 23) was developed. The model evolved during a review and summary of the organizational behavior and accounting literature regarding control and individuals' reactions to control discussed in this chapter.

B, and C shown in the complete Relationships A. these not be tested since theoretical model, will relationships exist in one form or another and are generally and management. These by researchers understood however, discussed, since an relationships will be these contingent variables, in each understanding of organization studied, could play a crucial role in the interpretation of the research findings and the conclusions

drawn. Next the remaining components of the model, along with the relevant literature, will be reviewed and the implications for this research examined.

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FIGURE 2 THEORETICAL MODEL

RELATIONSHIP A



Overview

The management control climate will be affected by the organization's external and internal environment and the control mechanisms adopted by the organization. As the environment becomes more complex the organization will adopt various strategies which are aimed at reducing environmental uncertainty and complexity. The control strategies adopted will, in turn, affect the type of management control climate which is perceived by organizational members.

Environment

As the environment becomes more complex an organization must adjust its organizational and control structure in an attempt to maintain its effectiveness. Thus, understanding the type of control system which an organization employs requires a consideration of the internal and external environment. The environment may be broken down into three major categories, macro, aggregation and task.

The macro environment consists of the general culture found in a specific geographic location. The cultural forces which act upon the organization, and in turn influence its characteristics and outputs, involve economic, education, legal-political, and socio-cultural factors. The aggregation environment refers to the associations, interest groups and constituencies operating within the given macro The task environment environment. pertains to the environment that is relevant for goal setting and attainment.²⁵ Although this study is primarily concerned with the internal environment and specifically the task environment, general information regarding the external environment will be collected for interpretation purposes.

Control

Katz and Kahn have suggested that organizational structure may be differentiated based on the part the organization plays in larger society and their input/output design or pattern.²⁶ The development of an internal control structure or mechanism, in addition to the basic

²⁵ Osborn, R. and J. Hunt. "Environment and Organizational Effectiveness." Administrative Science Quarterly, 19, 1974, 231-246.

²⁶ Katz, D. and R. Kahn. <u>The Social Psychology of</u> <u>Organizations</u>, New York, New York, Wiley Fublishers, 1966.
organizational structure, is also an attempt to rationally deal with internal and external uncertainty associated with the input/output design, i.e, the achievement of organizational goals.

Achieving organizational goals requires that individuals come together in a prescribed exchange relationship. The organization's role is to provide inducements and the employee's role is to contribute to the organization's goals through participation and production. The organizational structure by itself, however, will not suffice to insure organizational effectiveness; what is required is that manner that is supportive of members behave in a organizational goals.²⁷ As Tannenbaum suggests, control is achieved by influencing behavior.²⁰

In order to control or influence member behavior, organizations adopt mechanisms which will promote adaptation and/or domination. The ability to dominate and/or adapt is usually facilitated through internal bureaucratization.²⁷ Internal bureaucratization provides a structure which enables the organization to be monitored and coordinated,

Angle, H. and J. Perry. "Empirical Assessment of Organizational Commitment and Organizational Effectiveness." Administrative Science Quarterly, 26, March 1981, 1-14.

Tannenbaum, A. <u>Control in Organizations</u>, New York, New York, McGraw-Hill, 1968.

McNeil, K., op. cit., 1978.

facilitating the collection and analysis of feedback allowing management to react to change.³⁰ Internal bureaucratization generally involves implementing structures of routinization which employ prevention devices and/or information collection techniques.³¹ Prevention devices are based on the notion of establishing "norms of performance"³² and then enforcing those norms of performance through information collection techniques (feedback).

Organizational routinization of behavior is promoted through strategies of bureaucratization and centralized The organization's choice regarding the decision making. use of a variety of control strategies will reflect its prevention and information style of operating rationale. The operating rationale is to provide a "norm" for behavior which is implemented and maintained through routinization Child's research indicated these and feedback. As evidenced by formalization. will be strategies standardization and centralization. When high values are assigned to these characteristics by the organization, there

30 Otley, D. and A. Berry, op. cit., 1980.

³¹ Hickson, D., C. Hinings, C. Lee, R. Schneck, and J. Pennings. "A Strategic Contingency Theory of Intraorganizational Power." Administrative Science Guarterly, 16, 1971, 216-229.

³² McNeil, K., op. cit., 1978.

is a tendency to increase the degree of role prescription,³³ i.e., norms of performance.

Depending on the degree of bureaucratization and centralization of decision making adopted Ьν the organization its control structure may be considered primarily a tight monitoring system, which has also been referred to as type A monitoring system, or a Type Z monitoring system which controls through acculturation or socialization. Research by Ouchi and Johnson indicated that organizational members under Type A monitoring systems experienced higher rates of turnover, lower levels of mental weaker attachments to the organization than health and members in organizations which used Type Z monitoring Executives in organizations who used Type A svstems. monitoring systems also tended to experience more anomie and specialized than their counterparts in nore to be organizations who used Type Z monitoring systems.34

Hrebiniak's research also indicated that when a supervisor perceived the control process to be tight he was more likely to rely on formal control, closer supervision, and increased use of rules which resulted in decreased

SS Child, J. "Strategies of Control and Organizational Behavior." Administrative Science Quarterly, 18, March 1973, 1-17.

34 Ouchi, W. and J. Johnson. "Types of Organizational Control and their Relationship to Emotional Well Being." Administrative Science Quarterly, 23, June 1978, 293-317.

worker autonomy and participation. Additionally, the greater the exercise of external control over the manager the more his subordinates perceived ambiguity regarding his locus of and legitimacy of control.³⁸

Implications for Management Accounting Control

Organizational and control structures are developed to help the organization achieve some specific goals. In order to achieve its goals the organization attempts to promote goal congruency and reduce the uncertainty of behavior amongst the organizational members through routinization. A synthesis of the foregoing research indicates that control mechanisms will develop within the organization which reflect the organization's method of collecting information and preventing inappropriate behavior. To produce norms of behavior organization, and to assure that labor conforms to the prescribed behavior the organization must develop surveillance systems to monitor actual performance.

Routinization, on the other hand, places increasing emphasis on role specification which tends to encourage high degrees of standardization, specialization, formalization

³⁶ Hrebiniak, L. "Job Technology, Supervision, and Work-Group Structure." Administrative Science Quarterly, 19, 1974a, 395-410.

and centralization of authority. For management accounting required feedback OD. the provide to segments/departments/processes of the organization. each clearly differentiated in terms of must be unit (span of control) and coals. This responsibilities requirement will lead to more formalization and role research indicates, however, specification. As formalization and specification are more applicable to uncertain to certain environments than thev are Additionally, interdependencies mav exist environments. between units which affect performance; however, management stratify the organization into accounting tends to identifiable segments as if no interdependencies existed.

The structure by itself, nevertheless, will not control behavior, i.e., promote effective performance. Controlling performance requires a mechanism which collects actual performance feedback data and then compares it against a standard, a norm of performance.³⁶

The management accounting process provides a surveillance system which is linked with the performance

34 Child, J., op. cit., 1973; Conlon, E. "Feedback About Personal and Organizational Outcomes and its Effectiveness on Persistance of Planned Behavior Changes." Academy of Management Journal, 23, June 1980, 267-286.

evaluation system, a requirement for effecting behavior.³⁷ The collection of feedback provides the organization with the ability to monitor the progress toward its goals and react to changes which are not in line with its goals. The major role management accounting plays in the organization is providing feedback which is evaluative in nature. Its ability to provide information which will allow management to predict, thus reducing future uncertainty, is dependent upon the nature of the task it is asked to monitor.

Management accounting produces relatively standardized performance evaluation information in terms of budget vs. actual performance. The task environment, however, may not always be easily standardized or predictable. Management accounting appears to be best suited to monitoring tasks predictable and have relatively certain which are environments. The effectiveness of management accounting in evaluating a task should thus be dependent upon the task's certainty and predictability. The more certain, predictable or standardized the better management accounting will be The fit between the able to accurately evaluate the task. management accounting techniques' ability to task and evaluate the task should affect the recipient's perceptions regarding the equitability of the performance evaluation.

For example, the performance report will show actual

³⁷ McNeil, K., op. cit., 1978.

performance minus budgeted performance. The primary focus of management in using variances is to reward the manager for non-negative variances and to punish him for negative variances. Unfortunately, as prior research indicates negative feedback tends to be rejected more often than positive feedback.³⁰

The management accounting process would appear to promote both a tight monitoring system and allow increasing amounts of external control to be exerted. Frior research, however, indicated that tight monitoring systems and increases in external control resulted in subordinates questioning their leader's locus and legitimacy of control, as well as decreased attachment to the firm.

RELATIONSHIP B



30 Foran, M. and D. DeCoster. "An Experimental Study of the Effects of Participation, Authoritarianism and Feedback on Cognitive Dissonance in a Standard Setting Situation." The Accounting Review, 1974, 751-763.

Overview

Etzioni maintains that organizations are social units deliberately constructed to seek specific goals.³⁹ Thus, the management control climate constructed in an organization will reflect the characteristics of the organization as a whole, as well as its operating rational, to bring about specific goals.

The various general characteristics of the organization which might affect the type of management control climate may involve the size of the organization, the degree of centralization of decision making, and the type of bureaucratization. Additionally, the particular management control climate may vary according to the organizational level, and may involve the use of accounting or nonaccounting types of control mechanisms.

Management Control Climate

The management control climate will vary depending on the extent to which the organization employs two strategies of administrative control: bureaucratization and centralized decision making. The main characteristics associated with bureaucratization are size and the extent of work integration while concentration of authority is largely

ST Etzioni, A. <u>A Comparative Analysis of Complex</u> Organizations, New York, New York, Free Fress, 1961.

associated with dependence. Additionally, when organizations place high values on structuring techniques such as specialization, standardization, formalization, and centralization, they tend to increase the amounts of role prescription and specificity,⁴⁰ i.e., make the control climate tighter.

Puch. Hickson, Hinings, and Turner also found that large organizations tended to have more specialization. formalization. There was no standardization and relationship, however, between size and concentration of authority and autonomy. Although centralization of authority was related to the age of the organization and its public accountability. Furthermore, there was a negative relationship between size and centralization, and a positive relationship with standardization of procedures for selection and advancement.41

Whether the organization's hierarchical structure is flat or tall may also affect the extent to which bureaucratization and/or centralization of decision making are employed for control which, in turn, will affect the management control climate. Ivancevich and Donnelly found

** Inkson J., D. Pugh and D. Hickson. "Organizational Context and Structure: an abbreviated replication." Administrative Science Quarterly, 15, 318-329.

41 Pugh, D., D. Hickson, C. Hinings, and C. Turner. "The Context of Organizational Structures." Administrative Science Quarterly, 14, 1969, 91-114.

that tall hierarchical structures resulted in more job specialization, lower morale, lower output, and less innovation while flat hierarchical structures resulted in more efficiency and better performance. Additionally, tall hierarchical structures provided for security and social needs, and flat hierarchical structures tended to foster autonomy and self-actualization satisfaction.⁴²

Organizational Level Characteristics

The analysis of management climate also requires considering how the conditions and practices at one level in the hierarchy effect those at other levels. Since influence flows down through the organization it will require time for the upper level directives to effect the lower levels in the organization. As Bowers suggests the objectives, policies, decisions, and directives are the end result of upper echelon groups and it is these results which comprise the management climate.⁴³

The general management climate may be assessed in terms of four factors which represent the organizational conditions and practices-- organizational climate,

Ivancevich, J. and J. Donnelly. "Relation of Organizational Structure to Job Satisfaction, Anxiety-Stress, and Performance." Administrative Science Quarterly, 20, June 1975, 272-280.

AB Bowers, D. <u>System 4: The Ideas of Rensis Likert</u>. Ann Arbor, Michigan, University Fress, 1975.

management leadership, peer leadership, and group process.** A major determinant of managerial leadership behavior is the organizational climate and a major determinant of peer leadership is the management leadership group process. As Porter and Lawler suggest, the individual's placement in the organizational hierarchy appears to be strongly related to his attitudes and behavior.**

Franklin studied streams of organizational influence factors. His study indicated that the best predictors for the subordinate group level climate were organizational climate followed by group process, managerial leadership and peer leadership. Analyzing the data across time indicated that the best predictor for the subordinate level climate in time two was the superior group process from time one.⁴⁶

Perrow also suggested that the work processes of an organization provide the basic foundation upon which the social structure of an organization is built.⁴⁷ Thus, looking at the specific work processes in the organization,

44 Franklin, J. "Down the Organization: influence processes across levels of hierarchy." Administrative Science Quarterly, 20, 1975, 153-164.

AB Porter, L. and E. Lawler. "Properties of Organizational Structure in Relation to Job Attitudes and Behaviors." Psychological Bulletin, 64, 1965, 23-51.

** Franklin, J., op. cit., 1975.

47 Perrow, C. "A Framework for the Comparative Analysis of Organizations." American Sociological Review, 32, 1955, 195-208. in addition to the hierarchical levels, should provide an improved indication of the management control climate which exists. Hage and Aiken found that the more routine the work flow the greater the centralization of decision making about basic organizational issues. Routine work flows also resulted in more formalized rules but had little affect on job codification or rule observation. Although the degree of routiness and emphasis on efficiency were related there was no association between routiness and relative effectiveness as an organizational goal. The routinization of technology, however, resulted in an increasing emphasis on the number served and a decreasing emphasis on quality of service.⁴⁰

Reimann also emphasized that there was a need to differentiate between system levels and work flow levels in the organization. His research suggested that the strongest relationship to system level structure was system level technology, and that horizontal differentiation related primarily to size, formalization and dependence. Furthermore, operational decisions tended to be decentralized for relatively lower degrees of mass

40 Hage, J. and M. Aiken. "Routine Technology, Social Structure, and Organizational Goals." Administrative Science Quarterly, 14, 1969, 366-377.

production, and greater rates of technological change.**

Fry and Slocum's research also suggested a need to consider work group technology, with respect to management climate, which was conceptualized along three dimensions-number of exceptions, nature of search for resolution when exceptions occur, and interdependence. The work group was defined as the smallest formal grouping of personnel within an organization. Number of exceptions was the degree to which stimuli were perceived as familiar or unfamiliar by members of the work group. The search behavior referred to the nature of the search that took place by individuals when exceptions occurred. Interdependence was the degree to which individuals were dependent on and supported others in the task accomplishment. This research found negative correlations within these three technology dimensions. The less specialized groups had more rules and their officers had larger spans of control, however, the narrower the span of control the more the members reported participating.⁵⁰

^{}** Reinmann, B. "Organizational Structure and Technology in Manufacturing: system vs. workflow level perspectives." Academy of Management Journal, 23, March 1980, 61-77.

Bo Fry, L. and J. Slocum, Jr. "Technology, Structure, and Workgroup Effectiveness: a test of a contingency model." Academy of Management Journal, 27:2, June 1984, 221-246.

Span and Locus of Control

Five factors which may affect the manager's span of control involve: complexity of the job, visibility of the results, interdependence and need for coordination among tasks, degree to which interdependent activities require human intervention as opposed to mechanical intervention, and the kinds of personnel required by technology.⁵¹ In addition to the task characteristics which affect a manager's span of control, an individual's reaction to a type of control system may also be dependent upon his locus of control orientation.

Locus of control orientation deals with the individual's generalized expectancy regarding whether outcomes are externally controlled or internally controlled. Research has indicated that individuals with an external locus of control orientation experience more alienation and less satisfaction on the job. Supervisors with an internal locus of control orientation are happier with participation than those whose orientation is external and less satisfied with a directive style.

Managers are more likely to have an internal orientation than are non-managers, and the higher up the hierarchy the manager is the more likely his orientation is to be

⁵¹ Hunt, R. "Technology and Organization." Academy of Management Journal, 13, 1970, 235-252.

internal. Managers with an internal orientation also perceive a stronger relationship between working hard and good performance, and between good performance and receiving rewards.³² Additionally, managers with an external locus of control orientation are more likely to use coercive power while those with internal orientations tend to use personal persuasion power.

Power

The management control climate will also reflect the distribution of power within the organization, that is the interplay between the political processes (goal formation) and the economic processes (resource allocation).⁵³

French and Raven have suggested that bases of power will fall into the categories of reward, coercive, legitimate, referent, and expert.⁹⁴ Katz and Kahn have suggested combining referent and expert power to develop a measure of incremental influence.⁹⁸ Ivancevich's study used the notion

Mitchell, T., C. Smyser, and S. Weed. "Locus of Control: supervision and work satisfaction." Academy of Management Journal, 18, September 1975, 623-631.

⁵³ McNeil, K., op. cit., 1978.

French, J and G. Raven. "The Bases of Social Power." In D. Cartwright and A. Zander (Eds.), <u>Group</u> <u>Dynamics</u>, 2nd Ed., Evanston, Illinois, Row Feterson, 1960, 607-623.

🗯 Katz D. and R. Kahn, op. cit., 1966.

of incremental influence to test satisfaction. This study found that the use of incremental influence resulted in positive satisfaction based on status, autonomy and growth, while the use of reward, coercive and legitimate power resulted in negative satisfaction. Although legitimate power did not result in satisfaction it did produce motivation.⁵⁴

In order to maintain or legitimate authority (power) the flow of information necessary for control must be manipulated in a manner which keeps subordinates ignorant.³⁷ As Markus and Pfeffer's review of prior research suggests, sophisticated control mechanisms, such as budgeting and performance reports, are constructed in a manner which maximizes the flow of information upward and minimizes the flow of information downward.

The ability to dominate and adapt additionally provide a power base for individuals within the organizational administration.⁵⁶ Since the ability to determine the information to be used results in organizational power those with power will seek to influence the control mechanism to

Set Ivancevich, J. "Analysis of Control, Basis of Control and Satisfaction in an Organizational Setting." Academy of Management Journal, 13, December 1970, 427-436.

McNeil K., op. cit., 1978.

Hickson, D., C. Hinings, C. Lee, R. Schneck, and J. Pennings, op. cit., 1971.

maintain their power.⁵⁷ Therefore, the ability to evaluate with information and reward according to that information becomes a key element of formal authority and power.

The design of the management control system will be used to reinforce the existing power structure in the key areas of decision making, alteration of organizational performance, and legitimating authority. As a result, the management control climate will reflect the organizational distribution of power, culture and system of shared values and beliefs, and the extent of agreement about technology and goals.⁴⁰ Although participation has often been suggested to improve organizational goal congruence and the relationship between the managed and management, it is often opposed by management from the standpoint that it requires a redistribution of power.

Participation

Participation has been broadly defined as the ability to exert influence in the decision-making process through interaction between workers and management based on

Markus, M. and J. Pfeffer . "Power and the Design and Implementation of Accounting and Control Systems." Accounting, Organizations and Society, 8:2/3, 1983, 205-218. information sharing.⁴¹ This notion has led reasearchers to offer suggested benefits for participation in the budgeting process which involve inducing internalization of budget goals,⁴² resolving conflicts and individual differences about goals,⁴³ providing operating managers a sense of challenge and responsibility,⁴⁴ providing individuals with a sense of well-being and self-actualization,⁴⁸ and creating work group harmony and cohesion.⁴⁴

In support of some of these notions, Hofestede's research indicated that participation in the budgeting process led to high motivation in the area of financial standards but not technical standards. Those supervisors

41 Wall, T. and J. Lischeron. <u>Worker Participation: A</u> <u>Critique of the Literature and some Fresh Evidence</u>, New York, New York, McGraw-Hill, 1977.

Hanson, E. "The Budgetary Control Function." The Accounting Review, 40, 1966, 239-242

◆3 Schiff, M. and A. Lewin, op. cit., 1970.

•• Caplan, E. <u>Management Accounting and Behavioral</u> <u>Science</u>. Reading, Massachusetts, Addison-Wesley, 1971; Swieringa, R. and R. Moncur. <u>Some Effects of Participative</u> <u>Budgeting on Managerial Behavior</u>. New York, New York, National Accounting Association, 1975.

Mulder, M. "Power` Equalization Through Participation." Adminsitrative Science Quarterly, 16, 1971, 31-38.

• Likert, R. <u>New Patterns of Management</u>, 1961, and <u>The Human Organization: Its Management and Values</u>, 1967, New York, New York, McGraw-Hill; Ronen, J. and J. Livingstone, op. cit., 1975.

who had never experienced participation, however, did not necessarily have unfavorable attitudes toward their superiors or the organization. Additionally, leadership style, authoritative vs. democratic, was found to moderate the relationship between participation and motivation.⁶⁷ Milani also found a strong relationship between budget participation and attitudes toward the job and the organization.⁶⁰

In terms of the effect of participation on motivation, found significant Monczka positive Searfoss and perceived participation and relationships between motivation, need for particpation and independence, and perceived particpation and hierarchical level. • Searfoss's research also indicated a significant relationship between the foremens' perception of participation and their goal directing effort.⁷⁰ Other researchers have found positive relationships between, perceived control and overall

Hofstede, G. The Game of Budget Control. London, England, Tavistock Publishers Limited, 1968.

• Milani, K. "The Relationship of Participation in Budget Setting To Industrial Supervisory Performance and Attitudes." The Accounting Review, 50, 1975, 274-284.

◆ Searfoss, D. and R. Monczka. "Perceived Participation in the Budget Process and Motivation to Achieve the Budget." Academy of Managment Journal, 16, 1973, 541-554.

7° Searfoss, D. "Some Behavioral Aspects of Budgeting for Control: An Empirical Study." Accounting, Organizations and Society, 1, 1976, 375-384.

effectiveness, participation and job involvement, and participation and motivation.⁷¹ Brownell, however has suggested that the individual's locus of control orientation may moderate the relationship between participation and performance.⁷² Additionally, Dunbar suggested that an individual's desire to participate was related to their perceived expertise and economic self-interest.⁷³

Implications for Management Accounting Control

A synthesis of the prior research seems to imply that in attempting to reduce uncertainty organizations will develop varying management control climates. As organizations become larger there will be a tendency toward standardization, formalization, and a tighter management control climate. Placing high values on these bureaucratic administrative techniques tends, however, to foster job specification which may result in lower job satisfaction and

71 Kavocic, B., V. Ruo, and A. Tannenbaum. "Control, Participation and Effectiveness in Four Yugoslavian Industrial Organizations." Administrative Science Quarterly, 16, 1971, 74-86; Vroom, V. Work and Motivation. New York, New York, Wiley and Sons, 1964.

72 Brownell, P. "A Field Study Examination of Budgetary Particpation and Locus of Control." The Accounting Review, 57. 1982. 766-777.

Organizational Effectiveness." The Accounting Review, 55, 1981, 844-860.

⁷³ Dunbar, R. "Budgeting for Control." Administrative Science Quarterly, 16, 1971, 88-96.

less autonomy. Additionally, there is a need to consider the individual's placement in the organization's work processes, as well as the hierarchical levels, since the management control climate employed may vary between organizational processes and levels.

The perceived management control climate may also be affected by the individual's locus of control orientation which may not be compatible with the actual control mechanism employed by the organization. Attempting to change control mechanisms within an organization to suit individual needs, however, will be difficult since these mechanisms tend to support the existing power structure. Access to control information also provides a source of power within the organization. Although research suggests that power influences job satisfaction, attempts at redistributing power, such as increasing participation are usually not satisfactory to management.

The application of management accounting to the control process and the generation of variances which are used to reward and punish reflects what might be referred to as coercive power. Research on various types of power, however, indicates that coercive power provides neither satisfaction nor motivation. Although the performance report does provide the legitimation of authority which may provide motivation to achieve the budget.

management accounting process and the resultant The feedback will also provide one of the required mechanism for keeping subordinates ignorant. The report at lower levels will be for departments only and these reports will be they are prepared for upper levels of aggregated as management. Thus, only the top level of management knows performance and goals, i.e., management overall the accounting provides the privileged information necessary for This data, however, will be highly aggregated and power. will obscure interdependencies which exist at lower levels.

Management accounting requires standardization and formalization of tasks in order to collect quantifiable information, monitor, and evaluate results. Thus, the management accounting process will likely result in more centralized decision making, tighter control systems, decreased spans of control (power) at lower levels, and decreased participation.

Accounting vs. Non-Accounting Control Mechanisms

The type of control strategy the manager selects will be affected by his location in the organizational hierarchy. To assess the degree of conformity to role prescription two types of control may be used, personal surveillance (behavior control) and measurement of outputs (output control).

Ouchi and McGuire's research indicated that behavior control was used in response to both the need and the ability for direction and guidance, while output control was used to provide legitimate evidence or to protect one's The use of a particular type of control was position. closely related to the manager's position in the organizational hierarchy. The higher the manager's position in the organization the more ouput control was used and the less behavior control was used. Furthermore, the greater the manager's knowledge of the task the more likely he was to use behavior control rather than output control.74 Therefore, in studying the organizational climate and its affect on control, individuals will be grouped according to various hierarchical levels within the organization.

Implications for Management Accounting Control

As prior research indicated upper levels of management tend to focus on output control for evaluation purposes while lower levels of management focus on behavior control. A major supplier of output control in the organization is management accounting. Therefore, it is likely that upper levels of management will consider performance report evaluations to be more appropriate and use them to a greater

Ouchi, W. and M. McGuire, op. cit., 1975.

degree than lower levels of management.

Implications for Research

Although this study is not concerned with evaluating the organizational and management climate, the findings of the foregoing research must be considered. Therefore, information regarding the external and internal environment, organizational and managerial structure, and the control structure will be gathered through interviews, and questionnaires.

Based on the previous research findings it seems highly likely that the management accounting system, and the performance report in particular, will be affected by these organizational variables. Thus, a working knowledge of these variables, in each organization, will be obtained to enhance the interpretation, explanation, and conclusions of this research effort.

RELATIONSHIP C

ACCOUNTING

PERFORMANCE REPORT-VARIANCES

Overview

To control performance, management requires a mechanism which collects actual performance data and then compares it against a standard.⁷⁵ The process of bringing about effective performance behavior, however, requires that the control system and performance evaluation system be linked.⁷⁶ The performance report provides management with a mechanism which compares actual performance against a standard. The necessary link between the control system and the performance evaluation system may be accomplished if management bases rewards and punishments on the resultant performance report variances.

Subjective vs. Formula-Based Evaluations

Govindarajan's study used contingency theory to assess the impact of uncertainty on the style of performance evaluation. The results indicated that subjective performance evaluations resulted in greater performance effectiveness than formula-based evaluations. There was also a significant relationship between environmental uncertainty and evaluation style. Managers facing high environmental uncertainty tended to use subjective

Child, J., op. cit., 1973; Conlon, E., op. cit., 1980.

McNeil, K., op. cit., 1978.

evaluation to a greater degree then managers in situations of low uncertainty. Generally, managers faced with low uncertainty environments tended to rely primarily on formula-based evaluation measures.⁷⁷

Performance Report Projected Goal

A review of the literature regarding the effect of goal difficulty and attainability on performance suggests that:⁷⁸

- 1. groups assigned difficult goals tend to outperform groups assigned moderate or easy goals.
- 2. performance is better if goals are clear and quantitative rather than unclear or subjective.
- 3. the goals must be perceived of as attainable.
- 4. assigned goals have an affect on the individual's behavior to the extent that they are accepted by the individual.

Carroll and Tosi found perceived goal difficulty was positively related to self-rated managerial efforts for those individuals who were high on self assurance, mature,

77 Govindarajan, V. "Appropriateness of Accounting Data in Performance Evaluation: an empirical examination of environmental uncertainty as an intervening variable." Accounting, Organizations and Society, 9, 1985, 125-135.

7º Locke, E. "Towards a Partial Theory of Task Motivation and Incentives." Organization Behavior and Human Performance, 3, 1968, 157-189.

, K. Shaw, L. Saari, and G. Latham. "Goal Theory and Task Performance: 1968-1980." Psychological Bulletin, 90, 1981, 125-152. and perceiving rewards to be contingent upon performance.^{7*} Hofstede's research, however, indicated that tight budget standards led to poor attitudes and expectations, and low motivation.⁶⁰ Although Kenis's study suggested that goal clarity was related to job satisfaction and positively related to attitudes toward the budget and managerial motivation, he also concluded that tight budgets were associated with low motivation, poor attitudes, and performance.⁶¹

Implications for Research

While the budget initially represents the quantitative performance goal, the evaluation process later relies on the performance report to represent the individual's success or lack thereof in achieving the goal. Thus, it appears that the performance report is the formula-based measure being used in an attempt to motivate individuals to improve performance.

77 Carroll S. and H. Tosi. "Goal Characteristics and Personality Factors in a Management By Objectives Program." Administrative Science Quarterly, 15, 1970, 295-305.

•• Hofstede, G., op. cit., 1968.

•• Kenis, I. "The Effects of Budget Goal Characterisitcs on Managerial Attitudes and Performance." The Accounting Review, 54, 1979, 701-721.

RELATIONSHIP D



Overview

Although this research focuses on the performance report, prior studies limited to examining attitudes toward budgeting may provide important insights. Evidence from the literature suggests that accounting controls are sometimes rigidly used in organizations despite managers' knowledge of the existence of complex tasks which require flexibility.^{e2} Thus, some managers may perceive the accounting system to be an incomplete and imperfect measure of their performance,^{e3} while others may feel that the accounting measures are unfair, unobjective, uninfluenced by a variety of important factors, and thus, incapable of providing a true description

Hertzog, J. "The Role of Information and Control Systems in the Process of Organizational Renewal: Roadblock or Roadbridge." Accounting, Organizations and Society, 3, 1978, 29-45; Ansari, S. "Towards an Open System Approach to Budgeting." Accounting, Organizations and Society, 4, 1979, 149-161.

•3 Hayes, D. "The Contingency Theory of Management Accounting." The Accounting Review, 51, 1977, 22-39. of managerial activities. ••

Attitudes Toward Budgets

Hopwood explored the effects of four different styles of budget constrained. budget-profit. profit evaluation: conscious. and non-accounting. His study indicated that the budget evaluation resulted in two styles manaders of experiencing increased amounts of tension. Additionally, the evaluation methods which focused on the budget were believed to be less fair by managers than the profit conscious or non-accounting styles. More importantly, managers who were evaluated budget styles under the experienced less favorable relations with superiors and subordinates, participated more in budgeting manipulation techniques, misunderstood the importance of the budget in their performance evaluation, and experienced less goal Thus, Hopwood concluded that the use of budgets clarity.⁰⁰ promoted dysfunctional behavior.

Otley attempted to replicate and extend Hopwood's findings by employing similiar styles of evaluation. His study also incorporated perceptions regarding the way budgets were used in the performance evaluation, trust of

•• Lawler, E. and J. Rhode. <u>Information and Control in</u> <u>Organizations</u>. Pacific Falisade, California, Goodyear Publishing Co., 1976.

Hopwood, A., op. cit., 1972.

one's manager, job ambiguity, and the perceived fairness of the evaluation. Results of the study indicated that managers' attitudes regarding the method of evaluation did not appear to be strongly related to the style which was perceived to be used. Otley, like Hopwood, found that there appeared to be a lack of congruence between middle and lower level managers' perceptions of how they were evaluated and upper level managers' perceptions of how they evaluated performance.

Furthermore, managers who disagreed with the the evaluation being used reported appropriateness of increased job tension, and managers who were evaluated under the budget styles experienced more job ambiguity; however, they were more often able to meet their budgets, i.e., Thus. Otley concluded that the budget performed better. styles might promote better performance, that is functional He qualified this finding, however, since a behavior. review of the corporate data indicated that the managers might have been participating in budget manipulating activities. ••

Brownell attempted to reconcile the differences between Hopwood and Otley's findings. Brownell collapsed the four classifications of evaluation style into two classifications, high budget emphasis and low budget

Otley, D., op. cit., 1978.

emphasis. The results of his study indicated that high performance (self-reported) was associated with decreased budget emphasis, and increased budget emphasis resulted in increased job satisfaction.^{e7} Unfortunately, Brownell's study failed to reconcile the differences found in the earlier studies, although he tended to agree with Hopwood's conclusion that the use of budgets promoted dysfunctional behavior.

Other research findings tend to support some of the various conclusions reached by Hopwood, Otley, and Brownell. Merchant's analysis of organizational performance with respect to budgets suggested that performance was negatively correlated with requirements to explain variances and positively correlated with influence on budgets and involvement in budgeting activities.⁹⁶ Further support for the existence of this relationship was supplied by Bruns and Waterhouse, who found that perceived control was negatively correlated with the limiting features of budgets and positively correlated with the acceptance of methods

Brownell, P. "The Role of Accounting in Ferformance Evaluation, Budgetary Participation and Organizational Effectiveness," 1982.

•• Merchant, K. "The Design of the Corporate Budgeting System: Influence on Managerial Behavior and Performance." The Accounting Review, 1981, 813-829.

employed.[®] Collins, Seiler and Clancy's findings also tend to support relationships found by Hopwood, Otley and Brownell since their analysis of budgetary attitudes and motivation indicated that:^{*}

- 1. negative attitudes toward the budget were associated with negative motivation.
- less influence in the budgetary process was associated with higher negative motivation (budget slack, withdrawn support, or intentional errors).
- perceptions of high amounts of conflict between superiors in the budgetary process resulted in high negative motivation for subordinates.
- increased perceptions of ambiguity resulted in lower ratings of positive motivation.
- 5. the more the budget variances were perceived to be used in performance evaluation the higher the positive motivation.

Feedback

Organizations attempt to use feedback to bring about some predetermined behavior. A review of the feedback literature led Latham and Yukl to suggest four ways in which feedback might lead to improved performance; it might induce the setting of goals by individuals who lack them; it might

Bruns, W. and J. Waterhouse. "Budgetary Control and Organizational Structure." Journal of Accounting Research, Autumn 1975, 177-203.

Collins, F., R. Seiler, and D. Clancy. "Budgetary Attitudes: the effects of role senders, stress and performance evaluation." Accounting and Business Research, 1984, 163-168. raise an individual's goal levels; it might inform individuals when their current performance is unsatisfactory, and it might result in greater effort being put forth.⁷¹

The effect of feedback, however, on the indivdual's behavior and the resultant performance will be dependent on his acceptance of the feedback. Additionally it has been suggested that poor job performance may result if feedback is infrequent and/or unclear with respect to the individual's performance on the job.⁷² If the individual feels that the feedback is not clear or appropriate a conflict may arise. In fact some researchers have suggested that the lack of feedback may result in low morale, low confidence and hostility,⁷³ and that feedback clarity and frequency are required for the formation of subsequent aspiration levels.⁷⁴

Hofstede's research indicated that motivation was correlated with the frequency of communication regarding

71 Latham, G. and G. Yukl. "A Review of Research on the Application of Goal Setting in Organizations." Academy of Management Journal, 18, 1975, 824-845.

** Lawler, E. "Control Systems in Organizations." In Dunnett, M. (ed.), <u>Handbook of Industrial and Organizational</u> <u>Psychology</u>, Chicago, Illinois, Rand McNally, 1976.

P3 Becker, S. and D. Green. "Budgeting and Employee Behavior." Journal of Business, 1962, 392-402.

** Stedry, A. <u>Budget Control and Cost Behavior</u>. Englewood Cliffs, New Jersey, Prentice-Hall, 1960.

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costs and variances by the supervisor. Additionally, when responsibilities were clear cut the budget reports resulted in favorable attitudes by individuals being evaluated.⁷⁶ Kenis found feedback to be weakly and positively correlated with motivation and job satisfaction.⁷⁶ Cook found the frequency of feedback to be associated with job satisfaction and performance.⁹⁷

Conlon's research indicated that the type of feedback was important in the persistence of a behavior. The decision to persist in a behavior, if the outcome was valued, was greater if the feedback confirmed a condition, than it was if it disconfirmed a condition. The type of feedback also affected the direction of the belief, while feedback in general affected the strength of the belief regarding the outcome.^{**}

Other factors affecting the individual's acceptance of performance feedback involve whether it is positive or negative, and its source. Ivancevich and McMahon found that self-generated feedback was superior to externally generated feedback in the areas of cost control, quality control,

Hofstede, G., op. cit., 1967.

** Kenis, I., op. cit., 1979.

** Cook, D. "The Effects of Frequency of Feedback on Attitude and Performance." Journal of Accounting Research, 5, 1968, 213-224.

Conlon, E., op. cit., 1980.

unexcused overtime completions, intrinsic satisfaction and commitment to the organization.** Furthermore, Foran and DeCoster indicated that the individual's commitment to, or acceptance of, performance standards was significantly greater if the feedback was favorable.¹⁰⁰

Of particular importance regarding the use of performance reports is Child's research which indicated that the greatest source of conflict resulted from the use of performance-oriented records followed by specialization and standardization. Although the presence of disagreement/conflict encouraged challenging authority, the bureaucratic structure also inhibited pressing for change (innovation).¹⁰¹

Implications for Research

Synthesizing the results of the studies mentioned in this section would seem to indicate that individuals tend to form attitudes regarding the feedback provided by the evaluation system and its equitability which will, in turn, affect their motivation to perform. These attitudes are

Ivancevich, J. and J. McMahon. "The Effects of Goal Setting, External Feedback and Self-Generated Feedback on Outcome Variables: A Field Experiment." Academy of Management Journal, 25(2), 1982, 359-372.

¹⁰⁰ Foran, M. and D. DeCoster, op. cit., 1974.
¹⁰¹ Child, J., op. cit., 1973.

likely to be affected by the type of feedback, i.e., negative or positive variances, and the clarity and frequency of the performance report.

RELATIONSHIP E



Overview

Vroom suggests that the effort expended by an individual is a function of the desirability of the outcome and the probability that the outcome can be achieved.¹⁰² This theory employs three important variables, instrumentality, valence and expectancy. Instrumentality is defined as the belief that certain outcomes will lead to other outcomes. Valence is essentially the desirability of the outcome, and expectancy is the probability that the act will be followed by the outcome.

An individual's motivation to perform, therefore, is a

102 Vroom, V., op. cit., 1964.
function of the desirability of the outcome (intrinsic and extrinsic), the instrumentality of the performance for the outcome, and the probability that performing the act will result in the desired outcome. An extention of the general expectancy model was suggested by Porter and Lawler who incorporated role perceptions into their model. Role perceptions were defined as the kinds of activities that the individual believed were required to perform the job successfully.¹⁰³

Role Ambiguity and Conflict

Role ambiguity has been defined as the extent to which an individual perceives uncertainty with regard to the performance requirements or evaluation, i.e., what is considered "good performance." Role conflict has been defined as the extent to which a person receives mixed signals regarding what constitutes good performance.¹⁰⁴

The individual being evaluated may experience role ambiguity if there is a lack of clear and consistent information about the work role and the expectations of the work role. That is, the individual lacks clear information

103 Heneman, H. and D. Schwab. "Evaluation of Research in Expectancy Theory and Prediction of Employee Performance." Psychological Bulletin, 78, 1972, 1-9.

104 Rizzo, J., R. House, and S. Lirtzman. "Role Conflict and Ambiguity in Complex Organizations." Administrative Science Quarterly, 15, 1970, 150-163.

regarding the responsibilities and expectations regarding what constitutes effective performance.¹⁰⁸ If the individual is experiencing role ambiguity this may affect his attitudes toward the performance report and performance evaluations in general since prior research indicates that role ambiguity may be associated with mental strain, job tension, anxiety and depression,¹⁰⁶ job dissatisfaction,¹⁰⁷ unfavorable attitudes toward organizational role senders,¹⁰⁸ and resentment of superiors.¹⁰⁹

Work Role and Role Outcomes

Graen extended the Vroom-Porter-Lawler model incorporating

¹⁰⁵ Kahn, R., D. Wolfe, R. Quinn, D. Snoek, and R. Rosenthal. <u>Organizational Stress: Studies in Role Conflict</u> and Ambiguity. New York, New York, Wiley and Sons, 1964.

¹⁰⁰ Karasek, R. "Job Demand, Job Decision Latitude and Mental Strain: Implication for Job Redesign." Administrative Science Guarterly, 24, 1979, 285-308; Gupta, N. and T. Beehr. "Job Stress and Employee Behavior." Organization Behavior and Human Performance, 23, 1979, 373-387.

107 Caplan, R. and K. Jones. "Effects of Work Load, Role Ambiguity and Type A Personality on Anxiety, Depression and Heart Rate." Journal of Applied Psychology, 60, 1975, 713-719; Beehr, T., J. Walsh, and T. Taber. "Relationship of Stress to Individually and Organizationally Valued States: Higher Order Needs as Moderators." Journal of Applied Psychology, 61, 1976, 41-47; Rizzo, J., R. House, and S. Lirtzman, op. cit., 1970.

¹⁰⁰ Miles, R. "An Empirical Test of Causal Inference Between Role Perceptions of Conflict and Ambiguity and Various Personal Outcomes." Journal of Applied Psychology, 60, 1975, 334-339.

*** Caplan, R. and K. Jones, op. cit., 1975.

first and second level outcomes. First level outcomes were defined as the work role and second level outcomes were defined as the work role outcomes. This research indicated that job satisfaction was the result of the degree of satisfaction with the work role. Additionally the perceived instrumentality of the work role for attaining valued work role outcomes affected job satisfaction and, in turn, performance.¹¹⁰

Unfortunately, the individual's perception of what constitutes the appropriate work role (job requirements) may be affected by his location in the organization.¹¹¹ Therefore, it would seem imperative that management effectively communicate the "appropriate" work role to the individual if expected performance is to be the result. Additionally, it seems likely that the performance evaluation report must also reflect this congruent work role in order to be perceived as a valid evaluation of job performance by the subordinate,¹¹² i.e., the role must not be perceived of as ambiguous.

119 Graen, G. "Instrumentality Theory of Work Motivation: some experimental results and suggested modifications." Journal of Applied Psychology, 53, 1969, 1-25.

¹¹¹ Ranson, S., B. Hinings, and R. Greenwood. "The Structuring of Organizational Structures." Administrative Science Quarterly, 25, March 1980, 1-17.

¹¹² Foran, M. and D. DeCoster, op. cit., 1974.

Implications for Research

The individual's motivation to perform is a function of work role outcome. the the desirability of the instrumentality of performing the work role to acheive the outcome, and the probability that performing the work role Thus, the individual should lead to the outcome. will perceive the performance report as being either a positive or negative mechanism in helping him to improve performance and in turn achieve the valued outcome or the reward. Since the performance report tends to be externally generated, however, and often contains unfavorable variances there may be a tendency for it to be rejected by the individual being evaluated. Additionally, the evaluation may be rejected if it does not reflect a congruent or acceptable work role.

RELATIONSHIP F



Overview

Expectancy and instrumentality theory suggests that the

individual will make an evaluation regarding his performance and whether or not it serves as a vehicle for obtaining the reward. That is, the individual must perceive that variations in performance will lead to variations in the amount of reward received.¹¹³

Attitudes

Knowledge of the individual's attitudes regarding expectancies and outcomes of performance is particularly important in assessing the ability of the performance report to act as a motivator, since prior research suggests that these attitudes tend to be the best predictors of performance.¹¹⁴ In other words, there is a cause-and-affect relationship between expectations regarding performance in time period one and performance rankings in time period two.¹¹⁵ Additionally, other research has indicated that

¹¹³ Gailbraith, J. and L. Cummings. "An Empirical Investigation of Motivational Determinants of Task Performance:Interactive Effects Between Instrumentality-Valence and Motivation-Ability." Organizational Behavior and Human Performance, 2, 1967, 237-257.

114 Graen, G., op. cit., 1969; Hackman, J. and L. "Expectancy Theory Predictions of Work Porter. Effectiveness." Organizational Behavior and Human Performance, 3, 1968, 407-426; Lawler, E. and J. Suttle. "Expectancy Theory and Job Behavior." Organizational Behavior and Human Performance, 9, 1973, 482-503.

11³ Cherrington, D. and J. Cherrington. "Appropriate Reinforcement Contingencies in the Budgeting Process." Journal of Accounting Research, 11, 1973, 225-253. those managers who were ranked as the best performers also perceived a stronger relationship between good performance and the attainment of the reward.¹¹⁶

Reward Contingency

Cherrington and Cherrington have suggested that it is not so much the budget instrument that has the influence on individuals as it is the positive and negative reinforcing consequences and the reward contingencies which are associated with them.¹¹⁷ When rewards are made contingent upon good performance, subordinates have expressed satisfaction with their work, supervision, and advancement opportunities. Additionally, high performers indicated more satisfaction then low performers with work and pay when their superior administered contingent rewards rather than non-contingent rewards.¹¹⁶

Schiff and Lewin suggest that when the reward structure places too much emphasis on whether the feedback is positive

¹¹⁰ Ibid.; Lawler, E. and L. Porter. "Antecedent Attitudes of Effective Managerial Performance." Organizational Behavior and Human Performance, 2, 1967, 122-142.

**7 Cherrington, D. and J. Cherrington, op. cit., 1973.

^{11®} Podsakoff, P., W. Todor, and R. Skov. "Effects of Leader Contingent and Noncontingent Reward and Punishment Behaviors in Subordinate Performance and Satisfaction." Academy of Management Journal, 25, 1982, 810-821. or negative, managers tend to build slack into their budgets.¹¹⁷ Other research efforts tend to support the general conclusions of Schiff and Lewin, and further indicate that common reactions to evaluations which involve budgets result in managers manipulating production figures,¹²⁰ emphasizing departmental problems,¹²¹ being less concerned with the budget,¹²² emphasizing the measure of immediate concern,¹²³ asking for justification regarding the measurement basis,¹²⁴ and/or deferring some critical decisions which may have immediate adverse impact on the performance measure.¹²⁵

*** Schiff, M. and A. Lewin, op. cit., 1970.

120 Hofstede, G., op. cit., 1967.

¹²¹ Wallace, M. "Behavioral Considerations in Budgeting." Management Accounting, 47, 1966, 3-8.

122 Swieringa, R. and R. Moncur, op. cit., 1975.

¹²³ Blau, P. <u>Dynamics of Bureaucracy</u>. Chicago, Illinois, University of Chicago Press, 1955.

Hofstede, G., op. cit., 1967; Simon, H., H. Guetzkow, R. Kozmetsky and T. Tyndall. <u>Centralization</u> <u>Versus Decentralization in Organizing the Controller's</u> <u>Department</u>. New York, New York, Controllership Foundation, 1954.

125 Lawler, E. and J. Rhode, op. cit., 1976; Lawler, E., op. cit., 1976; Berliner, J. "A Problem of Soviet Business Administration." Administrative Science Quarterly, 1, 1956, 86-101.

Implications for Research

The results of these studies seem to indicate that if the performance report provides an accurate reflection of performance (captures the work role), enhancing the individual's ability to achieve the reward, it should be regarded as valid since it will allow the individual to isolate performance areas which need improvement in order to increase the reward. If, however, the performance report is judged to be invalid, in that it does not accurately reflect the individual's performance, then it will be seen as a barrier to obtaining the reward.

RELATIONSHIP G



Overview

Georgopolous, Mahoney and Jones studied differences in productivity employing a path-goal model. Their findings indicated that productivity was a function of path-goal perceptions; the clearer the worker's perception of the path that would result in the reward the higher the productivity. Additionally, those who rated the goal as a high need item

and also had a positive path-goal perception were more productive. Of particular importance was their finding that those who considered themselves free from barriers to performance and had a positive path-goal perception were higher producers than those who were not free from barriers but also had a positive path-goal perception.¹²⁶

Path-Goal Theory

Path instrumentality is the cognition that a particular path (behavior) will lead to a particular outcome. In work individual will estimate the oath the situations instrumentality of a behavior for the accomplishment of some The individual may consider such factors as his work goal. abililty to behave in an appropriate and effective manner, and the support which will be received from others in the Additionally, the accomplishment of the work-goal. individual will consider the barriers that may be present in the enviroment which prevent the accomplishment of the workqoal.

Path-goal theory may be expressed using the following equation: 127

¹²⁰ Georgopoulos, G., G. Mahoney, and N. Jones, Jr. "A Path-Goal Approach to Productivity." Journal of Applied Psychology, December 1957, 345-353.

House, R. "A Path Goal Theory of Leader Effectiveness." Administrative Science Quarterly, 16, 1971, 321-338.

n

P = path instrumentalities of work goal for extrinsic 2i valences

1

attainment

House's research indicated that the behavior of a leader is relevant to all of the parts of the equation since, at least in part, the leader determines the extrinsic reward that should be associated with the work-goal accomplishment. If the outcomes are contingent on an external rewarder, i.e., manager or supervisor, the expectancy assigned by the individual may be less if he perceives the behavior might not be observed or recognized by the rewarder. The leader can help to clarify an ambiguous path-goal relationship, however, by insuring that the individual understands the linkage between the work goal achievement and the reward.120

Implications for Research

These findings, combined with the discussion of prior parts of the model, suggest that if the performance evaluation is judged valid, i.e., provides the positive path-goal linkage then the individual should perceive that improving performance will lead to increased rewards. Furthermore, if the individual rates the reward as a high need satisficer then the link between productivity and the reward becomes stronger. Such a relationship would allow the management accounting control sequence to be used as a positive motivator which could bring about effective performance.

RELATIONSHIP H

Performance will notDecreasedlead to rewardPerformance

Overview

If the performance evaluation is judged invalid in that it does not accurately reflect "true" performance (the work role). then the path-goal perception should be negative.

Negative Path-Goal

A negative path-goal relationship may be perceived by the individual being evaluated if the company is basing rewards on something other than the performance report, but the individual's expectations regarding the outcome ----> reward linkage is based on the performance report. That is, the individual perceives that he cannot increase his reward by improving performance. In this instance, the performance report should be perceived as a barrier to obtaining the reward or should not be deemed instrumental.

If the individual perceives the evaluation to be negative, a barrier to receiving the reward, then there is no incentive to increase performance. Rather, the individual will react in a manner which is contrary to the organizational goals being promoted in the budget via the performance report. In this instance the performance report can not be used as a motivational mechanism since it will promote dysfunctional behavior rather than functional behavior.

Summary

The review and synthesis of the foregoing literature, with respect to the management accounting control sequence, resulted in the development of the theoretical model presented at the beginning of this chapter (Figure 2, p. 23). This model identifies several areas of importance which may be associated with the use of performance reports for evaluation purposes in the organization.

The various components of the model were used to develop the research questions and statistical hypotheses necessary to analyze the effect of using performance reports on attitudes, and in turn, performance. The research questions, statistical hypothesis and methodology are discussed in the next chapter.

CHAPTER IV- FIELD RESEARCH DESIGN

Introduction

Several earlier studies have investigated attitudes toward budgeting, utilizing a field research approach. Due to various limitations of the methods used none of the studies were successful in determining whether functional or dysfunctional behavior resulted from a particular budgetary evaluation approach. Because individual methodologies often suffer from inherent weaknesses that can only be corrected by cross checking with other techniques, this study incorporates methodologies which complement each other.

The overall research design involves a field research approach which employs individual case studies. The case study approach was used to collect observational and archival data that are used to obtain information regarding incidents and history, and informal interviewing was employed to assess the institutional norms and statuses. Additionally, a questionnaire was administered to upper, middle, and lower levels of plant management.

Since the study required a sample with well developed standard cost and performance reporting systems, manufacturing plants in the furniture industry were selected. If a plant under study was a division or segment

larger organization, plant management was defined as of a management structure of the division or segment. the Interviews with corporate management were used to determine individuals considered to be upper. middle and lower plant Other information gathered from corporate management. management included the extent to which accounting numbers pay (salary and bonus). to determine and were used perceptions regarding the appropriateness of using the accounting numbers for performance evaluation purposes.

Case Study Methodology

A case study research design is an appropriate empirical inquiry when the researcher seeks to investigate a contemporary phenomenon within a real-life context where the boundaries between the phenomenon and the context are not clearly evident and where multiple sources of evidence are available. Before deciding whether or not the case study approach should be employed for any research study the researcher should address questions with respect to three fundamental areas:¹²⁷

1. type of research question(s)

¹²⁷ Yin, R. <u>Case Study Research Design and Methods</u>, Beverly Hills, California, Sage Publications, 1984.

- 2. control an investigator has over actual behavioral events
- 3. focus on contemporary or historical phenomenon

The answers to these questions should allow the determination of the most approriate methodologies given the type of research study to be undertaken.

The case study approach is preferrable when the investigator has little control over behavioral events, how and why questions are being posed, and the focus is on contemporary phenomenon within some real-life context. The case study research design has been extensively used in the areas of organizational and management research since the focus of much of this research arises out of a desire to understand a complex social phenomenon. This approach may be employed for exploratory, descriptive, and/or explanatory purposes.

Since the phenomenon under study in this research involves essentially how and why questions regarding a complex contemporary social phenomenon over which the researcher has little control a case study approach appears to be appropriate. An overview of a general case study approach is provided in Appendix A.

The generalizability of a case study is to theoretical propositions rather than to populations thus the researcher

must exercise care from the beginning of the study to insure a valid application of the methodology. To provide the rigor necessary to successfully implement the case study research design four general areas must first be addressed: 130

- 1. The questions to be studied
- 2. The data which will be relevant
- 3. The data which should be collected
- 4. How the results will be analyzed

Once the researcher has answered these general questions the following five components of the research design need to be considered in depth:¹³¹

- 1. Study questions-- who, what, where, why, and how
- 2. Propositions
- 3. Unit(s) of analysis
- 4. Logic linking the data to the propositions
- 5. Criteria for interpreting the findings

The study questions and criteria for interpreting the findings are contained in the research questions and statistical hypotheses section of this chapter. The

130 Ibid.

131 Ibid.

propositions and logical linking of the data to the propositions were provided in Chapter Three with the development of the theoretical model. The units of analysis were manufacturing plants, and within the plants individual department analysis was conducted which resulted in an embedded case study design with multiple cases.

To improve the results and conclusions drawn from the research findings the research design must be employed in a manner which maximizes four aspects of quality;

- 1. construct validity
- 2. internal validity
- 3. external validity
- 4. reliability

Construct validity requires the establishment of the correct operational measures for the concepts being studied. Improving the construct validity of a field research design which employs a case study approach can be achieved by using multiple sources of evidence, having key informants review the evidence, and establishing a chain of evidence. To meet the test of construct validity the researcher must cover two steps; select specific types of changes to be studied, and demonstrate that the selected measures of these changes do indeed reflect the specific types of changes that have been selected.132

The construct validity of this research was enhanced by selecting questions from questionnaires which had been previously used in the organization behavior research area. Additionally, the terminology contained in the questionnaire was reviewed with each Vice President of Manufacturing and Plant Manager to assure that the name used for the performance report was consistent with their employees' term.

Internal validity requires establishing causal relationships whereby certain conditions are shown to lead to other conditions as distinguished from spurious relationships. The internal validity of this study was enhanced by collecting information through both interviews and questionnaires since multiple sources of evidence allows pattern matching based on both sources to insure that the relationships are not spurious.

External validity establishes the domain to which a study's findings can be generalized. Survey research relies on statistical generalizations while the case study relies on analytical generalizations, i.e., generalizing to a broader theory. Additionally, the external validity of the case study design can be improved by studying multiple cases

132 Ibid.

which provides replication. The research design in this study employs both a theoretical model and a questionnaire to enhance its generalizability. Furthermore, the use of multiple cases (four plants) provided the replication needed to judge the external validity of the results.

Reliability demonstrates that the operations of the study can be repeated with the same results. The goal of reliability is to minimize errors and biases in the study. In the case study approach this can be achieved by using a protocol and data base. The case study protocol is a written schedule of how the study is being conducted and should include the following sections:¹³³

- overview of the case study project (project objectives and auspices, case study issues, and relevant readings about the topic being investigated)
- 2. field procedures (credentials and access to case study "sites," general sources of information, and procedural reminders)
- 3. case study questions (the specific questions that the case study investigator must keep in mind in collecting data, table shells for specific arrays of data, and the potential sources of information for answering each question)
- 4. guide of case study report (outline, format for the narrative, and specification of any bibliographical information and other documentation)

133 Ibid.

The case study data base is developed by using multiple sources of evidence including documents and archival records, interviews, direct observation, participantobservation, and physical artifacts. Maintaining or developing a chain of evidence can be enhanced by insuring that the data base is supported by case study notes, documents, tabular materials such as questionnaires, and narratives. The data may then be analyzed by relying on pattern matching, i.e., by relying on theoretical propositions or a theoretical model.

Reliability for this research effort has been provided by the case study protocol and data base shown under sections labled organizational access, interviews, and questionnaire design. Additionally, multiple sources of evidence have been used which included interviews and questionnaires, and the data has been analyzed with respect to the theoretical model developed in Chapter Three.

Figure 3, contained on the following page, was used to conduct the research in the field. This model depicts the sequence of events as well as the groupings employed to analyze the statistical hypotheses.

FIGURE 3- FIELD RESEARCH MODEL



Organizational Acess

The organizations were first contacted by a third party to assess their willingness to participate in the study. Once the organization's interest in participating in the study had been confirmed a package (Appendix B) was mailed to the designated person in the organization giving a general overview of the study.

The contents of the package were developed based on the following strategies suggested for use in conducting field research: 134

- 1. Cover letter-
 - a. identify the researcher, sponsor or organizational affiliation
 - b. identify the study objectives
 - c. assure confidentiality and anonymity of the organization's name in research publications
 - d. separate the researcher from any given source of power inside or outside the organization
 - e. assure the organization that you are not trying to evaluate their effectiveness, i.e., evaluating the effectiveness of the performance report's ability to communicate.
 - f. ask to come for a short visit

¹³⁴ Schatzman, L. and A. Strauss. <u>Field Research-</u> <u>strategies for a natural sociology</u>, Englewood Cliffs, New Jersey, Prentice-Hall, 1973.

- 2. Tentative research schedule-- should indicate
 - a. the length of time required from organizational members
 - b. the types of individuals who may participate in the study
 - c. need for archival data-- will help to understand the magnitude and complexity of the site
 - construct social map- numbers and varieties of people, hierarchical arrangement and division of labor
 - 2. construct spatial map- location of persons, equipment, and specialized centers of work and control
 - 3. construct temporal map- flow of people, goods, services and communications
 - d. a willingness to provide feedback of research results

A few days after the packages were mailed, the companies were contacted via the telephone and times were arranged for interviews. The interviews resulted in narratives (Appendix C) regarding the general management structure and the use of performance report variances for evaluation purposes in each plant.

Interviews

Interviews were conducted with individuals considered to be representatives of corporate management, i.e., president,

vice president of manufacturing, and controller. The interviews were conducted first since this phase of qualitative fieldwork can provide insights and privileged information that can make a major contribution to the development of a meaningful questionnaire. Two other benefits provided by the information gathered during the initial fieldwork phase involve the verification of the importance of the proposed hypotheses, and information which may assist in the analysis and interpretation of the guestionnaire results.

Some of the benefits of fieldwork to questionnaire administration in terms of the analysis and interpretation of the research results involve: 139

- 1. the theoretical structure that guides the analysis can be derived wholly or largely from qualitative fieldwork
- 2. the questionnaire results can be validated, or at least given persuasive plausibility by recourse to observations and informant interviews where informational overlap occurs
- 3. the statistical relationships can be interpreted by reference to field observations
- 4. the selection of questionnaire items for construction of indices can be based on field observations
- 5. the external validation of statistical constructs (indices) is afforded by observational scales

138 Suber, S. "The Integration of Fieldwork and Survey Methods." American Journal of Sociology, 78, 1965, 1335-1359.

- 6. case studies that illustrate statistical and historical types are supported by field protocols
- 7. provocative but puzzling replies to the questionnaire can be clarified by resorting to the field notes

Questionnaires are also needed, in addition to the interviews conducted during the initial phase of the fieldwork, to correct for the elite bias (contact with superiors in the organization and their views) that might occur in the researcher's interpretation of the results. Furthermore, the questionnaire provides information about the interview informant or other subjects that might be overlooked otherwise. The rationale for administering questionnaires with respect to improving the general fieldwork or case study research design involve:¹³⁶

- 1. correction of holistic fallacy-- the tendency of the field observer to perceive all aspects of a social situation as congruent
- 2. demonstration of the generality of a single observation
- 3. verification of field interpretations
- 4. casting a new light on field observations-- illuminate observations that were inexplicable or misinterpreted

The questionnaires were administered on site by the researcher. By administering the questionnaire in the field the researcher knows who should fill out the questionnaire

¹3⇔ Ibid.

based on the network of relationships in the organization and who did in fact fill it out. Additionally, the researcher does not have to deal with non-responses which often occurr with mail surveys.

Questionnaire Design

A general questionnaire was first developed based on the items contained in Appendix D. During the interview phase of the research the questionnaire was reviewed with corporate management. This step was considered necessary to clarify terminology and adjust for any organizational differences. Also, it was essential to insure that the terminolgy regarding the performance report was clear, i.e., that the questionnaire used the term for the performance report that the organization used. This was particularly important since the companies had a variety of performance appraisals and this study was only concerned with accounting performance reports that used variances.

The questionnaires (Appendix E) were administered to the plant managers, middle, and lower levels of management. The questionnaire items were developed by combining items from the Michigan Organizational Assessment Questionnaire

(MOAQ)¹³⁷ and the Perceived Work Environment (PWE)¹³⁹ questionnaire. The items contained in Appendix D have been grouped according to the general areas of demographics, supervisory style, job facets, task and role characteristics, and pay. Additionally, specific items have been added to gather data regarding performance reports.

Research Questions and Statistical Hypotheses

The research questions, statistical hypotheses, and method of analysis are discussed next. Each section is broken down based on the part of the theoretical model to which the research questions and statistical hypotheses relate. Additionally, references are given to the questions used in Appendix D which form the data base.

¹³⁷ Cammann, C., M. Fichman, G. Jenkins, and J. Klesh. "Assessing the Attitudes and Perceptions of Organizational Members." In <u>Assessing Organizational Change: A Guide to</u> <u>Methods. Measures and Practices</u>. S. Seashore, E. Lawler, P. Mirvis, and C. Cammann (eds). New York, New York, Wiley, 1983, 122-138.

¹³⁹ Newman, J. <u>Understanding Employee Reactions to the</u> <u>Work Environment through Personal and Organizational Frames</u> <u>of Reference and Perceptions of the Work Environment</u>. Ann Arbor, Michigan, University Microfilms, 1974 Dissertation, 150-155.

RELATIONSHIP D



Respondents were first grouped according to their perceived equitability of the performance evaluation, equitable vs. inequitable, based on their responses to questions nine, ten, and twelve contained in the task and role characteristics section. Question seven in the supervisory style section was used to classify the respondents into two groups based on whether they perceived their supervisors to emphasize (high use) the performance report variances or not (low use) for performance evaluation purposes. The high vs. low use groupings were then applied in conjunction with the perceived equitability to address the following research question:

1- Is there a difference in perceptions regarding the equitability of the performance report between those who perceive it to be emphasized (important) and those who perceive it not to be emphasized for performance evaluation purposes?

1) HO: EQ = EQ H L

- EQ = perceptions of equitability by those H individuals who indicated high use of the performance report for evaluation purposes on the part of their supervisors
- EQ = perceptions of equitability by those indivi-L duals who indicated low use of the performance report for evaluation purposes on the part of their supervisors

The Chi-Square test of independence was employed to analyze whether there was any relationship between the perceived equitability of the performance report and its perceived importance for performance evaluation purposes.

RELATIONSHIP E



The respondents were first classified according to whether or not they perceived the performance report to be instrumental (positive path) or noninstrumental (negative path) in improving performance based on their responses to questions one and eleven contained in the task and role characteristics section.

The classifications achieved prior to the testing of hypothesis 2, perceived equitable vs. inequitable, were then used in conjuction with the groupings regarding positive and negative path, of the performance report, to test the following research question:

2- Is there a difference regarding the perceived equitability of the performance report between those individuals who indicate a positive path and those who indicate a negative path with respect to the performance report?

- 2) HO: EQ = EQ P N
 - EQ = the positive path performance report P managers' perceptions of the equitability of the performance report
 - EQ = the negative path performance report man-N agers' perceptions of the equitability of the performance report

The Chi-Square test of independence was employed to analyze whether there was any relationship between the perceived equitability of the performance report and the perception of a positive or negative path.

Since the attitudes with respect to a positive or negative path between performance and reward may be affected by many factors as indicated in Chapter Three regarding Relationships A and B the remaining hypotheses in this section are used to cover as many of these variables as were deemed important. These hypotheses will be analyzed using the Wilcoxon rank sum test to determine if differences exist between the groups, i.e., positive vs. negative path.

3- Is there a difference in perceptions regarding task and role characteristics between those who believe the performance report provides a positive path and those who perceive a negative path?

- TRC = the task and role characteristics as
 P perceived by those who believe the
 performance report provides a positive path
- TRC = the task and role characteristics as
 N perceived by those who believe the
 performance report provides a negative path

The responses to questions contained in the task and role characteristics section, except for the questions one,

nine, ten, eleven, twelve, thirteen, and fourteen, and the employee motivation questions, were utilized to determine if there was a difference in perceived task/role characteristics between those individuals who perceived the performance report to provide a positive path and those who perceived a negative path.

4- Is there a difference in the supervisory style of managers, as perceived by their subordinates, who judge the performance report to provide a positive path and those who judge it to provide a negative path?

- 4) HO: SS = SS P N
 - SS = the supervisory style of managers (as
 P perceived by their subordinates) who judged
 their performance report to provide a
 positive path
 - SS = the supervisory style of managers (as
 N perceived by their subordinates) who judged
 their performance report to provide a
 negative path

The subordinates' responses to the supervisory style section, except for questions seven and eight, were analyzed to determine if there was a difference in the perceived supervisory style of managers who were in the positive path group vs. those who were in the negative path group with respect to the performance report.

5- Is there a difference in the employee motivation exhibited by individuals who believe the performance report provides a positive path and those who believe it provides a negative path?

- 5) HO: EM = EM P N
 - EM = the employee motivation reported by those
 P who judged their performance report to
 provide a positive path
 - EM = the employee motivation reported by those
 N who judged their performance report to
 provide a negative path

The responses to the employee motivation questions asked in the task and role characteristics section were investigated to determine if there was a difference in motivation between those who perceived their performance report to provide a positive path and those who perceived it to provide a negative path.

6- Is there a difference in the perceived job facets of individuals who judge their performance report to provide a

positive path and those who judge it to provide a negative path?

- 6) HO: JF = JFP N
 - JF = the job facets as perceived by those who
 P believe the performance report provides
 a positive path
 - JF = the job facets as perceived by those who
 N believe the performance report provides
 a negative path

The responses to the questions asked in the job facets section were analyzed to determine if perceived differences existed with repect to job characteristics between those who were grouped as positive path and those who were grouped as negative path individuals.

RELATIONSHIP F



The positive and negative path groupings achieved in the analysis of Relationship E were utilized in conjunction with the respondents perceived pay-performance linkage, based on questions thirteen and fourteen in the task role characteristics section and question eleven in the pay section, to assess the following research question:

7- Is there a difference in the perceived pay-performance linkage between those individuals who deem their performance report to provide a positive path and those who deem it to provide a negative path?

- 7) HO: PP = PP P N
 - PP = the pay-performance linkage reported by those
 P who judged their performance report to
 provide a positive path

PP = the pay-performance linkage reported by those
 N who judged their performance report to
 provide a negative path

The pay-performance linkage between the positive path and the negative path individuals were analyzed using the Wilcoxon rank sum test to determine if differences existed between the groups.
RELATIONSHIP G AND H



The classifications achieved in analyzing Relationship E, positive or negative path, and Relationship F, payperformance linkage, were used together with the performance rankings, questions one and two of the performance section, to assess the following research questions:

8- Is there a difference in the performance of departments whose supervisors perceive the performance evaluation to provide a positive path and those who perceive it to provide a negative path?

- 8) HO: PR = PR P N
 - PR = the performance of the departments whose
 P managers judged their performance report to
 provide a positive path

PR = the performance of the departments whose
 N managers judged their performance report to
 provide a negative path

9- Is there a difference in the performance of departments whose supervisors perceive a strong pay-performance linkage and those who perceive a weak pay-performance linkage?

- 9) HO: PR = PR SPP WPP
 - PR = the performance of the departments whose SPP managers perceive there is a strong relationship between pay and performance
 - PR = the performance of the departments whose WPP managers perceive there is a weak relationship between pay and performance

The performance of departments was investigated in the above two hypotheses using the Wilcoxon rank sum test to determine if there were any differences in the performance of departments whose managers;

- 1. judged their performance report to provide a positive path and those who judged it to provide a negative path
- 2. perceived a strong relationship between pay and performance and those who judged the relationship to be weak

The performance of the departments was determined by

asking the superiors to rank their own performance as well as that of their subordinate departments.

Summary

The use of interviews and questionnaire items with demonstrated reliability and validity should enhance the construct validity of this study. Since the development of the theoretical model preceded the fieldwork and rigorous attention was paid to specifics in using the research design and individual case studies, the reliability for this study should be reasonably good. Furthermore, the administration of questionnaires, in addition to interviews and observation, and formal hypothesis testing should provide generalizability of the findings to the proposed theoretical model.

CHAPTER V- ANALYSIS AND INTERPRETATION OF RESULTS

Introduction

This study was designed to test the effectiveness of evaluating performance with performance report variances. It was hypothesized that those individuals who felt the performance report was equitable would have a positive path and deem the performance report instrumental to improving performance and increasing their reward which, in turn, would improve performance. On the other hand it was hypothesized that those individuals who felt the performance report was inequitable would have a negative path and deem the performance report not instrumental for improving performance and their reward; thus they would not strive to improve their performance.

The four plants studied, two from Company A and two from Company B, were part of the furniture industry within the same geographic area and therefore faced very similiar external environments. Although the internal environments may have varied slightly it is the researcher's belief, based on interviews with corporate management and on-sight visits, that the management styles of the plant managers were very similiar and that the performance reports were used in essentially the same way for the same purpose, i.e., to evaluate performance and award bonuses. Furthermore, 101 the departments investigated tended to be production departments which were highly standardized and had used standard costs for some time. As a result, the management teams were very familiar with standards and variances.

These plants would also be considered to be under a tight monitoring system via the performance reports since corporate management received daily information and plant managers received daily and/or weekly information. Additionally, the plant managers held weekly meetings with their management teams to discuss the variances and other production problems. The atmosphere at these meetings was very warm and friendly, and seemed to employ a highly democratic and open process with respect to management problems.

Due to the similiarities of the four plants the data was pooled for the statistical analysis of the hypotheses contained in this chapter. Since, however, the case methodology was employed to assess the reliability and validity of the results through replication, each plant was analyzed on an individual and pooled company basis before all of the data was pooled. The individual and pooled company results with respect to the hypotheses and additional tests can be found in Appendices F-I.

The following section presents the results of the statistical analysis pertaining to the hypotheses presented

in Chapter Four.

Hypothesis One

This hypothesis dealt with perceptions regarding the equitability of the performance report as related to its perceived importance (high or low use) for performance evaluation purposes. First the respondents were grouped on question 4, "my supervisor stresses the monthly production schedule (or variances from the allowed standard) when evaluating my performance" (all questions came from Appendix E). If the respondent answered between 1-3 on this question he was placed in the high use group, if on the other hand the respondent answered between 5-7 he was placed in the low use group. Individuals who responded to the question by answering N (neither agreed nor disagreed) were eliminated from this part of the analysis.

The two groups, high vs. low use, were then analyzed based on their responses to questions 26 (Q26A) and 33 (Q33A) using the Chi-Square test of independence (Table 1). Due to the small number of respondents within three cells the null hypothesis concerning questions 26 and 33 could not be accepted or rejected.

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PHI CONTINGENCY	COEFFI	ICIENT		0.394 0.367		
CRAMER'S V				0.394		
SAMPLE SIZE	- 51					

TABLE ONE- HYPOTHESIS ONE, POOLED DATA

another and therefore independent observations do not exist no statistical test is available, known to this researcher, to make comparisons regarding their responses. The data gathered, however, contained several questions which may provide important insights regarding superior and subordinate perceptions which were analyzed visually. With respect to Hypothesis One the following two important questions were analyzed in this manner:

- 4. My supervisor stresses the monthly production schedule (or variances from the allowed standard) when evaluating my performance.
- 18. I emphasize the monthly production schedule (or variances from the allowed standard) when evaluating my subordinates' performance.

Matching the superior's response to question 18 against his subordinate's response to question 4 with respect to each plant suggests that, for the most part, superiors and subordinates were in agreement regarding the extent to which variances were used for evaluation purposes (for more information see Appendices F-I). The two negative path to these individuals, however, had responses mixed One of the respondent's indicated that his questions. supervisor did not use variances, for performance evaluation purposes, while his supervisor specified that he did use The other respondent and his supervisor were in them. agreement regarding the extent to which performance report

variances were used for performance evaluation purposes.

Additionally, looking at the individual responses to question 4 across all the plants revealed that, generally, individuals responded by answering 2 or 3 which implies that the performance report variances were perceived to be relied on by supervisors for performance evaluation purposes to a high degree. This finding supports Govindarajan's contention that in low uncertainty environments managers resort to the use of formula-based evaluation measures.¹³⁹

Reviewing the managers' responses to question 26 (performance report is a good way to measure my performance) denotes that they responded ordinarily with either a 1 or 2 light of which means they agreed with the statement. In the responses to questions 4 and 26 it appears reasonable to suggest that the performance report variance evaluation is an accepted method by superiors and subordinates and they considered it to be fair. These conclusions are in agreement with Bruns and Waterhouse's contention that if the evaluation methods are accepted and supported they will be viewed positively. 140

Hypothesis Two

Hypothesis two was concerned with the perceptions

Govindarajan, V., op. cit., 1985.
 Bruns, W. and J. Waterhouse, op. cit., 1975.

regarding the equitability of the performance report with respect to whether or not the individual perceived a positive or negative path.

First the respondents were grouped according to their responses to questions 24 and 25:

- 24. The monthly production schedule (or the variances from the allowed standard) helps me figure out where I need to improve performance.
- 25. The monthly production schedule (or the variances from the allowed standard) helps me improve my performance.

If the respondent's answers to these questions totaled 7 or less he was placed in the positive path group and if the answers totaled 9 or more he was placed in the negative path group. A total of 8 indicated that the individual neither agreed nor disagreed and the individual was discarded from this part of the analysis. Next the two groups', positive and negative path, responses to questions 26 and 33 were analyzed using the Chi-Square test of independence (Table 2).

Due to the small number of repondents within three cells the null hypothesis concerning questions 26 and 33 could not be accepted or rejected.

A review of the managers' responses to question 33 (report fair), however, infers that, for the most part, they answered either 1 or 2 which means they agreed with the

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TABLE TWO- HYPOTHESIS TWO, POOLED DATA

statement, i.e., they perceived the performance report to be Additionally, scanning questions 43 equitable. (satisfaction with the performance report), 29 (importance of the performance report), and 53 (importance of the performance report for pay) reveals that managers across plants, usually, assigned high values, such as 5, 6, or 7 to These comparisons suggest that the these questions. managers viewed the performance report as fair; they were satisfied with it; and they believed it was important to them and their pay. Thus, it appears that the goals being put forth by the performance report are perceived to be fair, important, accepted, and understood by managers in these plants. As Locke suggests positive attitudes toward the performance evaluation method will affect performance attitudes positively.141

Hypothesis Three

Hypothesis three dealt with the perceived differences regarding task role characteristics amongst those individuals who perceived a positive path and those who perceived a negative path.

The classifications formed for hypothesis two, positive path vs. negative path, were analyzed using the Wilcoxon rank sum test with respect to questions 5, 7, 8, 9, 10, 11,

141 Locke, E., op. cit., 1968.

14, and 23 (Table 3). The null hypothesis could not be rejected based on the responses to any of these questions. Therefore, the task role characteristics do not appear to affect the individual's perception of a negative or positive path as related to the performance report variances.

Examining the managers' responses to questions 8 (goals), 9 (understand goals), and 10 (goals fair) indicated that the responses across plants tended to be either 1's or 2's which suggests that the managers agreed with these statements. As Kenis maintains goal clarity seems to be important to job satisfaction and attitudes toward the performance evaluation measure.¹⁴² Thus, it would appear that the performance reports being used by these companies are considered by their employees to communicate the goals clearly and be fair. This perception relative to the theoretical model should result in a positive path which was supported since the overwhelming number of respondents in this study indicated a positive path.

Hypothesis Four

Hypothesis four dealt with the supervisory style which was perceived to be used by those individuals who deemed the performance report to provide a positive path and those who deemed it to provide a negative path.

142 Kenis, I., op. cit., 1979.



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The positive and negative groups were compared with respect to questions 1, 2, 3, 6, 12, 13, 15, 16, 17, 19, 20, 21, and 32 using the Wilcoxon rank sum test (Table 4). The null hypothesis could not be strongly rejected except for question 15 (.0422). The results of the analysis on question 15 indicated that those individuals who perceived a negative path also tended to disagree with the statement that their supervisor asked for advice when making decisions that concerned them.

Question 16 (.0632), and question 20 (.07), also seem to indicate that some relationship exists. Regarding question 16, it appears that those individuals who perceived a negative path were more likely to agree strongly with the statement that they had a chance to take part in deciding what the work methods, procedures, and goals would be on their job.

Additionally, the individuals who perceived a negative path also inferred that the company did not set high performance goals (Q 20). On the other hand the positive group generally indicated that the company did set high performance goals. Thus, it appears that the perceived supervisory style has some impact, although limited, on the individual's perception of a negative or positive path associated with the performance report variances.

TABLE FOUR- HYPOTHESIS FOUR, POOLED DATA

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Hypothesis Five

Hypothesis five compared the motivation of individuals who perceived a positive path to the motivation of those individuals who perceived a negative path.

The positive and negative groups were compared with respect to questions 29, 30, 31, 36, and 37 using the Wilcoxon rank sum test (Table 5). Only Question 37 (.0939), however, seems to signify that some relationship exists. Individuals who perceived a negative path responded that they were less concerned about the performance report variances than those individuals who were on a positive path.

A review of the responses to questions 29, 30, 31, 36. and 37 reveals that managers across plants usually assigned a value of 1 or 2 to these questions suggesting high amounts of motivation. Assessing these motivation responses can be better understood by incorporating the responses to question 16 (participation), also generally answered with either a 1 or 2 which implies they felt they were particpating, and to which they reported high use of the question 4 performance report. These results suggest that high amounts perceptions of associated with motivation were of participation and importance of the performance report. This conclusion is also supported by prior research findings

TABLE FIVE- HYPOTHESIS FIVE, POOLED DATA

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which contended that high usage of performance evaluation measures and increased participation were related to positive motivation.¹⁴³

Hypothesis Six

Hypothesis six compared the perceived job facets of those individuals in the positive path group against those in the negative path group.

The positive and negative classifications were compared based on the responses to questions 34, 35, and 38 - 52 using the Wilcoxon rank sum test (Table 6). The null hypothesis could not be rejected except for question 35. Those individuals denoting a negative path tended to perceive that the amount of their year-end bonus was not determined by the performance report variances while those on the positive path indicated the opposite.

Hypothesis Seven

Hypothesis seven dealt with the pay-performance linkage perceived by individuals who reported a positive path and those who reported a negative path.

The positive and negative groups were compared with respect to questions 27 and 28 using the Wilcoxon rank sum

¹⁴³ Collins, F., R. Seiler, and D. Clancy, op. cit., 1984; Searfoss, D., op. cit., 1976; Searfoss, D. and R. Monczka, op. cit., 1973.

TABLE SIX- HYPOTHESIS SIX, POOLED DATA

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TABLE SIX- continued

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TABLE SIX- continued

test (Table 7). The null hypothesis could not be rejected regarding either of the questions. The results of this analysis seem to imply that the perceived strength of the pay-performance linkage is not affected by the individual's perception of a negative or positive path.

Hypothesis Eight

Hypothesis eight investigated the perceived performance (self-reported) of managers who were on the positive path against those who were on the negative path.

The positive and negative groups were compared with respect to question 61 using the Wilcoxon rank sum test (Table 8). Since the p value was equal .0562 it suggests that the perceived performance differs between those on the positive or negative path. Concerning question 61, a visual inspection of the data reveals that those individuals on the negative path tended to rank their performance as average, while those on the positive path tended to rank their performance above average.

Hypothesis Nine

Hypothesis nine compared the perceived performance of those managers who reported a strong pay-performance linkage against those who reported a weak pay-performance linkage.

TABLE SEVEN- HYPOTHESES SEVEN, POOLED DATA

ANALYSIS FOR VARIABLE 927 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES MERE USED FOR TIES

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•

MILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF Scores	EXPECTED Under Ho	STB DEV Under Ho	NEAN
NEG POS	2 66	102.50 2243.50	69.88 2277.88	24.17 24.17	51.25 33.99
	WILCOXON 2-SA (MITN CONTINU S= 102.50	TTY CORRECT Z= 1.3653	NORMAL APPI Ion of .5) Prob	IOXIMATION) > 2 =0.1722	
	T-TEST APPROX	. SIGNIFIC	NCE=0.1767		
	ERUSEAL-MALLIS CHISEP 1.92	S TEST (CH)	-SQUARE APP	ROXIMATION) CHISG+0.1658	

ANALYSIS FOR VARIABLE Q28 CLASSIFIEB BY VARIABLE ORDUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANE SUNS)

LEVEL	. 1	IUN OF 1	EXPECTED ANDER NO	STO DEV Under No	MEAN SCORE		
NEO POS	2 66 21	72.50 273.50	69.88 2277.88	26.00 26.00	36.25 34.45		
	NILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S# 72.50 Z= 0.1154 PROB >{Z =0.9081						
	T-TEST APPROX. SIGNIFICANCE+0.9085						
	ERUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.02 DF+ 1 PROB > CHISQ+0.8929						

TABLE EIGHT- HYPOTHESES EIGHT, POOLED DATA

AMALYSIS FOR VARIABLE 061 CLASSIFIED BY VARIABLE OROUP AVERAGE SCORES HERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF	EXPECTED UNDER HO	STO DEV Under Ho	NEAN	
NEG POS	2 64	19.00 2192.00	67.88 2144.89	24 . 87 24 . 87	9.50 34.25	
	WILCOXON 2-SAMPLE TEST (MORMAL APPRGXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 19.88 Z=-1.9097 PROB >[Z]=8.9562					
	T-TEST APPROX.	SIGNIFICA	NCE=0.9696			
	ERUSRAL-MALLIS CHISQ= 3.72	TEST (CHI DF+ 1	-SQUARE APP PROB >	ROXIMATION) CHISQ=0.0536		

First the respondents were grouped according to their pay-performance linkage based on the following questions :

- 27. If I do a better on my monthly production schedule (or I improve on the variances allowed from the standard) my salary and or bonus will increase.
- 28. I can use the monthly production schedule (the variances allowed from the standard) to improve my performance and increase my salary and or bonus.

Those individuals whose answers totaled 7 or less were classified as the strong pay-performance group (SPP), and those whose answers totaled 9 or more were classified as the weak pay-performance group (WPP). Individuals whose answers totaled 8, indicating that they neither agreed nor disagreed with these statements were dropped from this part of the analysis.

The two groups, SPP and WPP, were compared with respect to questions 61 and 62 using the Wilcoxon rank sum test (Table 9). The null hypothesis could not be rejected for either of the questions.

Reviewing the responses of the negative path individuals, however, provides some information of additional interest. One of the individuals perceived a WPP linkage and also reported he was dissatisfied with his pay (question 44), and was not likely to get a bonus (question 46). This response would be anticipated theoretically since an individual with a WPP linkage would not be expected to

TABLE NINE- HYPOTHESES NINE, POOLED DATA

ANALYSIS FOR VARIABLE OGI CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES MILCOXON SCORES (RANK SUNS) STD DEV UNDER HO SUM OF EXPECTED UNDER NO MF AM SCORE LEVEL 45.73 34.85 2077.00 269.00 2104.50 241.50 61 MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 269.00 Z= 0.5904 PROB >121=0.5549 T-TEST APPROX. SIGNIFICANCE+0.5549 ERUSRAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.36 DF= 1 PROB > CHISQ=0.5476 CHISQ. 0.34 ANALYSIS FOR VARIABLE 06200 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES NILCOXON SCORES (RANK SUNS) SUM OF EXPECTED STE DEV REAN LEVEL SCORES UNDER NO UNDER NO SCORE 2122.50 292.50 2178.00 245.00 62 47.35 34.23 MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 292.50 Z= 0.9926 PROB >|2|=0.3289 T-TEST APPROX. SIGNIFICANCE+0.3244 ERUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 1.01 DF= 1 PROB > CHISQ=0.3158

perceive a strong connection between pay based on the performance report variances and performance.

The other negative path individual, however, seemed to switch paths since he indicated that he had a SPP linkage. This response seems unusual since the company was basing pay on the performance report variances and this individual did not seem to perceive that relationship, i.e., was on a negative path, but did perceive a strong relationship between pay and performance. It is possible that this individual believes that the company is not using the variances in fact to reward performance.

Selecting the highest performing departments, as signified by the plant manager (response to Q 62 of 5), and then matching the perceived pay-performance linkage of the departments' supervisors reveals that they responded to questions 27 and 28 with either 1's or 2's which infers they had a SPP linkage. This finding is in agreement with Cherrington and Cherrington's research which concluded that the best performers perceived a strong relationship between good performance and the attainment of the reward.¹⁴⁴

Summary of the Results

Although the hypotheses for research questions one and two could neither be accepted nor rejected due to the lack

*** Cherrington, D. and J. Cherrington, op. cit., 1973.

of observations in certain cells reviewing some of the responses to the questions does give an indication of the relationships that seem to exist. Generally the superiors and subordinates were in agreement regarding the extent to which performance report variances were used.

Additionally, a Randomized Complete Block (RCB) design was used to investigate whether the performance rankings (G62) assigned differed across managerial levels. This method was employed since previous questions regarding managerial level differences could not be assessed due to limited data and nonindependent observations. Enough data existed within this instance, however, to employ the RCB using managerial levels as the treatments and blocking on departments. The results of this analysis revealed that in most instances the performance rankings assigned for each department by the superior and the subordinate did not differ significantly (Appendices F-I).

Next a RCB design analysis was utilized pertaining to questions 1-53, again the departments served as blocks and the managerial levels were the treatments. The results suggest that a great deal of agreement existed with respect to the responses on the questionnaire items. Additionally the data was analyzed with Duncan's Multiple Range Test to determine where differences existed (Appendices F-I). As one might expect the differences in attitudes which occurred

were more noticeable if the managerial levels were farther removed from each other, i.e., plant manager vs. assistant departmental supervisor, then when they tended to be closer in the hierarchy such as departmental and assistant supervisor. Thus, it appears that the management groups in these plants are relatively homogeneous with respect to their attitudes.

The null hypotheses for research questions three (task role characteristics), five (motivation), seven (payperformance linkage), eight (self reported performance), and nine (SPP vs. WPP) could not be rejected.

Reviewing the responses of the negative path individuals, on questions which approached statistical significance, does suggest that they tended to assign themselves a ranking which was somewhat different from the positive path groups since the p value equalled .0562. Those individuals on the negative path also reported a difference relative to the performance report variances since the p value was equal to .0939, i.e., they were less concerned with it than their counterparts.

The analysis of research question four, supervisory style, received some support since question fifteen rejected the null hypothesis at p equal to .0422, indicating that those individuals on the negative path perceived their

supervisor to ask for less advice. There were also some differences with respect to questions 16 (p .0632) and 20 (p .07) which implied that those on the negative path felt that they participated but that the company did not set high performance goals.

The analysis of hypothesis six (job facets) could not be rejected except for question 35. That is, the individuals on the negative path, unlike their counterparts on the positive path, signified that the amount of their year-end bonus was not determined by the performance report variances (Q35).

Interpretation of Results

These results appear to imply that the use of performance report variances to communicate information regarding performance is working reasonably well in these plants. Although the flow of the performance report information is constructed in a manner which maximizes the flow of information upward and minimizes the flow downward as has been suggested by prior research¹⁴⁹ it does not seem to have hampered the efficiency of the communication with respect to performance. Furthermore, the managers seem to be, for the most part, well aware that their bonus is tied

Markus, M. and J. Pfeffer, op. cit., 1983.

to controlling the performance report variances. Therefore, it is not suprising that 66 out of the 68 respondents were classified as having a positive path in relation to the performance report variances, i.e., they do not perceive the performance report to be a barrier to obtaining the reward (bonus).

Those individuals on a negative path, also perceived some differences regarding supervisory style. This finding is, however, supported by research previously cited by House since one of the roles of the leader is to clarify the path.¹⁴⁴ In this study, apparently for the negative path individuals the supervisor was not helping them understand the importance of the performance report variances and their impact on bonus and pay.

As was suggested in Chapter Three, the more predictable or standardized a task the more management accounting data will be able to measure the task performance. Since the tasks, of the managers who responded to this questionnaire, have been subject to standards for several years and are relatively predictable it stands to reason that most of them would fall into the positive path category. These favorable attitudes toward the performance report evaluation system are also in line with prior research which indicated that the frequency and clarity of the feedback was associated

House, R., op. cit., 1971.
with positive job performance147 and positive attitudes.148

Although the research findings suggest some support for the theoretical model, the implications must, however, be interpreted cautiously due to the small number of respondents involved. The chi-square tests of independence provide little insight due to the lack of cells or the small number in several cells. Since the Wilcoxon rank sum tests were performed with only two individuals in the negative path group and sixty-six in the positive path group, it is difficult to determine how representative the negative path individuals' perceptions are in general.

A discussion of these results in comparison to Hopwood, Otley, and Brownell's findings is presented in the next chapter along with the study's limitations and avenues for future research.

Lawler E., op. cit., 1976.
 Hofstede, G., op. cit., 1968.

CHAPTER 6- DISCUSSION OF RESEARCH RESULTS, LIMITIATIONS AND AVENUES FOR FOR FUTURE STUDY

Introduction

The purpose of this chapter is to compare the study's results, with respect to Hopwood, Otley and Brownell's studies, along with its limitations and implications for future research. Since the previous studies left open the question of whether or not the use of accounting data promotes functional or dysfunctional behavior, the results of this research provide a significant contribution with respect to clarifying the earlier studies' findings.

Discussion

Hopwood's research indicated that evaluation methods which focused on the budget were believed to be less fair by managers. Additionally, those managers who were evaluated under constrained budget styles experienced less favorable relations with superiors and subordinates, misunderstood the importance of the budget in their performance evaluation, and experienced less goal clarity.¹⁴⁹ Otley, like Hopwood, found that there appeared to be a lack of congruence between middle and lower level managers' perceptions regarding how

Hopwood, A., op. cit., 1972.

they were evaluated and upper level mangers' perceptions of how they evaluated performance.

Furthermore, Otley found that managers who disagreed with the appropriateness of the evaluation being used reported increased job tension, and managers who were evaluated under the constrained budget style experienced more job ambiguity. Brownell's study indicated that high performance was associated with decreased budget emphasis, and increased budget emphasis resulted in increased job satisfaction.

research contained in this results of the The dissertation tend to confirm and/or disconfirm many of these orevious findings. The use of performance reports were perceived to be fair by the managers in this study unlike Additionally. the use of the Hopwood's. those in performance reports for evaluation purposes did not result favorable relations between superiors and in less subordinates. This may be due to the fact that the managers in this study, unlike those in Hopwood's, agreed regarding the importance attached to the performance report with respect to their performance evaluation. The managers in this study also agreed that the performance report variances were used to determine their bonus and salary, and for the most part indicated a high use of the performance report.

Unlike Otley's results this study indicated that

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superiors and subordinates were well aware of how they were evaluated and how they evaluated their subordinates. Additionally, the managers in this study felt that the performance report was an appropriate way to measure their performance. Since they believed the performance report was appropriate and equitable this may be the reason that these managers, unlike Hopwood and Otley's, did not perceive their jobs or goals to be ambiguous. The current study, like Brownell's, found that the use of the performance report for performance evaluation purposes was satisfactory to the managers.

Possible Implications

In general, the results of this study combined with the prior findings would seem to indicate that the use of performance report variances for evaluation purposes promotes functional behavior under the following circumstances:

- 1. Managers are in agreement regarding how they evaluate and how they are evaluated
- The performance report is perceived of as appropriate and fair
- 3. Managers understand that their reward is tied to their performance as indicated by the performance report variances, i.e., they understand the importance attached to the performance report variances
- The jobs or goals promoted by the performance report are not ambiguous

Thus, it appears that the communication process is crucial to the success of using performance report variances for the promotion of functional behavior, i.e., effective performance. These generalizations would appear to be reliable from the standpoint that the plants' data were analyzed on an individual basis with essentially the same results four times.

These possible implications are also supported by the work of previous researchers who found that organizational performance was positively related to the acceptance of the performance evaluation measures employed,¹⁶⁰ and the more the variances were perceived to be used in performance evaluation the higher the positive motivation.¹⁵¹

Limitations

A major limitation of this study was the small number of respondents on the negative path. As a result, little can be said regarding the generalizability of the negative path individuals' responses. These individuals did, however, indicate that they had less favorable relations with supervisors and felt the performance report variances were not as important in determining their bonus as compared to individuals on the positive path.

¹⁵⁰ Bruns, W. and J. Waterhouse, op. cit., 1975.
¹⁵¹ Collins, F., R. Seiler, and D. Clancy, op. cit., 1984.

Another limitation is that comparisons between supervisors' perceptions and subordinates' perceptions had to be done visually rather than analyzed statistically. Since a superior in one instance is a subordinate in another (not independent observations) to my knowledge there exists no statistical technique to analyze such data.

Additionally, many of the null hypotheses could not be rejected. This may have been due to the fact that the variables were not defined narrowly enough. It appears that many of the questions did not have any impact upon the determination of a positive or negative path. The variables which would have no influence, however, would have been difficult to determine prior to the study. The wealth of questions did allow the researcher to see where similarities and differences existed with regard to a variety of dimensions and make several interpretations which would not have been possible without the additional data.

Contribution and Avenues for Future Study

A major contribution of this research is the development of a theoretical model of the expected behavior of managers who were evaluated using performance report variances. Based on the results of this study it seems reasonable to suggest that the positive side of the model appears to have been working as hypothesized. Thus, it would appear useful for future researchers in this area to develop and employ

theoretical models.

Additionally, it appears that conflicting results from prior research may have been due, in part at least, from different meanings attached to the word "budget". Based on the results of this research it seems reasonable to suggest that future researchers should attempt to define the measure of interest, such as performance report variances, as narrowly as possible to insure that respondents are addressing the area that is of interest to the researcher.

Furthermore, based on the results of this study it also seems reasonable to suggest that future researchers try to more narrowly define the variables which affect the performance report.

Although this research has important implications for the use of accounting performance evaluation measures, such as insuring that the information is communicated adequately, goals are unambiguous, and management is in agreement regarding their use, much work is still left to be done.

A possible avenue for future research might be to take the theoretical model developed in this dissertation and work backwards. Since this study's results indicate that there are positive and negative paths associated with the performance report variances a questionnaire could be designed and administered in an organization to separate those individuals who indicate a positive path and those who

indicate a negative path. Once these two groups were segregated, questionnaires could be designed to ascertain what items with respect to the performance report might cause an individual to have a negative path or positive path.

Additionally, more work needs to be done regarding the effectiveness of various methods of communicating the performance report information and the impact of leadership styles on the acceptance or rejection of the performance report variances.

Information provided by this type of research is important since it will provide feedback for companies in terms of how to communicate their evaluation techniques effectively. Additionally, it will help companies with respect to the types of evaluations which should be used to promote improved performance.

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APPENDIX A- CASE STUDY DESIGN FLOWCHART

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CASE STUDY DESIGN FLOWCHART

APPENDIX B- PRE-INTERVIEW PACKAGE

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Dear _____,

I am a Ph.D. student, in accounting, at Virginia Polytechnic Institute and am writing you at the suggestion of ________ who indicated that your company might be interested in participating in a study that I am conducting. My study focuses on the effectiveness of accounting numbers in communicating performance evaluation information. Of particular interest to me are performance reports which compare budgeted to actual results and provide variance information to the users. I would like to stress, however, that this study will not require access to any of your accounting information. I am not interested in looking at the numbers but rather at the process.

I would be pleased to meet with you to discuss this study in more detail. Since every organization is different I feel it would be very beneficial if we could get together for an initial meeting so that you might familiarize me with your comany, in general. Additionally, I have enclosed a copy of a questionnaire which I am considering using, and a tenative schedule of the study process. I would like to take this opportunity to assure you that if your company participates in this study the written results will fully generalize findings and mask the identities of individuals and the company for everyone's protection.

At the conclusion of the study I would be happy to prepare a report of the pertinent findings for you and any others you designate. I look forward to speaking with you in the near future regarding your company's participation in this study. Thank you for your time and consideration.

Sincerely,

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Leslie W. Weisenfeld

Tentative Study Schedule

1. Meet with _____ - discuss a. general organizational climate

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- b. study approach and convenient times to visit
- c. use of company documents such as organizational charts and job manuals etc.
- d. who will particpate in the study either through interviews and/or questionnaires
- e. the performance evaluation process
 - 1. the extent to which accounting numbers are used
 - 2. the extent to which pay is tied to performance as determined by the accounting numbers
 - the extent to which managers participate in the process
- Preparation of organizational performance evaluation report (which uses accounting data) flowchart and performance report climate chart* based on
 - a. use of company documents agreed upon in step 1

b. interviews with individuals determined in step 1

- Administration of questionnaire to individuals as determined in step 1 and 2 (estimated time 1 hour)
- 4. Data analysis
- 5. Discussion of results and written report

*hypothetical performance report climate chart attached



Hypothetical Performance Report Climate Chart

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For di	- the following statements indicate ho sagree with each statement using the foll	W OWİ	muc ng	h y scal	vou e	agr	ee or		
1 = 2 = 4 =	Strongly Agree (SA)6 = Disagree (D)Agree (A)7 = Strongly Disagree (SD)Neither Agree or Disagree (N)								
		1	2	3	4	56	7		
1.	Praise is given for doing a good job	SA	A		N	D	SD		
2.	I can speak frankly with my supervisor	SA	A		N	D	SD		
3.	I can count on my supervisor to back me up	SA	A		N	D	SD		
4.	My supervisor stresses variances from the allowed standard when evaluating my performance	SA	A		N	D	SD		
5.	On my job, most of my tasks are clearly defined	SA	A		N	D	SD		
6.	I understand what my supervisor expects of me	SA	A		N	Ø	SD		
7.	Just doing my job gives me many chances to figure out how well I am doing	SA	A		N	D	SD		
8.	There are goals set for my job	SA	A		N	D	SD		
9.	I understand the goals set for my job	SA	A		N	D	SD		
10.	The goals set for my job are fair	SA	A		N	D	SD		
11.	The arrangement of people and equipment is right for my job	SA	A	1	N	D	SD		
12.	My supervisor is flexible when necessary	SA	A	1	N	D	SD		
13.	My supervisor's evaluation of my performance is very general and personal	SA	A	1	N	D	SD		
14.	I usually know whether or not my work is satisfactory on this job	SA	A	1	N	D	SD		
15.	My supervisor asks for advice when making decisions that concern me	SA	A	1	N	D	SD		
	• • • • • • • • • • • •								

16. I have a chance to take part in

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	deciding what the work methods. procedures and goals will be on my job	SA	A	N	D	SD
17.	My supervisor emphasizes the quality of my production	SA	A	N	D	SD
18.	I emphasize the variances from the allowed standard when I evaluate the performance of my subordinates	SA	A	N	Ø	SD
19.	On my job there are always deadlines and tight schedules	SA	A	N	D	SD
20.	The company sets high performance goals	SA	A	N	D	SD
21.	I feel alot of pressure to produce	SA	A	N	D	SD
22.	Considering my skills and the effort I put into my work I am very satisfied with my annual compensation	SA	A	N	D	SD
23.	I have the type and amount of equipment and supplies I need for my job	SA	A	N	D	SD
24.	Knowing the variances from the allowed standard helps me figure out where I need to improve performance	SA	A	N	D	SD
25.	Knowing the variances from the allowed standard helps me improve my performance	SA	A	N	D	SD
26.	Variance from the allowed standard is a good way to measure my performance	SA	A	N	Ø	SD
27.	If I improve on the variances allowed from the standard my year end bonus wil increase	1 5A	A	N	Ø	SD
28.	I can use the variances allowed from the standard to improve my performance and increase my year end bonus	SA	A	N	D	SD
29.	I try hard to get ahead on my job	SA	A	N	D	SD
30.	I am concerned about the quality of my work.	SA	A	N	D	SD
31.	I am interested and deeply involved in my work	SA	A	N	D	SD
32.	My supervisor emphasizes the quantity of my production	SA	A	N	D	SD

33.	. The variances from the allowed standa used for my job are fair	ard	SA j	A	N		D	SD
34.	My salary and bonus depends on how well I perform	:	5A /	9	N		ם	SD
35.	The amount of my year end bonus is determined by the variances from the allowed standard	S	5A A	÷	N		D	SD
36.	I am concerned about the quantity tha I produce	it s	5A 4	•	N		D	SD
37.	I am concerned about the variances fr the allowed standard	o m 5	SA A	•	N		D	SD
For you	the following questions indicate how using the following scale.	1 MPC	orta	Int	the	ite	m :	is to
	1 = Unimportant (U) 4 = Important (I) 7 = Very Important (VI)							
		1	2	3	4	5	6	7
38.	The fringe benefits you receive	U			I			VI
39.	The variances from the allowed standard	U			I			٧I
40.	The amount of salary and bonus you get	U			I			VI
41.	The amount of job security you have	U			I			VI
For the	the following questions indicate how item using the following scale	sat	isf	i eđ	you	ar	.6	with
1 = 2 = 4 =	Very Dissatisfied (V) Dissatisfied (DS) Neither Dissatisfied or Satisfied (N)	6 = 7 =	Sa Ve	tis: ry :	fied Sati:	(S) sfie	d	(VS)
		1	2	3	4	5	6	7
42.	The fringe benefits you receive	v	DS		N		S	vs
43.	The use of variances from the allowed standard	v	DS		N		S	vs

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44. The amount of salary and bonus V DS N S VS vou get V DS S VS N 45. The amount of job security you have For the following questions indicate how likely it is that these items would occur if you performed your job especially well using the following scale 1 = Not At All Likely (NL) 4 = Likely(L)7 = Extremely Likely 1 2 3 4 5 6 7 EL L 46. You will get a year end bonus NL 47. You will be given chances to learn EL L NL new things For the following items indicate how important they are for determing salary and bonus with your company using the following scale 1 = Unimportant (U)4 = Important (I)7 = Very Important (VI) 1 2 3 4 5 6 7 VΙ I U 48. Your training and experience VI I 49. The quality of your job performance U I VI U. 50. The quantity of your performance 51. The quality of your work group's I VI u performance 52. The quantity of your work group's I VI u performance 53. The variances from the allowed I VI u standard 54. Are you? 1 = male 2 = female

55. What is your education level(indicate highest completed) 1 = grade school 2 = some high school (grades 9-11)3 =oraduated from high school 4 = some college or technical training beyond high school 56. How old are you? 1 = 18 - 254 = 46-55 5 = 56 - 652 = 26-35 6 = over 65 3 = 36-45 57. How long have you worked for this company? 5 = 9-15 years 1 = less than 1 year6 = 16-20 years 2 = less than 2 years 7 = more than 20 years3 = 2-4 years 4 = 5-8 years 58. How long have you worked in your present job (position) with this company 5 = 9 - 15 years 1 = less than 1 year 2 = less than 2 years 6 = 16 - 20 years 3 = 2-4 years 7 = more than 20 years 4 = 5 - 8 years 59. The department(s) you supervise 1 = Maintenance 2 = Rough Machine 3 = Glue Room4 = Finish Machine A 5 = Finish Machine B 6 = Sand Room 7 = Preassembly Area 8 = Parts Inspection 9 = Cabinent Room 10 = Finishing Room 11 = Rub and Pack 12 = Warehouse 13 = Service Department 14 = Quality Control 15 = Scheduling Department 16 = Product Engineering 17 = Personnel Department 18 = Production Control Department 19 = Other (specify)____

60. Your job title is 1 = V.P. of Manufacturing 2 = Plant Manager 3 = Division Manager 4 = Departmental Manager 5 = Group Leader 6 = Utility Person 7 = 0ther (specify) 61. How would you rank your performance as compared to your co-workers 1. lower than others 2. 3. average 4. 5. higher than others 62. Rank the performance of the department(s) you supervise- use the scale in question 61 1 = Maintenance 2 = Rough Machine 3 = Glue Room 4 = Finish Machine A 5 = Finish Machine B 6 = Sand Room 7 = Preassembly Area 8 = Parts Inspection 9 = Cabinent Room 10 = Finishing Room 11 = Rub and Pack 12 = Warehouse 13 = Service Department 14 = Quality Control 15 = Scheduling Department 16 = Product Engineering 17 = Personnel Department 18 = Production Control Department 19 = Other (specify)____

APPENDIX C- COMPANY NARRATIVES

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Company A

The management structure of the plant involves the V.P. of manaufacturing, the plant manager, superintendent, departmental supervisor, and assistant supervisor. The V.P. of manufacturing and plant manager receive a production report on a daily and weekly basis. The plant manger has a weekly production quota which is transmitted to the plant management team and the middle and lower levels of plant management have monthly bonuses tied to their control of the variances.

The V.P. of manaufacturing indicated that variances are used to compute bonuses and he believes they are an appropriate way to measure and reward performance.

Company B

The management structure of the plant involves the V.P. of manaufacturing, the plant manger, division manager, and departmental manager. The V.P. of manufacturing and plant manager receive daily and weekly operating reports which idicate the expected daily production. The plant manager transmits the information to middle and lower levels of plant management for their respective departments. Middle and lower levels of plant management receive monthly and end of the year bonuses based on their ability to control the variances.

The V.P. of manaufacturing indicated that variances are used to compute bonuses and he believes they are an appropriate way to measure and reward performance.

APPENDIX D- PRE-QUESTIONNAIRE MODULES

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Demographics

1. Are you - 1. male 2. female 2. What is your education level(indicate highest completed) 1. grade school 2. some high school (grades 9-11) 3. graduated from high school or G.E.D. 4. some college or technical training beyond high school (1-3 years)5. graduated from college (B.A., B.S., or other Bachelor's degree 6. some graduate school 7. graduate degree 3. How old are you? 1. 18-25 2. 26-35 3. 36-45 4. 46-55 5. 56-65 6. over 65 4. How long have you worked for this company? 1. less than 1 year 2. less than 2 years 3. 2-4 years 4. 5-8 years 5. 9-15 years 6. 16-20 years 7. more than 20 years 5. How long have you worked in your present job (position) with this company 1. less than 1 year 2. less than 2 years 3. 2-4 years 4. 5-8 years 5. 9-15 years 6. 16-20 years 7. more than 20 years The department(s) you supervise + 6. 1. names of departments 2. 3. 4. 5. 6.

- 7. Your job title is +
 - 1. v.p. manufacturing
 - 2. plant manager
 - 3. division manager
 - 4. departmental manager
 - 5. foreman
 - 6.

*adapted from the MOAQ +added questions

Supervisory Style

For the following statements indicate how much you agree or disagree with each statement using the following scale

- 1. strongly disagree
- 2. disagree
- 3. slightly disagree
- 4. neither agree or disagree
- 5. slightly agree
- agree
 strongly agree

1. Praise is given for doing a good job

- 2. Employees are able to speak frankly with the supervisor
- 3. Individuals can count on their supervisor to back them up
- 4. Employees know what their supervisor expects of them
- 5. The supervisor is flexible when necessary
- 6. Your supervisor's evaluation of your performance is very general and subjective +
- 7. Your supervisor emphasizes the performance report in evaluating your performance +
- 8. I emphasize the performance report when I evaluate my subordinates' performance +

factor loadings .55 > alpha = .88

Decision Making Policy

- 8. Managers and supervisors ask for the advice of their employees when making decisions that affect the employees
- 9. There is an opportunity to take part in deciding what the work methods, procedures and goals will be

factor loadings .58 > alpha= .72

Pressure to Produce

10. The supervisor emphasizes production quality + 11. The supervisor emphasizes production quantity + 12. Employees compete with each other 13. There is almost a continuous series of deadlines and tight schedules 14. There are high performance standards 15. There is strong pressure to produce factor loadings .44 > alpha= .55 *adapted from the PWE +questions added Job Facets For the following questions indicate how important the item is to you using the following scale. 3. moderately important or less 4. 5. 6. quite important 7. 8. 9. extremely important 1. the fringe benefits you receive 2. the amount of pay you get

3. the amount of job security you have

- 4. your performance report +
- your performance report -

For the following questions indicate how satisfied you are with the item using the following scale

- 1. very dissatisfied
- 2. dissatisfied
- 3. slightly dissatisfied
- 4. neither dissatisfied or satisfied
- 5. slightly satisfied
- 6. satisfied
- 7. very satisfied

5. the fringe benefits you receive

- 6. the amount of pay you get
- 7. the amount of job security you have
- 8. your performance report +

For the following questions indicate how likely it is that these items would occur if you performed your job especially well using the following scale

```
    not at all likely
    somewhat likely
    guite likely
    extremely likely
```

9. you will get a bonus or pay increase 10. you will be given chances to learn new things 11. you will get promoted or get a better job

internal consistency reliability estimates .51 🔅

\$adapted from the MOAQ
+added questions

Task and Role Characteristics

For the following questions indicate how much you agree or disagree with the item as a description of your job using the following scale

- 1. strongly disagree
- 2. disagree
- 3. slightly disagree
- 4. neither agree or disagree
- 5. slightly agree
- 6. agree
- 7. strongly agree
- 1. your performance report helps you figure out where you
 need to improve performance +
- just doing my job gives me many chances to figure out how well I am doing
- 3. on my job, most of my tasks are clearly defined
- 4. there are standards for my job +
- 5. I know the standards for my job +
- 6. I usually know whether or not my work is satisfactory on this job
- 7. On my job, I know exactly what is expected of me
- 8. the standards set for my job are fair +
- 9. your job performance is accurately reflected in your performance +
- 10. your performance report is fair +
- 11. you can use the performance report to improve your
 performance +
- 12. the performance report is an appropriate way to measure your performance +
- 13. if your performance report improves your pay will increase +
14. you can use your performance report to improve performance and increase your pay +

Internal consistency reliability estimates .41 >

*adapted from the MOAQ +added questions

Equipment/Feople-Equipment Arrangement

- 15. the arrangement of people and equipment is appropriate for my job
- 16. the arrangement of employees allows for efficient and effective performance of my job
- 17. the proper type and amount of equipment and supplies are available for my job

factor loadings .57 > alpha = .71

*adapted from the FWE

Employee Motivation

18. I try hard to get ahead

19. I have concern for the quality of my work.

20. I am interested and deeply involved in my work

21. I have concern for the quantity of what I produce +

22. I am concerned about my performance report +

factor loadings .56 > alpha = .74

\$adapted from the PWE
+ added guestions

Pay

For the following items indicate how important they are for determing pay with your company using the following scale 1. very unimportant 2. 3. 4. important 5. 6. 7. very important 1. your education, training and experience 2. the quality of your job performance 3. your productivity 4. the quality of your work group's performance

5. the productivity of your work group 6. your performance report + For the following statements indicate how much you agree or disagree with the items as they relate to your job using the following scale 1. strongly disagree 2. disagree 3. slightly disagree 4. neither agree or disagree 5. slightly agree 6. agree 7. strongly agree 7. I don't make the kind of money I should for the job I do **8.** considering my skills and the effort I put into my work I am very satisfied with my pay. 9. My pay is fair given what my co-workers make 10. Pay raises around here depend on how well you perform 11. my pay is based on my performance report + internal consistency reliability estimates .47 \geq *adapted from MOAQ +added questions Performance

1. How would you rank your performance as compared to your coworkers

 lower than others
 average
 s. average
 f. higher than others
 Rank the performance of the departments you superviseuse the scale in question 1

names of departments
 .
 .
 .

5.

The performance questions were made up specifically for this research

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APPENDIX E- QUESTIONNAIRES, COMPANY A AND B

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For the following statements indicate how much you agree or disagree with each statement using the following scale 6 = Disagree (D)1 = Stronglu Agree (SA) 7 = Stronglu Disagree (SD) 2 - Agree (A)4 - Neither Agree or Disagree (N) 4 5 1 2 Э 6 7 1. Praise is given for doing a good job D SD SA A N 50 2. I can speak frankly with my supervisor N Π SA A 3. I can count on mu supervisor to back SD Π SA A N me up 4. My supervisor stresses the monthly production schedule when evaluating my N D SD SA A nerformance 5. On my job, most of my tasks are clearly D SD SA A N defined 6. I understand what my supervisor expects SD SA A N of me 7. Just doing my job gives me many chances SD SA A N to figure out how well I am doing SD n N SA A 8. There are goals set for my job SD 9. I understand the goals set for my job SA A N D SD 10. The goals set for my job are fair SA A N 11. The arrangement of people and equipment D SD N SA A is right for my job 12. My supervisor is flexible when ۵ SD SA A N necessaru 13. My supervisor's evaluation of my . performance is very general and SD SA A N personal 14. I usually know whether or not my work SD Ν SA A is satisfactory on this job 15. My supervisor asks for advice when ۵ SD SA A N making decisions that concern me 16. I have a chance to take part in deciding what the work methods, ۵ SD N procedures and goals will be on my job SA A

17.	My supervisor emphasizes the quality of my production	SA	A	N	۵	SD
18.	I emphasize the monthly production schedule when I evaluate the performanc of my subordinates	s Sa	A	N	D	SD
19.	On my job there are always deadlines and tight schedules	SA	A	N	ם	SD
20.	The company sets high performance goals	SA	A	N	D	SD
21.	I feel alot of pressure to produce	SA	A	N	۵	SD
22.	Considering my skills and the effort I put into my work I am very satisfied with my salary and bonus	SA	A	N	ם	SD
23.	I have the type and amount of equipment and supplies I need for my job	SA	A	N	۵	SD
24.	The monthly production schedule helps me figure out where I need to improve performance	SA	A	N	ם	SD
25.	I can use the monthly production schedule to improve my performance	SA	A	N	۵	SD
26.	The the monthly production schedule is a good way to measure my performance	SA	A	N	۵	SD
27.	If I do better on my monthly production schedule my salary and bonus will increase	SA	A	N	D	SD
28.	I can use the monthly production schedule to improve my performance and increase my salary and bonus	SA	A	N	۵	so
29.	I try hard to get ahead on my job	SA	A	N	۵	SD
30.	I am concerned about the quality of my work.	SA	A	N	ם	SD
31.	I am interested and deeply involved in my work	SA	A	N	D	SD
32.	My supervisor emphasizes the quantity of my production	SA	A	N	۵	SD
33.	The monthly production schedule used for my job is fair	SA	A	N	ם	50

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34.	My salary and bonus depends on how well I perform	SF	AA		N		ם	SD
35.	The amount of my salary and bonus is determined by the monthly production schedule	Sf	A A		N		۵	SD
36.	I am concerned about the quantity that I produce	SF	A		N		۵	SD
37.	I am concerned about the monthly production schedule	SF	A		N		۵	SD
For you	the following questions indicate how in using the following scale.	npor	tan	tt	he.	ite	m 1	s to
	1 = Unimportant (U) 4 = Important (I) 7 = Very Important (VI)							
		1	2	3	4	5	6	7
38.	The fringe benefits you receive	U			I			ΨI
39.	The monthly production schedule	U			I			υI
40.	The amount of salary and bonus you get	U			I			υI
41.	The amount of job security you have	U			I			υI
For the	the following questions indicate how s item using the following scale	sati	.sfi	ed	you	8	re	with
1 - 2 - 4 -	Very Dissatisfied (V) Dissatisfied (DS) Neither Dissatisfied or Satisfied (N)	5 - 7 -	Sat Ver	isf y S	ied Jati	(S sfi) ed	(US)
		1	г	З	4	5	6	7
42.	The fringe benefits you receive	U	DS		N		S	VS
43.	The use of the monthly production schedule	U	DS		N		S	VS
44.	The amount of salary and bonus you gat	U	DS		N		S	vs
45.	The amount of job security you have	U	DS		N		S	US

For the following questions indicate how likely it is that these items would occur if you performed your job especially well using the following scale

1 = Not At All Likely (NL) 4 = Likely (L) 7 = Extremely Likely

		123	3456	7
46.	You will get a year end bonus	NL	L	EL
47.	You will be given chances to learn new things	NL	L	EL

For the following items indicate how important they are for determing salary and bonus with your company using the following scale

- 1 = Unimportant (U)
- 4 = Important (I)
- 7 = Very Important (VI)

-	1	2	З	4	5	6	7
48. Your training and experience	U			I			υI
49. The quality of your job performance	U			I			υI
50. The quantity of your performance	U			I			υI
51. The quality of your work group's performance	U			I			υI
52. The quantity of your work group's performance	U			I			υI
53. The monthly production schedule	U			I			υI

54. Are you? 1 - male 2 - female

55. What is your education level(indicate highest completed)

1 = grade school

- 2 some high school (grades 9-11)
- 3 = graduated from high school
- 4 some college or technical training beyond high school

55. Now old are you? 4 - 46-55 1 - 18-25 5 - 56-65 2 - 26-35 3 - 36-45 6 - over 65 57. How long have you worked for this company? 5 = 9-15 years 1 = less than 1 year 6 = 16-20 uears 2 = less than 2 years 3 = 2-4 years 7 = more than 20 years 4 - 5-8 years 58. How long have you worked in your present job (position) with this company 5 = 9-15 years 1 = less than 1 year 6 = 16-20 years 2 - less than 2 years 3 = 2-4 years 7 = more than 20 years 4 - 5-8 years 59. The department(s) you supervise 1 = Lumber Yard 2 - Rough End 3 - Veneer Room 4 - Finish Machine Room 5 - Sanding 6 - Cabinent 7 = Finishing 8 - Packing Room 9 - Shipping Room 10 - Other (specify)___ 60. Your job title is 1 = U.P. of Manufacturing 2 = Plant Manager 3 = Superintendent 4 - Departmental Supervisor 5 = Assistant supervisor 6 - Other (specify) _ 61. How would you rank your performance as compared to your co-workers 1. lower than others 2. 3. average 4. 5. higher than others

- 62. Rank the performance of the department(s) you supervise- use the scale in question 61
 - 1 Lumber Yard
 - 2 Rough End
 - 3 Veneer Room
 - 4 Finish Machine Room
 - 5 Sanding
 - 6 Cabinent
 - 7 Finishing
 - 8 Packing Room
 - 9 Shipping Room
 - 10 Other (specify)

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For the following statements indicate how much you agree or disagree with each statement using the following scale 1 - Strongly Agree (SA) 6 = Disagree (D) 2 = Agrae (A) 7 = Strongly Disagree (SD) Y = Neither Agree or Disagree (N) 1 2 7 34 5 6 1. Praise is given for doing a good job SA A SD N SD 2. I can speak frankly with my supervisor SA A N D 3. I can count on my supervisor to back N Π SD SA A me up 4. My supervisor stresses variances from the allowed standard when SA A N D SD evaluating my performance 5. On my job, most of my tasks are clearly SD SA A N defined 6. I understand what my supervisor expects SD SA A D N of me 7. Just doing my job gives me many chances to figure out how well I am doing SD SA A Ν SD N Π SA A 8. There are goals set for my job SD 9. I understand the goals set for my job SA A N ۵ D SD SA A N 10. The goals set for my job are fair 11. The arrangement of people and equipment SA A N SD is right for my job 12. My supervisor is flexible when D SD SA A N necessary 13. My supervisor's evaluation of my performance is very general and SD SA A N personal 14. I usually know whether or not my work D SD SA A N is satisfactory on this job 15. My supervisor asks for advice when SD SA A N making decisions that concern me 16. I have a chance to take part in deciding what the work methods,

procedures and goals will be on my job SA A

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N

SD

17.	My supervisor emphasizes the quality of my production	SA	A	N	ם	SD
18.	I emphasize the variances from the ellowed standard when I evaluate the performance of my subordinates	SA	A	N	۵	SD
19.	On my job there are always deadlines and tight schedules	SA	A	N	۵	SD
20.	The company sets high performance goals	SA	Ĥ	N	ם	SD
21.	I feel alot of pressure to produce	SA	A	N	۵	SD
22.	Considering my skills and the effort I put into my work I am very satisfied with my annual compensation	SA	A	N	۵	SD
23.	I have the type and amount of equipment and supplies I need for my job	SA	A	N	۵	SD
24 .	Knowing the variances from the allowed standard helps me figure out where I need to improve performance	SA	A	N	۵	SD
25.	Knowing the variances from the allowed standard helps me improve my performance	SA	A	N	ם	SD
26.	Variance from the allowed standard is a good way to measure my performance	SA	A	N	ם	SD
27.	If I improve on the variances allowed from the standard my year end bonus will increase	SA	A	N	۵	SD
28 .	I can use the variances allowed from the standard to improve my performance and increase my year end bonus	SA	A	N	ם	so
5 8 .	I try hard to get ahead on my job	SA	A	N	D	SD
30 .	I am concerned about the quality of my work.	SA	A	N	D	SD
31.	I am interested and deeply involved in my work	SA	A	N	۵	SD
32.	My supervisor emphasizes the quantity of my production	SA	A	N	۵	SD
33.	The variances from the allowed standard used for my job are fair	SA	A	N	ם	SD

34.	My salary and bonus depends on how well I perform	S	A A		N		۵	SD
35.	The amount of my year end bonus is determined by the variances from the allowed standard	Si	A P		N		۵	SD
36.	I am concerned about the quantity that I produce	: Sí	A A		N		۵	SD
37.	I am concerned about the variances fro the allowed standard	im Sf	A A		N		۵	SD
For you	the following questions indicate how i using the following scale.	.mpoi	rtar	nt t	he	ite	m i	s to
	1 = Unimportant (U) 4 = Important (I) 7 = Very Important (VI)							
		1	2	3	4	5	6	7
38.	The fringe benefits you receive	U			I			υI
39 .	The variances from the allowed standard	U			I			υI
40.	The amount of salary and bonus you get	U			I			UI
41.	The amount of job security you have	U			I			UΙ
For the	the following questions indicate how item using the following scale	sati	sfi	ed	you	a	re	with
1 - 2 - 4 -	Very Dissatisfied (V) Dissatisfied (DS) Neither Dissatisfied or Satisfied (N)	6 - 7 -	Sat Ver	isf y S	ied ati	(S sfi) ed	ເບຣາ
		1	г	3	4	S	6	7
42.	The fringe benefits you receive	U	DS		N		S	us
43.	The use of variances from the allowed standard	U	DS		N		s	vs
44.	The amount of salary and bonus you get	U	DS		N		S	vs
45.	The amount of job security you have	U	DS		N		S	VS

For the following questions indicate how likely it is that these items would occur if you performed your job especially well using the following scale

1 = Not At All Likely (NL) 4 = Likely (L) 7 = Extremely Likely

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 46. You will get a year end bonus
 NL
 EL

 47. You will be given chances to learn new things
 NL
 EL

For the following items indicate how important they are for determing salary and bonus with your company using the following scale

	1 = Unimportant (U) 4 = Important (I) 7 = Very Important (VI)							
		1	З	Э	4	5	6	7
48.	Your training and experience	U			I			υI
49.	The quality of your job performance	U			I			υI
50.	The quantity of your performance	U			I			υI
51.	The quality of your work group's performance	U			I			υI
52.	The quantity of your work group's performance	U			I			υI
53.	The variances from the allowed standard	u			I			υI
54.	Are you? 1 - male 2 - female							

55. What is your education level(indicate highest completed)

1 = grade school 2 = some high school (grades 9-11) 3 = graduated from high school 4 = some college or technical training beyond high school 56. How old are you? 4 - 46-55 1 - 18-25 5 - 56-65 2 - 26-35 3 = 36-45 6 - over 65 57. How long have you worked for this company? 5 = 9-15 years 1 = less than 1 year 2 = less than 2 years 6 = 16-20 years 7 = more than 20 years 3 - 2-4 usars 4 - 5-8 years 58. How long have you worked in your present job (position) with this company 1 = less than 1 year 5 = 9-15 years 2 = less than 2 years 6 = 16-20 years 3 = 2-4 years 7 = more than 20 years 4 = 5 - 8 years 59. The department(s) you supervise 1 - Maintenance 2 - Rough Machine 3 - Glue Room 4 - Finish Machine A 5 - Finish Machine B 6 - Sand Room 7 - Preassembly Area 8 = Parts Inspection 9 - Cabinent Room 10 - Finishing Room 11 - Rub and Pack 12 - Warehouse 13 - Service Department 14 - Quality Control 15 - Scheduling Department 16 = Product Engineering 17 - Personnel Department 18 - Production Control Department 19 - Other (specify)_____ 60. Your job title is 1 - V.P. of Manufacturing 2 - Plant Manager 3 - Division Manager 4 - Departmental Manager 5 - Group Leader 6 - Utility Person 7 = Other (specify) ____

- 61. How would you rank your performance as compared to your co-workers
 - 1. lower than others
 - 2.
 - 3. average
 - 4.
 - 5. higher than others
- 62. Rank the performance of the department(s) you supervise- use the scale in question 61
 - 1 = Maintenance
 - 2 Rough Machine
 - 3 Glue Room
 - 4 Finish Machine A
 - 5 Finish Machine 8
 - 6 Sand Room
 - 7 Preassembly Area
 - 8 Parts Inspection
 - 9 Cabinent Room
 - 10 Finishing Room
 - 11 Rub and Pack
 - 12 Warehouse
 - 13 Service Department
 - 14 = Quality Control
 - 15 Scheduling Department
 - 16 Product Engineering
 - 17 Personnel Department
 - 18 Production Control Department
 - 19 Other (specify)_____

APPENDIX F- COMPANY A, PLANT ONE ANALYSIS OF HYPOTHESES

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H1: Perceptions of equitability of the performance report with respect to its perceived use (high or low) for performance evaluation purposes.

First the respondents were grouped on question 4 (all questions came from Appendix E), responses 1-3 formed the high use group and responses 5-7 formed the low use group. Individuals who responded to the question by answering N (neither) were eliminated from this part of the analysis. These groups were then analyzed with respect to questions 26 (Q26A) and 33 (Q33A) using the Chi-Square test of independence (Table 10). Due to the small number of respondents within three cells HO regarding Q26A could not be accepted or rejected. Since no disagrees (inequitables) existed in the group of respondents with respect to Q33A no analysis could be performed.

H2: Perceptions of equitability with respect to positive and negative path perceptions

First the respondents were grouped according to their responses to questions 24 and 25, if the responses totaled 7 or less they were placed in the positive path group, 8 discarded for this part of the analysis, and 9 or more formed the negative path group. Next these groups' responses to questions 26 and 33 were analyzed using the

TABLE TEN- HYPOTHESIS ONE, COMPANY A PLANT ONE

TABLE OF GROUP BY 926A

GROUP	926A		
FREQUENCY PERCENT RON PCT COL PCT	AGREE	DISAG	TOTAL
H10	9 81.82 90.00 90.00	1 9.09 10.00 100.00	90.91
LON	1 9,89 100.00 10.00	0.00 0.00 0.00	9.09

TOTAL

STATISTICS FOR TABLE OF GROUP BY 926A

1.19

11 100.00

10

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	1	0.110	0.740
LIKELIHOOD RATIO CHI-SQUARE	ļ	0.Z00	8.654
MANTEL-MAENSZEL CHI-SQUARE	i	0.100	0.752
FISHER'S EXACT TEST (1-TAIL)			. 707
PHI		-0.100	1.000
CONTINGENCY COEFFICIENT		0.100	
CRAMER') V		-4.104	

SAMPLE SIZE = 11 Marning: 75% of the cells have expected counts less Than S. Chi-Square may not be a valid test.

TABLE OF GROUP BY 433A

GROUP	d 22¥	
FREQUENCY PERCENT RON PCT COL PCT	AGREE	TOTAL
HI¢	10 90.91 100.00 96.91	10 90.91
LON	1 9.09 100.00 9.09	• 1 9.09
TOTAL	11	

Chi-Square test of independence (Table 11). Since none of the respondents perceived the performance report to be inequitable (disagree) no statistical analysis could be performed. Thus HQ could not be accepted or rejected.

H3: Perceptions regarding task role characterisitics by those who perceived a positive path and those who perceived a negative path.

The groupings formed for H2, positive and negative groups, were analyzed using the Wilcoxon rank sum test with respect to questions 5, 7, 8, 9, 10, 11, 14, and 23 (Table 12). No statistical analysis could be performed on questions 11 and 14 since the one repondent who indicated a negative path did Employing .05 significance not answer these questions. level HO could not be rejected except for question ten. It appears that the strength of the perceived fairness of the goals (standards) set for the job is affected by the perception of a positive or negative path. The nature of this difference is puzzling, however, since the individual who perceived a negative path indicated a higher perceived fairness overall than those who perceived a positive path. Theoretically the individual who perceives a negative path should also perceive the goals put forth by the performance report to be less fair.

TABLE ELEVEN- HYPOTHESIS TWO, COMPANY A PLANT ONE



TABLE	OF GROUP	BY Q33A
GROUP	433 A	
FREQUENCY PERCENT RON PCT COL PCT	AGREE	I TOTAL
NEO	1 10.00 100.00 10.00	10.00
P03	90.00 100.00 90.00	70.00
TOTAL	10	, 10 100_00

ONE
PLANT
∢
COMPANY
THREE,
HYPOTHESIS
TWELVE-
TABLE

HILCENER SCORES (EAM SUMS) HILCENER SCORES (EAM SUMS) LUEL	AMALY313 FOR VARIABLE Average	\$\$ CLASSIFIE SCORES WERE	D DY VARIABL	2007	SISY JANA	FOR VARIABLE 9 AVERADE 5	9 CLASSIFIE Cores mere	BY VARIA USEB FOR T	112 SROUP
Level Image of the second strain st	MILCI	DXON SCORES (RANK SUNS)			MILCON	ON SCORES (RANK SUNS)	
WICKNOW F-AMONG LEST (AND ALL APPENIANTED) MILCOUR 2-SAMELERS (A PROSTANTED) WICKNOW F-AMONG LEST (AND ALL APPENIANTED) MILCOUR 2-SAMELERS (A PROSTANTED) T-TEST APPENEL STORE MILCOUR 2-SAMELERS (A PROSTANTED) T-TEST APPENEL STORE MILCOUR 2-SAMELERS (A PROSTANTED) MALYNIS FOR VARIANE (P CLASSIFIED OF VARIANE (AND ALL) MILCOUR 2-SAMELERS (A PROSTANTED) MALYNIS FOR VARIANE (P CLASSIFIED OF VARIANE (AND ALL) MILCOUR SCORES MER USED FOR VARIANE (AND ALL) MALYNIS FOR VARIANE (P CLASSIFIED OF VARIANE (AND ALL) MILCOUR SCORES MER USED FOR VARIANE (AND ALL) MALYNIS FOR VARIANE (P CLASSIFIED OF VARIANE (AND ALL) MILCOUR SCORES MER USED FOR VARIANE (AND ALL) MILCOUR SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOUR SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOURD SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOURD SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOURD SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOURD SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (AND ALL) MILCOURD SCORES MERE USED (AND ALL) MILCOURD SCORES MERE USED FOR VARIANE (MILL) MALYNES MILCOURD SCORES MERE USED FOR VARIANE (MILL) MILCOURD SCORES MARKANE (MILL) MALYNES MILCOURD SCORES	LEVEL # 12 MC0 12	sum of E sconfs u 9.00	XPECTED S	10 0CV	L EVEL	= -:	SUM DF SCORES	NPECTED NDER H4	518 BEV UNDER 149 5.04
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LEVEL No. Control worker wie Strend worker worker Strend worker Strend worker worker Strend worker	110	COXON SCORES	(RANK SUNS)			MILCO	XON SCORES	CRAME SUNS	2
HCG 1 0.1 <th0.1< th=""> <th0.1< th=""> <th0.1< th=""> <th0.1< th=""></th0.1<></th0.1<></th0.1<></th0.1<>	15461	SUM OF SCORES	EXPECTED UNDER NO	STB BEV UNDER HO	15761	Ŧ	SUM OF SCORES	EXPECTED UNDER NO	STD DEV UNDER HD
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MILCONOM SCORES (RANK SUMS) MILCONOM SCORES (RANK SUMS) NILCONOM SCORES (RANK SUMS) NILCONOM SCORES (RANK SUMS) LEVEL N UNDER NO SUM OF EXPECTED SUM OF EXPECTED STO DECV UNDER NO SUM OF EXPECTED NILCONOM SCORES (RANK SUMS) NILCONOM SCORES (RANK SUMS) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) 12 S.00 7.00 S.43 NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILLONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILLONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPROXIMATION) NILLONOM 2-SAMPLE TEST (NORMAL APPLOXIMATION) NILCONOM 2-SAMPLE TEST (NORMAL APPLICANES) NILCONOM 2-SAMPLE TEST (NORMAL APPLOXIMATION) NILLONOM 2-SAMPLE TEST (NORMAL APPLICANES)	AMALYSIS FOR VARIA Aver	ALE 98 CLASSI ADE SCORES ME	FIED BY VARI	ABLE 080UP TIES	ANAL YSI	5 FOR VARIABLE Averade	923 CLASSIF Scores Meri	LED BY VAR USED FOR	IIABLE GROUP TIES
LEVEL N SUM OF EXPECTED STD DEV SUM OF EXPECTED STD DEV LEVEL N SCORES UNDER H0	Ξ	ILLCOXON SCORE	EN CRANK SUNS	2		MILC	DXON SCORES	CRANK SUNS	2
NEO 1 5 0 3 43 NEO 12 3 </td <td></td> <td>SUN OF SCORES</td> <td>EXPECTED UNDER HO</td> <td>STO DEV UNDER HO</td> <td>ובאנו</td> <td>E</td> <td>SUM OF</td> <td>EXPECTED UNDER NO</td> <td>STB BEV UNDER NB</td>		SUN OF SCORES	EXPECTED UNDER HO	STO DEV UNDER HO	ובאנו	E	SUM OF	EXPECTED UNDER NO	STB BEV UNDER NB
MILCOXOM 2-SAMPLE TEST (MORMAL APPROXIMATION) MILCOXOM 2-SAMPLE TEST (MORMAL APPROXIMATION) MILM CONTINUITY CONRECTION OF 3) S+ 3.90 Z+-0.7250 PROD >[Z]+0.5545 S+ 3.00 Z+-0.4372 PROD >[Z]+0.5545 T-TEST APPROX SIGNIFICANCE+0.3728 T-TEST APPROX SIGNIFICANCE+0.3728	NEO 105	2 2 30		5.24	804 NEO	12			55
T-FEST APPENX SIGNIFICANCE+0.3728 T-FEST APPENX SIGNIFICANCE+0.3728	MILCOXON 2 CMIIN CONT 5+ 5-50		(HORMAL APPR	10X [MAT I ON) > 2 • 0 . 5 5 4 5		MILCOXON 2-5A (MITM CONTINU 5+ 5.00	MPLE TEST (117 CORRECT 20-0.4572	104 05 .55	40XIMAT1947)
	T-TEST APP	ROX. SIGNIFI	CANCE+0.3728			T-TEST APPROI	. slowifics	MCE-0.4497	

H4: Perceptions of supervisory style by those individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 1, 2, 3, 6, 12, 13, 15, 16, 17, 19, 20, 21, and 32 using the Wilcoxon rank sum test (Table 13). Employing .05 significance level HO could not be rejected with respect to any of the questions.

The p values for questions 15 (.0720) and 20 (.0914), however, do indicate that some relationship exists. With respect to question 15, it appears that the individual who perceived a negative path also perceives that his superior does not ask for his advice while those who perceived a positive path generally felt that their supervisor asked for their advice. Additionally, the individual who perceived a negative path also indicated that the company does not set high performance goals (Q 20) on the other hand the positive group generally indicated that the company did set high performance goals. Both of these responses would be expected theoretically since the individual who perceives a negative path is likely to also feel that he is not as involved in the decision making process which affects the goals or standards and in turn the performance report.

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TABLE

	MILCO	ION SCORES	CRAME SUM	2		114	COXON SCORE	S (RAMK SUM:	3
VEL	*	SUN OF SCORES	EXPECTED UNDER NO	STO DEV UNDER NO	1973 1	-	SUM OF	EXPECTED	STD DEV
90	-2	1.50	** ^*	5.24	705 705	-2	26 ~ 08		
	MILCOXON 2-5AN (MIIN CONTINUI) 5- 3.50 1-7637 APPROX.	LE TEST (N 17 CONRECTI 20-0.9256 Significan	DRMAL APPI ON OF 5) PROB	RDX [MA F] ON) > Z • 0 . 3945		MILCOXON 2-5/ INTIN CONTIN 5. 2.50	MPLE TEST UITY CORREC Z=-1.241	TION OF SI	10XIMAT100) >121-0.2149
NALVEL	L FOR VARIANE						·	INCE-0.2342	
	AVERAGE	SCORES WER	E USED FO	a lies		115 FOR VARIABLI AVERADI	E BIZ CLASS E Scores Mei	IFIED BY VAN	TIES CROW
	MILCO	XON SCORES	(RANK SU	(5)		NIN	COXON SCORE:	(RAMK SUNS	2
EVEL	2	SUM OF SCORES	EXPECTED UNDER NO	SID DEV Under no	LEVEL	2	SUN OF SCORES	EXPECTED UNDER NO	STD DEV UNDER NG
25	- 21		~	27.5	NEO 703	121	82.50	7.9	2. 7 2. 7
	MILCOXOM 2-5AN (MITN CONTINUI 5- 9.50	PLE TEST (TY CORRECT Z= 0.5948	NORMAL AP	70×114110N)		MILCORDN 2-5A (METN CONTENU 5+ 8.56	MPLE TEST (117 CORRECT 2. 0.3631	NORMAL AFR	0X1MAT1041)
	T-IEST APPROX.	SIGNIFICA	HCE+0, 5430	_		I-TEST APPROX	. SIONIFICA	NCE+0.7214	
AMALY	SIS FOR VARIADI AVFRAG	LE OS CLASS	TELED BY	VARIABLE ORDUP	ANALY	IS FOR VARIABLE	E OLS CLASS	FIED DY VAN	TABLE CROW
		COXON SCOL	ES (RAMK	50MS.)			C SCOREJ MEI Dam Scorej	IE USED FOR	7169
ונגנו	8	SUN OF	EXPECT	EB STB DEV Mo UNDER MO	12421		SUN OF	EXPECTED UNDER NO	STB DEV UNDER MA
NCO 105	12	88.00	~	00 5.35 00 5.33	MC0 705	-=		6.50	
	MILCOXON 2-1 (MITH CONTI 5- 5 00	SAMPLE TEST ULTY CORRE Z+-1.09	CTION OF	APPROXIMATION) 51 808 >121+0.2050		MILCOXON 2-5A (MITH CONTINU 5+ 8.60	MPLE TEST (117 CORRECT 2- 0.3303	HORMAL AFTR	DX1MA110H)
	T-TEST APPRI	X. SIGNIFI	CANCE+0.3	137		T-TEST APPROX	. SIGNIFICA	MCE+0.7474	

TABLE THIRTEEN- continued

						MILCO	XON SCORES	CRAME SUNS	2
20 K	HILCOXOM 2-54P 12 12 13 14 14 15 15 15 15 16 15 16 15 15 15 15 15 15 15 15 15 15 15 15 15	Sum or Scones 13.00 74.00 74.00 74.00 74.00 75.01 75.01 75.01 75.01 75.01 75.01 75.01 75.01 75.01 75.01 75.01 75.00 75.0	EXPECTED UNDER H0 2.00 40.00 40.00 40.00 10000001 47 10000001 47 10000001 47 10000000 47 10000000 47 10000000 47 10000000 47 10000000 400000000000000000000000000000	518 DEV UNDER NG 5.06 5.06 Notimation) >121-0.0720 Proximation) CH150-0.0497	1 6 4 6 L 1 6 9 8 1 8 9 8 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1	M 12 12 12 12 12 14 14 14 14 14 15 14 14 14 14 14 14 14 14 14 14 14 14 14	SUM OF SCORES 3.96 87.59 87.59 715 COMMETES 2.0.8721 2.0.8721 310M/FICA	EXPECTED UNDER HO 2.40 4.40 4.40 4.40 104 05 740 740 540AE 47 -540AE 47	518 BEV UNSER HO 3.34 3.34 3.34 3.34 3.34 3.34 3.34 3.3
ISA I VW	IS FOR VARIABLE (AVERADE :	NIG CLASSI Scores Mer	FJEB BY VAN Ie useb fon	lable Group Ites	AMALYSI	S FOR VARIABLE QI Averade Sc	19 CLASSIFI CORES MERE	IEB BY VARI	ABLE OROUP IES
	MILCOI	ION SCORES	CRANE SUNS	-		MILCOXO	M SCORES (RAMK SUNS)	
5	2 -2	SCORES SCORES 5 80 8 80 8 80	EXPECTED UNDER No 7 00	518 BEV UNBER NG 3.44 5.44	: EVEL 460	≡ -;	Sum of F Scores u	XPECTED NDER NO	STD DEV Juder Mo
	MILCOXON 2-SAM MIL CONTINUIT 5- 3-00 1-1631 APPROX. 1-1631 APPROX. 64139- 1.35	LE TEST () Y CONNECT) Z=-1 0169 310M1F1CAN TEST (CHI- DF= 1	NORMAL AFFA 104 0F 5) FR05 MCE+0 3293 -594AF AFFI -594AF AFFI	DX MA F [04) > 2 • 0 . 3092 1 2 • 0 . 3092 1 2 4 1 2 4 5 2	5	12 Milcoyom 2-Sampl (Milm Comfimulity 3- 12.90 1-1631 Approx. 3 T-1631 Approx. 3 F-1634 -Mallis T Chisge 2453	70.50 E 1651 (MU CORRECTIO - 1.4794 - 1.4794 - 1.4794 EST (CH1-5	84.88 Imal Afrax B 05 55 Frab 71 C-0.1640 VARE Afra	5. 36 (IMAT 1000) 21 - 0. 1390 21 - 0. 1390

TABLE THIRTEEN- continued

ANALYSIS FOR VARIABLE 920 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

LEVEL	H	SUN OF Scores	EXPECTED Under Ho	STD DEV Under Hø	MEAN SCORE
NEG POS	12	13.00 78.00	7.00 84.00	3.26 3.26	13.00 6.50
	WILCOXON 2-SAU (MITH CONTINU) S= 13.00	WPLE TEST (ITY CORRECT Z= 1.6881	NORMAL APPI Ion of .5) Prob	ROXIMATION) > 2 =0.0914	
	T-TEST APPROX	. SIGNIFICA	NCE=0.1172		
	KRUSKAL-MALLIS CHISQ= 3.39	S TEST (CHI DF= 1	-SQUARE APP PROB >	ROXIMATION) CHISQ=0.0655	

ł

ANALYSIS FOR VARIABLE Q21 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

EVEL	H	SUM OF Scores	EXPECTED Under Ho	STD DEV Under Hø	NEAN Score
E0	12	12.50	7.00	3.61	12.50
05		78.50	84.00	3.61	6.54

MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 12.50 Z= 1.3868 PROB >|Z|=0.1655 T-TEST APPROX. SIGNIFICANCE=0.1907 KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHIS0= 2.33 DF= 1 PROB > CHISQ=0.1272

AMALYSIS FOR VARIABLE Q32 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF SCORES	EXPECTED Under Ho	STD DEV Under He	HEAN Score
NEG POS	112	3.00 88.00	7.00 84.00	3.51 3.51	3.80 7.33
	NILCOXON 2-SAP (MITH CONTINU) S= 3.00	WLE TEST (Ty correct Z=-0.997)	(NORMAL APPI (ION OF .5) PROB	ROXIMATION) > Z =0.3184	
	T-TEST APPROX.	SIGNIFIC	NCE=0.3381		
	KRUSKAL-MALLIS CHISQ= 1.30	TEST (CH)	-SQUARE APP	ROXIMATION) CHISQ=0.2542	

H5: Motivation of individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 29, 30, 31, 36, and 37 using the Wilcoxon rank sum test (Table 14). Employing .05 significance level HO could not be rejected with respect to any of the questions.

H6: Job facet perceptions of those who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 34, 35, and 38 - 52 using the Wilcoxon rank sum test (Table 15). Employing .05 significance level HO could not be rejected with respect to any of the questions.

H7: Perceived pay-performance linkage by those who perceive a positive path and those who perceive a negative path.

The positive and negative groups were compared with respect to questions 27 and 28 using the Wilcoxon rank sum test (Table 16). Employing .05 significance level H0 could not be rejected with respect to either of the questions.



DA 1165	(SWD	D STD DEV UNDER NO	2.96	PEROXIMATION)		VARIABLE OROUP OR TIES	(5147)	D STD DEV D UNDER HO	5.24	PPROXIMATION) 5) 08 > 2 =8.4404	33	ANIABLE OROUP	R 7165	43)	SID DEV UNDER NO	3.22	PROXIMATION)) 0 >121-0.7345	_
R USED F	S (RAME S	EXPECTEL UNDER N	* *	HORMAL A	AHCE+0.512	LIFIED DY	S (RANK S	EXPECTE UNDER N	•.•	CHORMAL A	ANCE-8.45	FIED DY V	E USED FO	(RANK SU	EXPECTED UNDER NO	2.	NORMAL AFI	MCE-0.7414
SCORES WE	XON SCORE	SUM OF SCORES	:: *	PLE 1651 (17 CORREC! 20.476	SI ONIFICI	454 CLASS SCORES ME	XON SCORE	SUM OF SCORES		PLE TEST ITY CORREC Z+-0.771	SIGNIFIC	37 CLASSI	CORES MERI	ON SCORES	SUN OF SCORES	1.51 82.50	LE TEST (1) Y CORRECT	SIGNIFICAL
AVERAGE	MILCO	2	-=	MILCOXON 2-SAN (MITN CONTINUE 3- 4.00	T-TEST APPROX.	IS FOR VARIABLE AVERADE	MICC	2	~ 2	MILCOXON 2-SAN (MITN CONTINUT 5- 4.00	T-TEST APPROX.	FOR VARIABLE 9	AVERADE 5	MILCOX	Ŧ	- 21	HILCOXON 2-SAMP (HITN CONTINULT) 5- 0.50	T-TEST APPROX.
		NGL.	öä			ANAL YS I		15751	NE0 705			ANAL 7515			EVEL	03 03		-
	-	STD DEV UNDER HO	5.26	0x1MaT10N) >{2}-6.3545		AOX (MATION) CMI 59-0.2401	VARIABLE GROUP Dr Ties	(SM)		Cuber no	FROXIMATION)	0 >121-0.7150		PPROXIMATION) > CH159+8.3839				
		EXPECTED UNDER NO		OMMAL AFR DM BF .5) FROB	CE+0.3728	SQUARE AFT	SIFIED DY (ES CRAME SU	EXPECTES		(NORMAL AF		AMCE+0, 721	1-54UARE A 1 PROD				
	UN SCURES	SUM OF SCORES	3.50	LE TEST (M 7 CORRECTE 2+-0.9250	SIGNIFICAN	TEST (CHI-	E 450 CLAS	axon scont	sum of	50065 5.30 85.30	MPLE TEST	22	. SIGNIFIC	S TEST (CH				
		8	12	HILCOXON 2-SAMP	I-TEST APPROX.	RUSKAL -MALL 15	LES FOR VARIABLI AVERADO	MELC	:	= -2	MILCOXON 2-SA (MITM CONTINU	3- 5.50	T-TEST APPROX	KRUSKAL-MALLT CHISG= 0.30				
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	-	STB BEV UNDER NO	22.5	(0X1MA110M) > 2 = 0 . 4404		IABLE CROWP	1163	-	SID DEV UNDER NO		10×11411000 >121=0.3039		IABLE ORDUP	1165		STB DEV UNDER NO	2.15	DX MA T OH) > Z • 0 . 8312	
	(RAME SUNS	EXPECTED UNDER NO	••••••••••••••••••••••••••••••••••••••	HORMAL AFPR 104 05 .5) PROB	NCE+0.4533	FIED BY VAR	E USED FOR	CRANK SUNS	EXPECTED Umder Mo	***	NORMAL AFR 104 OF 55 7808	NCE-0.4003	IED DY VAN	USED FOR	(RANK SUMS)	EXPECTED UNDER NO		ORMAL APPR	CE-0.8347
34 URE3 REM	DXON SCORES	SUN OF SCORES	•••	MPLE TEST (ITY CORRECT Z+-0.7715	. SIGNIFICA	440 CLASSI	SCORES MERI	DXON SCORES	SUM OF	10.50	MPLE TEST (117 CORRECT 2= 0.0716	. SIGNIFICA	411 CLASSIF	SCORES MERI	XON SCORES	SUN OF SCORES		PLE TEST () 117 CORRECTI 2+ 0.2132	SIGNIFICAL
ALKAU	MILC	2	-2	ILL COXON 2-54 MITH CONTINU 5- 4.00	I-TEST APPROX	FOR VARIABLE	AVERAGE	MILCI	2	-2	411.COXON 2-5A (MITH CONTINU 5+ 10.50	I-TEST APPROX	FOR VARIABLE	AVERADE	MILCO	Ŧ	-2	ILCOXON 2-5A MITH CONTENUI 4 0.00	-TEST APPROX.
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A 1165	HS)	SID C	~~	PROXIMAT	1	DY VARIADI	9 FOR 115	K SUNS)			PROF 1	. 3983	DY VAN	SED FOR T	ANK SUMS)	PECTED DER HO		MAL AFTRO OF 5) V	
E USED 14	CRANE SU	EAPECTER UNDER NO	20.7 20.7	NORMAL A	INCE+1.00(I SSIFIED 1	MERE USE	DRES LRAN	OF EXPE		51 CHORMA	FICANCE-	LASSIFIEL	S HERE US	SCORES (R	A OF EXI		1657 (MOR) Darection 0.8762	
CORES NER	ION SCORES	SUM OF SCORES		PLE TEST (IY CORRECT	\$10M1F1C	LE 039 CL4	DE SCORES	LCOXOM SC	MUS		SAMPLE TE	10X. 510MI	NOLE 030 C	TAGE SCORE	HILCOXON :			2-SAMPLE TINUITY C	•
AVERAGE S	MILCOX	2	1	LCOXON 2-SAM	TEST APPROX.	L FOR VARIABL	AVENA	Ĩ	:	E	MILCOXON 2- CMITN CONTI	1-1651 APPH	ALLA FOR VARIA	AVEI	-		-	MILCOXON (MITM CON	
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AMALYSIS FOR VARIADLE 9 45 Classified by variadle Gaoup Averade scores were used for ties	MILCOXON SCORES (RAMK SUNS)	LEVEL BUNGF EXPECTED STD DEV Scores Under No Under No		WILLUARD Z-SAWLE [53] (NORMAL AFROXIMATION) (MIN Continuity Contection of 5) 54 2.00 zel.274 from 710-124-2324	T-IEST APPROX. SIGNIFICANCE+0.2245	ANALYSIS FON VARIABLE 446 CLASSIFILM BI VARIABLE GRUUP Average scores mere der ties	MILCOYON SCORES (RAME SUNS)	LEVEL SUM OF FAFECTED STD DFU	NEG I S.00 Y.A. UNDER HO UNDER HO	12 84.00 84.00 84.00 3.33 Milcoxom 2-Sample 1651 (Normal Approximation)	5+ 5-00 2+00 450 0F 5) 5+0-4522	T-FEST APPROX. SIGNIFICANCE-0.4602	AMALYSIS FOR VARIABLE 947 CLASSIFIED BY VARIABLE OROUP Averade scores mere used for tles	MILCOXON SCORFS (RAMK SUMS)	SUM OF EXPECTED STD DEV	NLO N 3-104E3 UNDER NO UNDER NO NLO 1 9-50 7-00 3-50 Pag	MILCOXON 2-SAMPLE 1551 (MORMAL APPROXIMATION) (MITM COMFINULTY CORRECTION OF 5)	5* 5.38 Z**6 Z459 PROB >1Z1+8.7749 T-TEST APPROX. Significance+0.7798
1163	3)	STO DEV Under no 3.45	J. 4J ROXIMATION)	>{2 -0.6619		A TIES	MS.)	STD DEV UNDER MO	**	PROXIMATION)			R 1165	45)	SID DEV UNDER No	1.50	PROXIMATION)) > 2 =0.2106	
E USED FOR	CRAME SUM	EXPECTED UNDER HO	I I I I I I I I I I I I I I I I I I I	PROB		te us en fo	I LEAME SU	EXPECTED UNDER NO	~	HORMAL AP	MCE+1.000	•	IE USED FO	I LANK SU	FXPECTED UNDER MO		NORMAL AP	MCE+0.234
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1-1651 APPRIOK. STOULFICANCE-0.7234 I-1651 APPRIOK. STOULFICANCE-0.7234 GRUSGAL-MALLI3 TCAL SQUARE APPROX GRUSGAL-MALLI3 TCAL SQUARE APPROX GRUSGAL-MALLI3 TCAL SQUARE APPROX GRUSGAL-MALLI3 TCAL NILCOXON SCORES (RAME GRUSGA- 0.30 DF+ 1 SUAPE DF+ GRUSGA- 0.30 12 0.30 2.76 MECO 12 0.30 0.00 2.74 MILCOXON 2.23MPLE TCA D40 2.74		MILCOXON 2-5AM (MITH CONTINUI 3- 8.50	PLE 151 -	HORMAL AFT	ROXIMATION) > 2 • 6 . 7 1 7 1	AMALYSI	S FOR VARIABLE AVERAGE	SCORES ME	IFICD DY VA	RIANCE CHOUP
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							WILCOXON 2-51 (MITH CONTINU 54 8.50	MPLE 1551	TION OF ST	121-0.7171

TABLE FIFTEEN- continued

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TABLE SIXTEEN- HYPOTHESIS SEVEN, COMPANY A PLANT ONE

ANALYSIS FOR VARIABLE 928 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

WILCOXON SCORES (RANK SUMS)

LEVEL	M	SUM OF Scores	EXPECTED Under Ho	STD DEV Under Ho	MEAN Score
POS	12	2.50 88.50	7.00 84.00	3.56 3.56	2.50
	WILCOXON 2-SAMPL (WITH CONTINUITY S= 2.50 Z	E TEST (Correct =-1.1228	NORMAL APPR 10N OF .5) PROB	OXIMATION) >121=0.2615	
	T-TEST APPROX. S	IGNIFICA	NCE=0.2835		
	KRUSKAL-HALLIS TI Chisq= 1.60	DF= 1	-SQUARE APP Prob > (ROXIMATION) CHISQ=0.2065	

ANALYSIS FOR VARIABLE 927 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

WILCOXON SCORES (RANK SUMS)

LEVEL	N	SUM OF Scores	EXPECTED Under Hø	STD DEV Under Ho	MEAN
NEG POS	112	7.80 84.00	7.88 84.80	3.86 3.86	7.00 7.00
	MILCOXON 2-SAU (MITH Continu) 5= 7.00	WPLE TEST (Ity correct Z= 0.163(NORMAL APPI IION OF .5) PROB	ROXIMATION) > Z =0.8701	
	T-TEST APPROX.	. SIGNIFIC	NCE=0.8728		

RRUSRAL-HALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.00 DF= 1 PROB > CHISQ=1.0000

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H8: Perceived performance (self-reported) of managers who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to question 61 using the Wilcoxon rank sum test (Table 17). Employing .05 significance level H0 could not be rejected.

H9: The perceived performance of those managers who reported a strong pay-performance linkage and those who reported a weak pay-performance linkage.

First the respondents were grouped according to their payperformance linkage based on questions 27 and 28. Those individuals whose responses totaled 7 or less were classified as the strong pay-performance group (SFP), those whose responses totaled 8 were dropped from this analysis, and those whose responses totaled 9 or more were classified as the weak pay-performance group (WPP). Next these groups were compared with respect to questions 61 and 62 using the Wilcoxon rank sum test (Table 18). Employing .05 significance level HO could not be rejected with respect to either question.

Additonally, questions 1-53 were analyzed with a RCB design with managerial levels being treatments and blocking

TABLE SEVENTEEN- HYPOTHESIS EIGHT, COMPANY A PLANT ONE

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AMALYSIS FOR VARIABLE Q61 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

WILCOXON SCORES (RANK SUMS)

LEVEL	N	SUM OF Scores	EXPECTED Under Ho	STD DEV Under Hø	MEAN Score
NEG POS	112	2.00 89.08	7.00 84.00	3.51 3.51	2.00 7.42
	WILCOXON 2-SAMP (WITH CONTINUIT S= 2.00	LE TEST (Y CORRECT Z=-1.2827	NORMAL APPR Ion of .5) Prob	OXIMATION) > Z =0.1996	
	T-TEST APPROX.	SIGNIFICA	NCE=0.2238		
	KRUSKAL-MALLIS CHISQ= 2.03	TEST (CHI DF= 1	-SQUARE APP PROB >	ROXIMATION) Chisq=0.1541	

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TABLE EIGHTEEN- HYPOTHESIS NINE, COMPANY A PLANT ONE

ANALYSIS FOR VARIABLE Q61 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL	N	SUN OF Scores	EXPECTED Under no	STD DEV Under Ho	MEAN Score
SPP NPP	13 2	95.80 25.00	104.00 16.00	5.54 5.54	7.31 12.50
	WILCDXON 2-SAM (MITH CONTINUI S= 25.00	PLE TEST (TY CORRECT Z= 1.535	NORMAL APPI ION OF .5) PROB	NOXIMATION) >{2 =0.1247	
	T-TEST APPROX.	SIGNIFIC	NCE=0.1469		
	KRUSKAL-HALLIS Chisq= 2.64	TEST (CH) DF= 1	-SQUARE APP PROB >	ROXIMATION) CHISQ=0.1040	

ANALYSIS FOR VARIABLE 96200 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

L EVEL	N	SUM OF Scores	EXPECTED Under Ho	STD DEV Under Hø	MEAN Score
SPP NPP	13 2	101.00 19.80	104.00 16.00	5.66 5.66	7.77 9.50
	WILCOXON 2-SAU (WITH CONTINU) S= 19.00	PLE TEST (TY CORRECT Z= 0.4419	(NORMAL APPI 110N OF .5) PROB	ROXIMATION) >121=0.6586	
	T-TEST APPROX.		NCE=0.6653		

KRUSRAL-HALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.28 DF= 1 PROB > CHISQ=0.5959

on departments, next the results were analyzed using Duncan's Multiple Range Test to determine the agreement with respect to the questions (Table 19). As indicated there is a significant difference across all managerial levels, although there is considerable agreement within ranks with the plant manager differing most from the departmental managers.

Guestion 62, performance rankings, was analyzed with a RCB design using managerial levels as treatments and blocking on departments. The results indicated there was no significant difference in rankings assigned departments across managerial levels. The responses for all individuals to all questions is presented in Table 20.

TABLE NINETEEN- QUESTIONNAIRE RESPONSE COMPARISON, COMPANY A PLANT ONE

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	N 3N	NS WITH TH	E SAME	LETTER A	RE NOT SIGNI	FICANTL	Y DIFFE	RENT.			
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TABLE TWENTY- QUESTIONNAIRE RESPONSES, COMPANY A PLANT ONE

APPENDIX G- COMPANY A, PLANT TWO ANALYSIS OF HYPOTHESES

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H1: Perceptions of equitability of the performance report with respect to its perceived use (high or low) for performance evaluation purposes.

First the respondents were grouped on question 4 (all questions came from Appendix E), responses 1-3 formed the high use group and responses 5-7 formed the low use group. Individuals who responded to the question by answering N (neither) were eliminated from this part of the analysis. These groups were then analyzed with respect to questions 26 (Q26A) and 33 (Q33A) using the Chi-Square test of the small number of independence (Table 21). Due to respondents within three cells HO regarding Q26A and Q33 could not be accepted or rejected.

H2: Perceptions of equitability with respect to positive and negative path perceptions

First the respondents were grouped according to their responses to questions 24 and 25, if the responses totaled 7 or less they were placed in the positive path group, 8 discarded for this part of the analysis, and 9 or more formed the negative path group. Next these groups' responses to questions 26 and 33 were analyzed using the Chi-Square test of independence (Table 22). Since none of the respondents perceived a negative path no statistical TABLE TWENTY-ONE- HYPOTHESIS ONE, COMPANY A PLANT ONE





GROUP	Q33A		
FREQUENCY PERCENT ROM PCT COL PCT	AGREE	DI SAG	TOTAL
POS	20 95.24 95.24 100.00	1 4.76 4.76 100.00	21 100.00
TOTAL	20 95.24	4.76	21 100.00

analysis could be performed. Thus HO could not be accepted or rejected.

Since all these respondents had a positive path no further analysis could be done on this plant with respect to positive and negative groupings. Thus, the two plants from company A were pooled with the following results. H1 and H2 contained three cells with small numbers so H0 could not be rejected or accepted (Tables 23 and 24).

H3: Perceptions regarding task role characterisitics by those who perceived a positive path and those who perceived a negative path.

The groupings formed for H2, positive and negative groups, were analyzed using the Wilcoxon rank sum test with respect to questions 5, 7, 8, 9, 10, 11, 14, and 23 (Table 25). No statistical analysis could be performed on questions 11 and 14 since the one repondent who indicated a negative path did not answer these questions. Employing .05 significance level H0 could not be rejected for any of the questions.

H4: Perceptions of supervisory style by those individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with

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TABLE TWENTY-THREE- HYPOTHESIS ONE, POOLED DATA COMPANY A



TABLE TWENTY-FOUR- HYPOTHESIS TWO, POOLED DATA COMPANY A



	ASSITTLE BY VALLADE GOUT ANALYSIS FOR VARIABLE OF CLASSIFIED BY VARIABLE OR 13 Mere used for ties Average scores mere used for ties	CORES (RAMK SUMS) Milcoxom Scores (Ramk Sums)	E OF EXPECTED 319 DEV NECS UNDER NO UNDER NO		(EST (MORMAL APPROXIMATION) 705 37 721.00 721.00 9.4 Mrection of .5) Milcoron 2-sample test (Mormal Approximation .1940 Prob >121-0.0446 (Mith Comtimuty Correction of .3)	11F1CANCE-0.0457 5* 20.00 2* 0.0000 PROD 12[-1.0	1-TEST APPROX. SIOMIFICANCE-1.000 Lassified by variable oroup - Amalybis for variable old classified by under a	ES MERE USED FOR TIES AVERADE SCORES MERE USED FOR TIES	SCORES (RAME SUMS) MILCORON SCORES (RAME SUMS)	1 OF EXPECTED STD DEV Dres under no under no level n Scores under na		EST (MORMAL AFPROXIMALION) MILCOXON 2-SAMPLE TEST (MORMAL AFPROXIMALION) Intection of 5) (Mith Continuity Correction of 5) 1-3132 Prod >121-4 3424 5- 4.00 -1.1 4.1 - 3.2	If ICANCE+0 7544 T-1651 APPROX. SIGNIFICANCE+0.1234	LASSIFIED BY VARIADLE Group Amalysis for variable 423 classified by Varian e Amalia	ES MERE USED FOR TIES AVERADE SCORES MERE USED FOR TIES	SCORES (RAME SUMS) WILCOXON SCORES (RAME SUMS)	A OF EXPECTED STD DEV Dates under no whole no level n Scores under na Lunde no	1. 30 19 10. 17 NEG 1 13. 50 10. 17 NEG 10. 27 <th< th=""><th>[EST (MORNAL AFFROXIMATION) MILCOXOM 2-SAMPLE TEST (MORNAL AFFROXIMATION) DARECTION OF .3) MILMULTY CONTINUITY CONRECTION OF .3) 1.2289 FROD Y[Z]=0.2191 3. 13.59</th></th<>	[EST (MORNAL AFFROXIMATION) MILCOXOM 2-SAMPLE TEST (MORNAL AFFROXIMATION) DARECTION OF .3) MILMULTY CONTINUITY CONRECTION OF .3) 1.2289 FROD Y[Z]=0.2191 3. 13.59
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TABLE TWENTY-FIVE- HYPOTHESIS THREE, POOLED DATA COMPANY A

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respect to questions 1, 2, 3, 6, 12, 13, 15, 16, 17, 19, 20, 21, and 32 using the Wilcoxon rank sum test (Table 26). Employing .05 significance level HO could not be rejected with respect to any of the questions.

The p values for questions 15 (.0926) and 20 (.0892). however, do indicate that some relationship exists. With respect to question 15, it appears that the individual who perceived a negative path also perceives that his superior does not ask for his advice while those who perceived a positive path generally felt that their supervisor asked for their advice. Additionally, the individual who perceived a negative path also indicated that the company does not set high performance goals (Q 20) on the other hand the positive group generally indicated that the company did set high performance goals. Both of these responses would be expected theoretically since the individual who perceives a negative path is likely to also feel that he is not as involved in the decision making process which affects the goals or standards and in turn the performance report.

H5: Motivation of individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 29, 30, 31, 36, and 37 using the Wilcoxon rank sum test (Table 27). Employing .05

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TABLE TWENTY-SIX- HYPOTHESIS FOUR, POOLED DATA COMPANY A

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(MITH CONTINUE) 5. 8.50	TY CORFC		1214 8	4710H) +0.3027		MILCOXON 2-SAN (MITN CONTINUI 5- 0.00	PLE TEST (TY CORRECT Z1.0098	MORMAL APPA 10N DF 5) PROD	0X[MAT10N)
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CH154+ 1.17		PROP 1		Q-0.2105	AMAL YS IS	FOR VARIABLE	N CLASSIFI	IED BY VARI	IDLE CROWF
						AVERAGE :	SCORES MERI	E USED FOR	1163
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RRUSKAL-MALL CMISQ: 0.1	15 TESI	ICHI-SQUAR	10 - CO	0X [MAT 0M) M 59-0.5455		MILCO	XOH SCORES	(RAMK BUNS	•
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					705	-16	714.00	721.50	
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TABLE TWENTY-SEVEN- HYPOTHESIS FIVE, POOLED DATA COMPANY A

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AMALYSIS FOR VARIADLE 936 CLASSIFIED DY VARIADLE Omoup Average 300023 mere used for fies	MILCORDM SCORES (RAME SUNS)	LEVEL N SCORES UNDER NO UNDER NO	MEG 1 10.30 19.30 9.39 POS 37 730.50 721.50 9.59	MILCOXOM 2-SAMPLE TESI (MORMAL AFPROXIMATIOM) (MITM COMIIMUITY CONNECTION 0F .5) 3* 10.50 Z==0.001 PROD >1Z+0.3754	T-TEST APPROX. SIGNIFICANCE-0.3015	KRUSKAL-MALLIS TEST (CM1-SQUARE APPROXIMATION) CM15q= 0.04 Df= 1 PROD > CM15q=0.3481	AMALYSIS FOR VARIABLE 437 CLASSIFIED BY VARIABLE ORDUP	AVERADE SCORES MERE USED FOR TIES	MILCOXON SCORES (AANK SUNS)	LEVEL M SCORES UNDER NO UNDER NO	MEG 1 24-59 19-50 9-40 POS 37 714-50 721-50 9-60	WILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINULTY CONTECTION OF 55) 54 64 2435 24 2435	T-TEST APPROX. STONIFICANCE-0.5043	KRUSKAL-MALLIS TESI (CHI-SQUARE APPROXIMATION) Chisge 0.52 dfe 1 prod > Chisge0.4400					
AMALYSIS FOR VARIABLE 929 CLASSIFIED BY VARIABLE OROUP Average scores mere used for ties	MILCORON SCORES (RAME SUMS)	LEVEL BUDER NO UNDER NO UNDER NO	HEO 1 10.00 19.50 9.62 POS 37 751 00 721.50 9.62	MILCONOM 2-SAMPLE IESI (MORMAL APPROXIMATION) (MIIN Comitmulty Correction of .5) 5+ 10.00 Z+-8.9554 Prod > z +0.3494	T-165T APPROX, SIONIFICANCE+0.3355	AMALY313 FOR VARIABLE 930 CLASSIFIED BY VARIABLE ONDUP	AVERAGE SCORES MERE VSEB FOR TIES	MILCOXON SCORES (RAME SUMS)	LEVEL N SUM DF EXPECTED STD DEV LEVEL N SCORES UNDER NO UNDER NO	MC0 11.13.50 19.50 0.05 P05 57 727.50 721.50 0.05	MILCOXOM 2-SAMPLE TEST (MONNAL AFFACKIPATION) (MITM CONTINUTY CONSCILON 05 -5) (MITM 2011MULTY -2014551000 05 -5)	T-TEST APPAGK, SIGNIFICANCE-0.3373	AMALYSIS FOR VARIABLE QJI CLAJSIFIED BY VARIABLE GROUP	AVERADE SCORES MERE USED FOR TIES	MILCOXON SCORES (RAMK SUMS)	SUM OF EXPECTED STD DEV LEVEL N SCORES UNDER NO UNDER NO	MEO 1 11.50 19.00 9.16 POS 36 691.50 684.00 9.16	MILCOXON 2-SAMPLE 1551 (NORMAL AFPROXIMATION) Cmith Comitwuiit Confection of 35 2. 11.50 2.6.3440	T-TEST APPROX. STOMIFICANCE-0.4498

significance level HO could not be rejected with respect to any of the questions.

H6: Job facet perceptions of those who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 34, 35, and 38 - 52 using the Wilcoxon rank sum test (Table 28). Employing .05 significance level HO could not be rejected with respect to any of the questions.

H7: Perceived pay-performance linkage by those who perceive a positive path and those who perceive a negative path.

The positive and negative groups were compared with respect to questions 27 and 28 using the Wilcoxon rank sum test (Table 29). Employing .05 significance level HO could not be rejected with respect to either of the questions.

H8: Perceived performance (self-reported) of managers who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to question 61 using the Wilcoxon rank sum test

TABLE THENTY-EIGHT- HYPOTHESIS SIX, POOLED DATA COMPANY A

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	-1	714.50	721.50	•••	705 705	-16	24.56	19.50	
ī.	ICOXON 2-SAMT ITH CONTINUTT 26.50	LE TEST (Y CORRECT 2. 0.4966	IN OF ST	0X[MAT]0N) >121-0.4041		MILCORON 2-54 (MITM CONTINU 5+ 24.90	MPLE TEST (ITY CORRECT Z= 0.5524	HORMAL AFR	0x1MAT10W) >171-6 \$644
-	TEST AFPROX.	SIGNIFICA	NCE-0.4994			1-1651 APPROX	SIGNIFICA	NCE+0. 3974	
ĒŚ	USKAL-MALLTS 154- 0.54	TEST (CHI	-SQUARE APP	ROX MAT OH) CHI 54-8.4532	ANAL YS I	S FOR VARIADLE	631 CLASSI	IED BY VAN	IABLE GROW
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04	-19	25 00	721.59	8.72 8.72		MILCOXON 2-5AI (MITN CONTINUI 5- 23.50	PLE TEST (1)	IOMAL APPE	DXIMATION) >121-0.4539
33	ILCOXON 2-SAN	PLE TEST	HORMAL AFT	OXIMATION)		T-TEST APPROX	SIGNIFICAL	KCC+0.4363	
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					n60 705	-12	23.50	721.50	10.7
						MILCOXON 2-1 (MITH COMIII 5- 25.50	SAMPLE TEST NULTY CORRE 2. 0.44	CHURNAL AP	PROXIMATION)

TABLE TWENTY-NINE- HYPOTHESIS SEVEN, POOLED DATA COMPANY A

ANALYSIS FUR VARIABLE 427 CLASSIFIED DT VARIANLE ...

MILCOXON SCORES (RANK SUNS)

LEVEL	н	SUM OF Scores	EXPECTED Under Ho	STD DEV Under Ho	MEAN Score
NEG POS	1 37	21.50 719.50	19.50 721.50	9.73 9.75	21.50 19.45
	WILCOXON 2-SAM (NITH CONTINUI \$= 21.50	PLE TEST (TY CORRECT Z= 0.1541	NORMAL APPI Ion of .5) Prob	ROXIMATION) >{2{=0.8775	
	T-TEST APPROX.	SIGNIFICA	NCE=0.8783		
	KRUSKAL-HALLIS Chisq= 0.04	TEST (CHI DF= 1	-SQUARE APP PROB >	ROXIMATION) Chisq=0.8372	

ANALYSIS FOR VARIABLE 928 CLASSIFIED BY VARIABLE BROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF SCORES	EXPECTED UNDER NO	STB DEV Under Ho	MEAN Score
NEG POS	1 37	6.00 735.00	19.50 721.50	10.61 10.61	6.00 19.86
	MILCOXON 2-1 (MITH CONTIN S= 6.00	NITY CORRECT Z=-1.224	(NORMAL APPI TION OF .5) 7 PROB	ROXIMATION) > 2 =0.2207	
	T-TEST APPRO	X. SIGNIFIC	NCE=0.2284		
	KRUSKAL-MALL CHISQ= 1.6	IS TEST (CH) 2 DF= 1	-SQUARE API PROB->	ROXIMATION) CHISQ=0.2034	

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(Table 30). Employing .05 significance level HO could not be rejected.

H9: The perceived performance of those managers who reported a strong pay-performance linkage and those who reported a weak pay-performance linkage.

First the respondents were grouped according to their payperformance linkage based on questions 27 and 28. Those individuals whose responses totaled 7 or less were classified as the strong pay-performance group (SPP), those whose responses totaled 8 were dropped from this analysis. and those whose responses totaled 9 or more were classified as the weak pay-performance group (WPP). Next these groups were compared with respect to questions 61 and 62 using the รแก test (Table 31). Employing .05 Wilcoxon rank significance level HO could not be rejected with respect to Question 61 (.0946). however, does either question. indicate some relationship exists. A review of the responses indicates that those individuals with the WPP linkage tended to assign higher rankings (4's & 5's) to themselves.

The results of H9, for plant two singularly, are presented in Table 32 with essentially similiar results. A RCB design was utilized with respect to questions 1-53 with managerial levels serving as treatments and blocking on departments.

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TABLE THIRTY- HYPOTHESIS EIGHT, POOLED DATA COMPANY A

ANALYSIS FOR VARIABLE 961 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

LEVEL	M	SUN OF Scores	EXPECTED UNDER HO	STD DEV Under Ho	NEAN Score
NEG POS	1 36	3.00 700.00	19.80 684.80	9.75 9.75	3.00 19.44
	MILCOXON 2-SAM (MITH CONTINUI S= 3.00	PLE TEST (TY CORRECT Z=-1.5891	NORMAL APPE Ion of .5) Pros	XOXIMATION) > Z =0.1120	
	T-TEST APPROX.	SIGNIFICA	HCE=0.1208		
	KRUSKAL-MALLIS CHISQ= 2.69	TEST (CHI DF= 1	-SQUARE APP PROB >	ROXIMATION) CHISQ=0.1009	

TABLE THIRTY-ONE- HYPOTHESIS NINE, POOLED DATA COMPANY A

ANALYSIS FOR VARIABLE 061 CLASSIFIED BY VARIABLE OROUP AVERAGE SCORES MERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL			SUM OF SCORES	EXPECT UNDER	ED STD DE No Under M	IV NEAN
SPP NPP	3	4 4	666.50 113.50	700. 89.	00 19.7 00 19.7	4 <u>19.04</u> 4 28.3 8
	WILCOXON 2	-SAMPI	E TEST	(NORMAL	APPROXIMATIO	N)

(MITH CONTINUITY CORRECTION OF .5) S= 113.50 Z= 1.6717 PROB >|Z|=0.0946

T-TEST APPROX. SIGNIFICANCE=0.1028

KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 2.88 DF= 1 PROB > CHISQ=0.0897

AMALYSIS FOR VARIABLE 06200 CLASSIFIED BY VARIABLE OROUP AVERAGE SCORES MERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

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LEVEL		SUN OF SCORES	EXPECTED WIDER HO	STD DEV Under Hø	SCORE
SPP MPP	35 4	677.00 103.00	700.00 60.00	20.28 20.28	19.34 25.75
	MILCOXON 2-SAU (MITH CONTINU) S= 103.00	PLE TEST ITY CORREC 2= 1.109	(NORMAL APP TION OF .5) 5 PROB	RDXIMATION) > Z =0.2672	
	T-TEST APPROX	. SIGNIFIC	ANCE=0.2742		
	KRUSKAL-MALLIS CHISG= 1.29	S TEST (CH DF+	L-SQUARE API L PROB >	PROXIMATION) CHI59=8.2567	

TABLE THIRTY-TWO- HYPOTHESIS NINE, COMPANY A PLANT TWO

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ANALYSIS FOR VARIABLE 461 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF SCORES	EXPECTED Under Ho	STD DEV Under Hø	MEAN SCORE
SPP MPP	22 2	270.00 30.00	275.00 25.00	8.38 8.38	12.27 15.00
	MILCOXON 2-SAM (MITN CONTINUI S= 30.00	PLE TEST (TY CORRECT Z= 0.537	NORMAL APPI 110N OF .5) 5 PROB	ROXIMATION) > 2[=0.5911	
	T-TEST APPROX.	SIGNIFIC	NCE=0.5962		
	KRUSKAL-MALLIS CHISQ= 0.36	TEST (CH)	-SQUARE API PROB >	PROXIMATION) Chisq=0.5505	

ANALYSIS FOR VARIABLE 96200 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL	×	SUN OF Scores	EXPECTED UNDER HO	STD DEV Under Ho	MEAN Score
SPP NPP	22 2	264.50 35.50	275.00 25.00	8.84 8.84	12.02 17.75
	MILCOXON 2-SAU (MITH CONTINU) \$= 35.50	WPLE TEST (ITY CORRECT Z= 1.1317	NORMAL APPI IION OF .5) PROB	ROXIMATION) > Z =0.2577	
	T-TEST APPROX	. SIGNIFIC	NCE=0.2694		
	KRUSKAL-HALLI CHISQ= 1.41	S TEST (CH) DF= 1	I-SQUARE API	PROXIMATION) CHISQ=0.2347	

Although a significant difference exists across managerial levels the analysis using Duncan's Multiple Range Test (Table 33) indicates that generally the reponses were similiar with the most notable differences occurring between the plant manager, and departmental managers and assistant manaders. Performance rankings (Q 62) were also analyzed using a RCB design, again blocking on departments and using managerial levels as treatments, which indicated that there was a significant difference across managerial levels. Further analysis between levels indicated that plant managers were different from supervisors (.0143059), and supervisors were different from departmental supervisors (.0384542) and assistant supervisors (.0227278). Additionally, Table 34 presents the responses of all individuals to all questions.

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TABLE THIRTY-FOUR- QUESTIONNAIRE RESPONSES, COMPANY A PLANT THO

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TABLE THIRTY-FOUR- continued

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APPENDIX H-COMPANY B, PLANT ONE STATISTICAL ANALYSIS OF HYPOTHESES

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H1: Perceptions of equitability of the performance report with respect to its perceived use (high or low) for performance evaluation purposes.

First the respondents were grouped on question 4 (all questions came from Appendix E), responses 1-3 formed the high use group and responses 5-7 formed the low use group. Individuals who responded to the question by answering N (neither) were eliminated from this part of the analysis. These groups were then analyzed with respect to questions 26 (Q26A) and 33 (Q33A) using the Chi-Square test of independence (Table 35). No respondents indicated disagree or low use so no analysis could be done regarding Q26A and Q33A.

H2: Perceptions of equitability with respect to positive and negative path perceptions

First the respondents were grouped according to their responses to questions 24 and 25, if the responses totaled 7 or less they were placed in the positive path group, 8 discarded for this part of the analysis, and 9 or more formed the negative path group. Next these groups' responses to questions 26 and 33 were analyzed using the Chi-Square test of independence (Table 36). Since none of the respondents perceived the performance report to be TABLE THIRTY-FIVE- HYPOTHESIS ONE, COMPANY B PLANT ONE



RON PCT COL PCT	AGREE	IDISAG	TOTAL
NIG	7 87.50 87.50 100.00	12.50 12.50 100.00	100.00
TOTAL	7 87.50	12.50	, 100.00

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22.22

9 100.00

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77.78

TOTAL

TABLE THIRTY-SIX- HYPOTHESIS TWO, COMPANY B PLANT ONE

inequitable (disagree) for Q26, and none perceived a negative path for Q33 no statistical analysis could be performed. Thus HO could not be accepted or rejected.

H3: Perceptions regarding task role characterisitics by those who perceived a positive path and those who perceived a negative path.

The groupings formed for H2, positive and negative groups, were analyzed using the Wilcoxon rank sum test with respect to questions 5, 7, 8, 9, 10, 11, 14, and 23 (Table 37). Employing .05 significance level H0 could not be rejected except for question 7 (.0194). The negative path individual indicated he neither agreed nor disagreed that just doing his job gave him chances to figure out how well he was doing.

H4: Perceptions of supervisory style by those individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 1, 2, 3, 6, 12, 13, 15, 16, 17, 19, 20, 21, and 32 using the Wilcoxon rank sum test (Table 38). Employing .05 significance level HO could not be rejected with respect to any of the questions.

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THIRTY-SEVEN-
TABLE

Į.	= ~	SCORES		518 BEV UNDER H0 5.42	12421	2	sun of scores	EXPECTED UNDER NO	318 BEV UNDER NO
	MILCORON 2-SAM	7.00	NORMAL AFF	5.42 IOXIMATION)	705 NC O	21	79.00	:: :``	2.29
	5- 7.00 5- 7.00 7-707 40004	2- 0.1462		7 121-0 .0017		MILCOXOM 2-5AM (MITM COMFINUE 5- 12.00	TY CORRECT 2. 1.5292	NORMAL APPE	0X INAT 100)
	CH159- 0.00	Tray (CH		nox1m17[en) CN15q=1.000		T - TEST APPAGX. ERUSKAL -MALLIS CM130- 2.10	SIGNIFICA TEST (CHI DF - 1	MCC+8.2005 -30UANC APP -9000 -	Roximati o n) Chisqeg.1 397
EA 198	13 F an Variable	47 CLASSI	FICD BY VAR	IABLE BROWF	AMALYS	IS FOR VARIABLE	40 CLA3310	160 BY VAR	ADLE MONT
	AVERAGE	SCORES ME	AE USED FOR	1165		AVERAGE	SCORES MEN	IE USED FOR	1165
	MILC	exen scere	S CRAME SUM	18		MILCO	XON SCORE	CRAME SUM	-
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	MILCOKON 2-54 (MITM CONTINU 5- 15.00	MULE 1651 117 CORREC 2. 2. 357	(MORMAL AFT 1104 OF 51	ROXIMATI o n) - >121-0.0194		MILCOXON 2-5A IMITN CONTINU 3- 12.50	WLE TEST (177 COARECT 2+ 1.4521	HORMAL APPI	0X[MATION) >121-0.1445
	T-TEST APPROX	. SIGNIFIC	ANCE+0.0374			T-TEST APPROX	. SIGNIFIC	NCC-0.1719	
	CHISGE 4.36	3 TEST (CH	I-SQUARE AF	PROXIMATION) CMI59-0.0100		ERUSEAL-MALLE CHISQ: 2.55	S TEST CM	- SQUARE API	PROXIMATION) CHISQ-0.1100

TABLE THIRTY-SEVEN- continued

	MILCO	Ken Scents	iname suns			MILCO	tion scores	(name sum	3
IJA	2	SUM DE SCORES	CIFECTED UNDER NO	STD DEV Under No	12/21	=	SUN OF SCORES	CAFECTED UNDER NO	STO DEV UNDER NO
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•	MILCORDN 2-SAN IMITH CONTINUE 3- 9-30	PLE TEST (17 CORRECT 2. 0.5036	NORMAL AFR	0K1MAT10H1 >121-0.5500		MILCOXON 2-SAM (MITM CONTINUI 3- 11.00	PLE TEST (1 TY COARECT 2- 1.0233	104 05 51	NOK (MATEM) > Z = 0. 3052
	1-TEST APPARK.	SIGNIFICA	NCE+0. 5767			T-TEST APPROX.	SIGNIFICAL	NCE+0.3255	
	ROUSEN - MALL 15 CM154- 0.55	7657 (CM) 07		R0X MAT 0M CM 59+9 - 4462		KRUSKAL-MALLIS CNISQ= 1.37	1131 (CHI	- 5904AE AP	PROX 1MAT 18M) Chi 5 9 - 0 . 2413
	S FOR VALUES				ANAL VI	IIS F er variable	E 923 CLA33	A A AILI	900 319 01
	AVENADE	SCORES ME	RE USED FOR	1165		AVERAD	E SCORES M	rae used F	M 1123
	MILCO	KON SCORE	S CRAME SUMI	3		11M	COXON SCON	E (UVINE 3	(500)
IVEL		SUM OF	EXPECTED UNDER NO	STB BEV Lumber Ma	1 EVEL	2	SUM OF SCORES	EXPECTE UNDER N	D 310 04V
29	83 1	79.00	::		703 MC0	21			
	MILCOXON 2-540 (MITM CONTINUE 5- 12.00	PLE TEST 17 CORREC	I TON OF ACT	10×114471041) > 1 2 1 = 0 . 2045		MILCOKOM 2-1 (MITM CONTI 5- 11.00	MANULE TEST NULTY CORRE Z= 0.98	CTION OF CTION OF A PI CANCE-0.34	(*) 5) 108 > 121-0.32 125
	T - 1531 AFTROX. KRUSKAL-MALL 13 CM150- 1.99	1657 (CM	AMCE+0.2285 E-5Quare APF Prob >	1921041041194) Chisees, 1944		KRUSKAL-MAL	113 TEST (C	HI-SQUARE	APPROXIMATIO

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TABLE

															*				
ABLE ANOUP TIES	-	STO DEV UNDER NO		0X1MAT104) >121+0.1989		ALE COUP	1163		STB DEV UNDER ND	5.33	X [MAT] 00]		IABLE SHOW	1163	_	STB BEV UNDER NO	3. 33 3. 33	0%[MAT10#) 21-0.0904	
FIED DY VANI Ne used for	CINK SUNS	EXPLCTED UNDER NO		HORMAL AFR	MCE-0.2231	ICO DY VANIL	E USED FOR 1	(RAMK SUNS)	EXPECTED UNDER NO	••• ••• ••	NORMAL APPR	NCC+0.4602	FIED BY VAN	C USED FOR	CRAME SUNS	EXPECTED UNDER NO		NORMAL AFTR	WCE+0.1245
E 03 CLASSI	COXON SCORE!	SCORES	79.00	HPLE TEST ((. SIONIFICA	N CLASSIF	SCORES MEN	DXON SCORES	sun or scores	•••·•	HPLE TEST () 177 CORRECT 20 0.4507	SIGNIFICA	012 CLASSI	SCORES NER	OXON SCARES	SUN OF SCORES	79.00	NPLE TEST (117 CORRECT 2- 1.4525	. SIGNIFICA
F FAR VARIABL	MILL	2	71	MILCOXON 2-5/ (MITN CONTINU 3- 12.00	T-TEST APPRO	FOR VARIABLE	AVERAUE	MILC	2	3-	MILCOXOM 2-5A (MITM CONTINU 5+ 0.00	1-TEST APPROX	FOR VARIABLE	AVERADE	MILC	*	71 71	MILCOXON 2-5A (MITN CONTINU 5- 13.00	1-TEST APPROX
LICA IVAR		12421				AMAL VSIS			12A21	202 100		~	ANAL YSIS			LEVEL	703 NEO		
Dic mour Ties	-	SID DEV UNDER NO	77	DX1MAT20N) > 2 -0 . 1590		40% [MAT 10%) CM154-0. 1037	IABLE GROUP	1123	2	STB BEV UNDER NO	5.35	10×1141104)		FROKIMAT 10H) CH159-0.0714					
E USED FOR	CRAME SUNS	EXPECTED UNDER NO		104 0F 51	MCE-0.1640	-SQUARE APP	FIED DY VARI	RE USED FOR	S (RAMK SUM	EXPECTED UNDER NO	••• ••	TION OF ST		I -SQUARE AP					
41 CLASSIF SCORES MEN	NAM SCORES	sun of Scores	71.50	WIE TEST (177 COARCCT 2- 1 4794	. Slauffica	5 1631 (CM	1 42 CLASS	E SCORES ME	COXON SCORE	SUM OF SCORES	15.00	ANDLE TEST UTTY CORREC	2011 - 2	18 1831 (CH					
I FOR VARIADLE AVERADE	M11C1	8	2-	MILCONON 2-54 (MITH CONTENU) 5- 12.50	T-TEST APROX	CHISO- 2.45	IS FOR VARIABLE	AVERADI	1710	3	11	MILCOKON 2-5		ERUSEAL -MALL ERUSEAL -MALL					
II SA IVAN		I EVEL		·			I CA TUNE			I EVEL	703 140								

MICRORE SCHET MICR		IS Pen Vaniable - Averade -	NIS CLASSI Icones men	FIED BY VA	ALABLE GROUP 1163	AMAL VS	IS FOR VARIABLI AVERAOI	E GIA CLASS	IFICD DY VA Re used for	ALABLE MOW TIES
Matrix Const. Const.<		MI1C01	KON SCORES	I TANK SUN	. 5		111M	COXON SCORE	S (RAMK SUM	5)
1 1 1 1 3 1 1 3 9 1 1 1 1 1 1 3 1 <th>NEL</th> <th>2</th> <th>SUM OF SCORES</th> <th>EXPECTED UNDER NO</th> <th>SID DEV UNDER NO</th> <th>ובאבו</th> <th>=</th> <th>sun of scores</th> <th>EXPECTED UNDER NO</th> <th>STB BEV UMDER NO</th>	NEL	2	SUM OF SCORES	EXPECTED UNDER NO	SID DEV UNDER NO	ובאבו	=	sun of scores	EXPECTED UNDER NO	STB BEV UMDER NO
Initial control Initial control <td< td=""><td>29</td><td>21-</td><td>11.56</td><td>::</td><td>5.92 8.92</td><td>202 100</td><td>2-</td><td>5.20 5.20</td><td></td><td>5.50</td></td<>	29	21-	11.56	::	5.92 8.92	202 100	2-	5.20 5.20		5.50
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CUINANT		T-TEST APPROX.	\$10MIFICA	MCE-0.2784			T-TEST APPROL	K. SIMIFIC	AMCE-0.4005	
ANTAIS PER VALANE () CLASSIFIED BY VALANE () ANTAL () CLASSIFIED BY VALANE () ANTAL () CLASSIFIED BY VALANE () ANTAL ()		KRUSKAL-MALLTS CN154- 1.63	TEST (CM	-SQUARE AF	PROXIMATION) CHISQ-0.2017	AMAL YS	S FOR VARIABLE	017 CLASSI		IABLE BRUNN
AVERARE SCARES WARE USED FOR TELE MILCOTON SCORES FRAME SUMS) MILCOTON S	Ĩ	TOIS POR VARIABL	E 415 CLAS	VE ENTRE	VAN1ABLE OR OUP		AVERADE	SCORES MERI	L USED FOR	1163
HILCOREN SCORES (RAMK 3URS) LEVEL H SCORES (RYCCTO MILCOREN (RYCCTO MILCOR		AVERAD	CORS I		Fon TIES		MILCO	IXON SCORES	(RAME SURS	-
LEVEL I 300 CORES UNDER NO UNDER NO I		1)m	CORON SCOL	TES CRAME S	(540)	IEVEL	2	sum of scores	EXFECTED UNDER NO	STD DEV UMDER NO
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T-YEST AFFORM. SIGNIFICANCE-0 1703 T-YEST AFFORM. SIGNIFICANCE-0 1703 RUUSAAL-MULLI3 TEST (CHI-SQUART AFFOXTAATTOM) RUUSAAL-MULLI3 TEST (CHI-SQUART AFFOXTAATTOM) RUUSAAL-MULLI3 TEST (CHI-SQUART AFFOXTAATTOM) RUUSAAL-MULLI3 TEST (CHI-SQUART SIGNES MERE USED FOM TIES MILCONOM SCORES MERE USED FOM TIES NILCONOM SCORES (TALME SUNS) LEVEL N 3000 CATEGO SID BEAM RUUSAAL AFFOX NILCONOM SCORES (TALME SUNS) RECO SID AFFOXTAATTOM) RUUSAALAAL RUUSAALAALA SUNSIEL VIEL AFFOXTAATTOM) RUUSAALAALAALA SUNSIEL VIELA SUNS RUUSAALAALAALAALAALAALAALAALAALAALAALAALAAL		MILCOXON 2-5 (MITH CONTIN 3- 12.50	MULTY CORN	T (MORMAL) ECTION OF	AFPROXIMATION) 51 116 >121-0.1528		3• 12.50 T-T E ST APP RO X.	2+ 1.5374 310HIFICAL	PA08 HCE+0.1501	> Z • 0 . 1242
CHISQ: Z.47 BF: 1 PROD > CHISQ:0.1130 CHISQ: Z.47 BF: 1 PROD > CHISQ:0.1130 HILCORD SCORES MARK USED FOR TIES HILCORD SCORES (MARK SUNS) IEVEL N SUM OF EXPECTED STD BEV IEVEL N SUM OF EXPECTED STD BEV IEVEL N SUM OF EXPECTED STD BEV HILCORD 2-5404 (FORMALL APPRNIMATION) S. A.30 C.0.004 (FORMALL APPRNIMATION) AND C.0.004 (FORMAL APPRNIMATION) AND C.0.004 (FORM		1-TEST APPE	X. SIONIF	ICANCE-0 1	105	AMAL YS	IS FOR VARIABLE	414 CLA351	FIEW OF VAN	
HILCORON SCORES (RAIME SUNS) IEVEL N SCORES UNDER NO UNDER NO 12 04.39 04.00 31.22 NEG 12 04.39 04.00 31.22 NEG RAIM 2-9.0364 07 53		KRUSKAL-MALL CHISQ: 2.4	13 1631 6	CHI-SQUART	APPROXIMATION) b > CHI59-0.1150		AVERAGE	SCORES MEN	C USED FOR	1163
LEVEL N 5UM OF EXPECTED 510 BEV LEVEL N 5UM OF EXPECTED 510 BEV POS 12 04.30 04.00 5.22 NEG 12 04.30 04.00 5.22 MILCORM 2-SAMPLE TEST (NORMAL APPROXIMATION) CMITM CONTINUITY CONRECTION OF 5) So 4.30 20-0.0266 PROD 512100.5134							MILCI	DXON SCORES	(RAME SUNS	
POS 12 04.30 34.40 3.22 NEQ I 0.30 0.4.50 5.22 NILCOROW 2-SAMPLE TEST (NORMAL AFPORTINATION) CMINUTY CONSECTION OF 53 5.22 So 0.30 2-0.0260 FROD FILMATION						16461		SUN OF	EXPECTED UNDER NO	STB BEV UNDER NO
MILCOROM 2-SAMPLE TEST (MORMAL APPROXIMATION) (MITM CONTINUITY CONRECTION OF 5) 3° 4.90 2°-0.6204 PROB >121-0.5344						703 MEQ	71	4.50		5.22
							MILCOXON 2-54 (MITN CONTINUI 5- 4.50	WLE TEST ()	NORMAL AFT	0XINATION) >121-0.5346

TABLE THIRTY-FIGHT, contin

TABLE THIRTY-EIGHT- continued

ANALYSIS FOR VARIABLE Q20 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES MILCOXON SCORES (RANK SUMS) STD DEV UNDER HO SUM OF EXPECTED **MFAN** LEVEL SCORES UNDER NO SCORE POS 81.58 9.50 84.00 3.36 6.79 15 MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (NITH CONTINUITY CORRECTION OF .5) S= 9.50 Z= 0.5948 PROB >|Z|=0.552 F .5) PROB >|Z|+0.5520 T-TEST APPROX. SIGNIFICANCE=0.5630 KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.55 DF= 1 PROB > CHISQ=0.4572 ANALYSIS FOR VARIABLE 021 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES NILCOXON SCORES (RANK SUMS) SUM OF EXPECTED STD DEV MEAN UNDER HO UNDER HO SCORE LEVEL . 86.50 4.50 84.00 7.00 7.21 POS 3.22 12 NĚŎ MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 4.50 Z=-0.6206 PROB >|Z|=0.5348 T-TEST APPROX. SIGNIFICANCE=0.5464 KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.60 DF= 1 PROB > CHISQ=0.4379 CHISQ. 0.60 ANALYSIS FOR VARIABLE Q32 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES NILCOXON SCORES (RANK SUMS) EXPECTED STD DEV UNDER HO MEAN SUM OF SCORES UNDER HO LEVEL . 6.92 83.88 84.88 3.53 12 POS NEO NILCOXON 2-SAMPLE TEST (MORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 8.00 Z= 8.1416 PROB >|Z|=8.8874 T-TEST APPROX. SIGNIFICANCE+0.8897 KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) **)**f= 1 PROB > CHISQ=0.7770 CH159= 0.08
The p values for questions 2 (.0984) and 12 (.0984), however, do indicate that some relationship exists. With respect to question 2, the individual who perceived a negative path also neither agreed nor disagreed with the statement that he could speak frankly with his supervisor. Additionally, the individual who perceived a negative path also indicated that he only somewhat agreed that his supervisor was flexible (Q15).

H5: Motivation of individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 29, 30, 31, 36, and 37 using the Wilcoxon rank sum test (Table 39). Employing .05 significance level HO could not be rejected with respect to any of the questions.

H6: Job facet perceptions of those who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 34, 35, and 38 - 52 using the Wilcoxon rank sum test (Table 40). Employing .05 significance level H0 could not be rejected with respect to any of the questions.

TABLE THIRTY-NINE- HYPOTHESIS FIVE, COMPANY B PLANT ONE

10.30 9,00 3,24 420 12 10.40 9,00 3,34 27.61151 10.00 10.00 2.444/10 10.00 9,00 3,34 27.61151 10.00 10.00 10.00 10.00 9,00 3,34 27.61151 10.00 10.00 10.00 10.00 10.00 10.00 27.61151 10.00 10.00 10.00 10.00 10.00 10.00 27.61150 10.00 10.00 10.00 10.00 10.00 10.00 27.61150 10.00 10.00 10.00 10.00 10.00 10.00 28.0111 10.00 10.00 10.00 10.00 10.00 10.00 29.01 10.01 10.00 10.00 10.00 10.00 10.00 20.01 10.01 10.00 10.00 10.00 10.00 10.00 20.01 10.00 10.00 10.00 10.00 10.00 10.00 20.01 10.00 10.00 10.00 10.00 10.00 10.00 20.01 10.00 10.00 10.00 10.00 10.00 10.00 20.01 10.00 10.00 10.00	ON SCORES (RAME SUNS) Sum of Expected Sto Dev Scores Umder ng Under ng	H	COXON SCORES	(RAME SUMS) Expected	510 BEV Vide H0
Test (cui-revolut Arronzimiton) AMIY313 FM VALIALE GA CLASSIFIED D' VALIALE GAUN Bus CLASSIFIED D' VALIANE GAUY AVERAGE SCORES HERE USED FOR TIES Bus CLASSIFIED D' VALIANE GAUY AVERAGE SCORES HERE USED FOR TIES Bus CLASSIFIED D' VALIANE GAUY MILCOLON SCORES HERE USED FOR TIES Bus CLASSIFIED D' VALIANE GAUY MILCOLON SCORES HERE USED FOR TIES Bus CLASSIFIED D' VALIANE GAUY MILCOLON SCORES HERE USED FOR TIES Bus CLASSIFIED D' VALIANE GAU MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR THE USED FOR TIES MILCOLON SCORES HERE USED FOR TIES Bus Cones HERE USED FOR THE USED FOR TIES Bus Cones HERE USED FOR THE USED FOR TIES Bus Cones HERE USED FOR THE USED FOR TIES Bus Cones HERE USED FOR THE USED FOR TIES Bus Cones HERE USED FOR THE US	00.50 04.00 5.24 10.50 7.00 5.24 14 TEST (MORMAL AFROXIMATION) 7 Connection of 5) 24 0 9250 Frod 5(2)-0.3345 310mificance-0.3720	Pos HC0 H1 Coxem 2 H1 Coxem 2 H1 Coxem 2 1-1CsT APPR	61.00 10.00 AMPLE TEST (H MULTY CONTECT 20 0.7719 E. SLOWLFICAN	9, 00 7, 00 00 MAL APPRO 00 MAL APPRO 00 MAL APPRO PRO 2	3.24 3.24 x110011001) 121-0.4404
ORIGN SCORES (RAME SUNS.) LEVEL H SUM OF EFFECTED STO BEV SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) LEVEL H SCORES (RAME NO. SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) LEVEL H SCORES (RAME NO. SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) LEVEL H SCORES (RAME NO. SCORES (RAME SUNS.) LEVEL H SCORES (RAME SUNS.) LEVEL H SCORES (RAME NO. SSSOR SSSOR CRAFECTED SIDE MALENDAL LEVEL H SCORES (RAME NO. SSSOR SSSOR SSSOR SSSOR SSSOR SSSOR SSSOR SSSOR SSSOR SSSOR SSORES (RAME INCOLOR SCORES (RAME NO. SSSOR UT CORIES (RAME INCOLOR SCORES MERCENCERD.) SSSOR SSSORES SSSOR SSSOR SSORES (RAME INCOLOR SCORES (RAME INCOLOR SCORES INCOLOR SCORES (RAME SUNS.) SSSOR SSSOR SSSORES MERCENCERD.) SSSORES SSSOR SSSORES (SSSORES MERCENCERD.) SSSORES SSSORESCORES (RAME INCOLED SCORES (RAME INCOLES (RAME SUNS.)) <td>TEST (CMI-39UART AFFROXIMATION) BF• 1 PROB / CMI39-0.2801 630 Classified by Variable Orouf 5 Scores Were Used for Ties</td> <td>AMALYSIS For VARIAD Avera Mi</td> <td>LE 934 CLASSIF De scores mere Leoxon scores</td> <td>LIED BY YANI E USED FOR T (AAMK SUNS)</td> <td>Abit mour</td>	TEST (CMI-39UART AFFROXIMATION) BF• 1 PROB / CMI39-0.2801 630 Classified by Variable Orouf 5 Scores Were Used for Ties	AMALYSIS F or VARIAD Avera Mi	LE 934 CLASSIF De scores mere Leoxon scores	LIED BY YANI E USED FOR T (AAMK SUNS)	Abit mour
5.6 7.0 2.74 5. 10.50 2.4 7234 7000 > 121-0.3345 UNTY CONRECTION OF 'Y. 1-1231 APPROX. 310MIFICAMCE-0.3724 1-1231 APPROX. 310MIFICAMCE-0.3724 20.3451 PR00 > 121-0.7159 AMALY315 FOR VARIABLE 0.7 (LA331FIED DY VARIABLE 0.7 VARIABLE 0.7 (LA331FIED DY VARIABLE 0.7 (CORDM SCOMES (RAME SUMS) Sum of Expected Sto bev Scomes Under Mo Under Mo	LEVEL H POS 12 MILCORM 2- 12 L	SCORES SCORES 80 99 10 50 10 50 10 50	CLECTED UNDER TO 04.00000000	578 86V WIDER HO 5.24 5.24 3.24
LEVEL N SUM OF EXPECTED STD DEV 1 SCORES UNDER NO WIDER NO WIDER NO 12 79.00 04.00 3.24 MILCORDN 2-SAMPLE TEST (MORMAL AFROXIMATION) 1417N CONFECTION OF 5)	5:54 7.00 2.74 AMPLE TEST (MOMMAL APPROXIMATION) ULTY CONNECTION OF 31 2-0.3631 PROB 3121-0.7130 X. STONIFICANCE-0.7214 X. STONIFICANCE-0.7214 IS TEST (CMI-99UAR) APPROXIMATION) IS TEST (CMI-99UAR) APPROXIMATION)	5	2. 0.9294 DK. 310MIFICAI NE 9.3 CLA331 OE SCORES MER LCOKON SCORES	FICE BY VAN FICE BY VAN FICE BY VAN FICE FON	-12(
		L EVEL 1	SUM OF SCORES 79.00 12.00 NULTY CORRECT	EXPECTED UNDER NO 94.00 7.00 Normal Afrac	518 864 WIDER HIG 5.26 5.26 DX1MAT1001

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TABLE

'315 FOR VARIADLE Q14 CLA331FIED BY VARIADLE CADUP Average scores were used for TIES	MILCOXON SCORES (RANK SUNS)	Sum of creffto 319 DEV 300483 UNDER NO UNDER NO 12 79.00 04.00 3.20 12 12.00 04.00 3.20	MILCONCM 2-SAMPLE TEST CHUMMAL AFFORMINATIONS (MITH CONTINUITY COMBECTION OF S) 24 12.00 24 1.3737 FROD 9/2/00.1409 T-TEST AFFORM, SIGNIFICANCE-0.1944 313 FOM VARIABLE Q35 CLASSIFIED BY VARIABLE GROUP	AVERADE SCORES MERE USED FOR TIES Milcokom Scores (Rame Sums)	IL SUM OF LIPECIED SID DEV IL SCORES UNDER NO UNDER NO 12 79-30 03-00 1-30	MILCONGM 2-SAMPLE TEST (MORMAL APPENDIMATION) MILCONGM 2-SAMPLE TEST (MORMAL APPENDIMATION) MILM COMINMITY COMMECTION 05 5) 1.150 2.0 2.0 1.117 T-TEST APPEND 510MIFICANCE-0.2050	SIS FOR VARIABLE 458 CLASSIFIED DY VARIABLE DROUP Average scorts were used for ties	MILCOXOM SCORES (RAMK SUMS)	SUM DF EXFECTED STD DEV 1 SCORES UNDER NO 12 B4.00 04.00 3.26 1 5.00 7.00 3.26	MILCOXON 2-SAWLE TEST (MORMAL AFFROXIMATION) (MTH CONTINUITY CORRECTION OF 3) 5. 9.60 2-6 4469 FROD 3[2]-6.4452 1-TEST APPROX. SIGNIFICANCE-0.4335
AMALY		LEVEL 705			SO4	9	AMALY		1 EVEL 202	
110 mur		510 BCV 100 BCV 100 BCV 100 BCV	XIMATION) 121-0-139 116 OROUP	2	STD DEV UNDER NO 2.35	(1971) (1971) (121-0.059	1.165 00000	•	518 BEV UNDER NO 2.35 2.35	0x1 mi /10m) >121=0.8317
ICO DY VANI USED FOR T	(NAME SUNS)	CXPECTED UNDER NO 04.00	104 87 31 104 87 31 7109 1 7109 1 710 100 100 100 1000 10	E USEB FOR T	EXPECTED UNDER NO BA. 00	NORMAL APPRO 101 07 51 210 00 200	IFIEB BY VAN IE USEB FOR	CRAME SUM	EXPECTED UNDER NO DA. DO	(NORMAL AFT 100 01 31 3 700 3 700 3 700
139 CLASSII Cones went	ION SCORES	500 01 500 01 51 00	PLE TEST (TY COMPECT Z==0.0170 S1001151CA	ICORES NER	SCORES	PLE TEST (1 TY COMPECT 21.9121 SIGNEFICA	441 CLASS	Xen scent	SUM OF SCORES	NPLE TEST TY COREC 2+ 0 212 \$10MIFIC
POR VARIABLE O	MILCOX	¥ <u>8</u> -	MILCONOM 2-SAN HITM CONTENUTI S- 9.00 T-TEST APPROK. FOR VARIABLE 9	AVENAOE 3 MILCOX	= ^-		13 FOR VARIABLE Average	MILCO	= <u>-</u>	MILCOKON 2-5AP (MITN CONTINUI 5- 0.00 1-1651 APPROX
AMAL Y3 15		1 EVEL 705 ME0	AMAL Y313		15751		AMAL YSI		12VEL 203	

	AVERAGE 3	CORES MEN	E USED FOR	1165		AVERAGE	909853 MER	E USED FOR	1111 Mour 1113
	HILCON	ON SCORES	(RAME SUNS	-		MILCO	Xen scers	CLANK SUMS	-
NGL		SUN OF SCORES	EXPECTED UNDER NO	STB BEV UNDER NO	12431	=	SUN OF	EXPECTED UNDER NO	STO DEV
	2-	1.5	1.1		705 ME 0	37	1		
2-4	MILCORDN 2-SAND (MITH CONTINUIT 3- 4.50	LE VEST (1 Y CORFET	HORMAL APPRIL	0%1Ma116W) >121+0.5a30		MILCONON 2-SAN (MITN CONTINUE 2- A 54	PLE TEST (TY CORACT	HORMAL APPRIL	DXIMATION)
-	T-TEST APPROX.	\$10MIFICAL	NCE-0.3930			1-1651 APPAR	STONIELC .		
AMAL VSE	15 Per VALIABLE AVERADE	TO CLASS	IFIED DY VA	ALABLE BADUP	EA THE	13 FOR VARIABLE	144 CLA33	FICD DV VAR	IAME MONT
			NUT 8368 34			AVERAGE	SCORES MER	IE USED PON	7163
	MILCO	XON SCORE	S (RANK SUN	3)		MILCO	XON SCORES	CAME SUNS	~
CVEL	=	SUM OF	EXPECTED UNDER NO	STA BEV UNDER NO	LEVEL		SUM DF		STD DEV
53	2-		94 . V 9 . V	19.6	703 MED	- 2-			
	MILCOXON 2-5AN IMITM CONTINUT 3- 7.40	PLE TEST	TION OF ST	AQXIMATION) >121-0.4400		MILCOKON 2-SAN	PLE TEST C	HORNAL AFT	85 - 5 6 x 1 MM 1 MM 1
	T-TEST APPADK.	\$10H1F1C	ANCE-0.8922			I-TEST APPROX.	24-4.4451 310HIF1CA	Paol	>121-0.3976
AMAL VS	IS FOR VARIABLE	011 CLAS	SIFICO DY VI	ILIABLE COUP	AMAL YS	13 FOR VARIABLE	447 CLASS	IFICD BY VAN	11A115 0000
	AVERADE	SCORES M	ERE USED PUI	N 1165		AVERAGE	SCORES NEL	IE USED FOR	1163
	MILC	OXON SCORI	ES (RAME SU	(5)		MILC	DXON SCORE:	L (RAME SUNS	3
12721		SUM OF	EXPECTED UNDER NO	STD DEV UNDER NO	LEVEL	2	SUM DE	EXPECTED UNDER NO	STD DEV
101 101 101	2-		:: :	2.43 2.63	202 N r 0	2-	80.75 10.15		10.1
	MILCOKON 2-5AI MITM CONTINU S- 4.50	MPLE 1157 117 CONNEL 20-0.55	CTION OF SE	PEOKIMATION)		MILCONON 2-SAI (MITM CONTENUI 3- 3-00	NPLE TEST (177 CUAREC) 20.9913	HORMAL AFT	121-0 121-0
	T-TEST APPROX	. SIGNIFIC	CAMCE+0. 3914			T-TEST APPADX	Signific.	ALL ALL ALL	

TABLE FORTY- continued

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AVERAUE	SCORES MER		llabl e onour Ties	SISY JAMA	700 VANIALIC AVENA OE	SCORES NER	E USED FOR	ILALE MOUP TIES
M11C0	XON SCORES	(RAMK SUNS			MILCO	XON SCORES	CRAME SUNS	2
2	SUM OF SCORES	EXPECTED UNDER NO	518 82V UNDER NO	12/21	8	SUN OF	EXPECTED UNDER NO	STO DEV UNDER NO
2-	•	•••	11.1	Ĩ	12	88 · 88	••• ••	5.25
ILCORON 2-5AN MITH CONTINUE • 4.00	PLE TEST (TY CONNECT 20.7512	NORMAL AFT	10111411041) 2121-0.4526		ILCORDN 2-54	PLE TEST (177 CORRECT 21.345)	NONAL AFT	0X1MATON)
-TOST APPROX.	SIGNIFICA	MCE+0.4470		-	I-TEST APPROX	. SIGNIFICA	MCE-0.1917	
RU3KAL -MALLIS N130- 0.81	TEST (CM	-SQUARE AF	PROXEMATEON) CH150-0.5474	SICY JANA	FOR VARIABLE	111 CLASS	FIED BY VAN	11.01.0 0000
FOR VARIABLE	122213 110	IFICD DY VAI	RIABLE BROUP			30 0ME3 MEN	110 / 2360 31	
AVERADE	SCORES MEI	LE USED FOR	11C2		MILCI	DXON SCORES	CRAME SUNS	3
MILCO	Xen Scent	I (RAME SUM!	6	12421	=	SUN OF SCORES	EXPECTED UNDER NO	515 BEV UNDER HD
2	SUM OF SCORES	EXPECTED UNDER NO	STB BEV UNDER NO	70% 10%	21			
27			5.43		411.COXON 2-54 (M17N CONTINU 5* 1.00	ITY CORECT	TION OF	10X1MAT1001
ILLCONOM 2-541 MITH CONTINUI - 1.00 - 7231 APPROK. RUSKAL-MALLIS MI30-	PLE 7531 177 CORRECT 2=-1.5954 . 310M[FIC: 1 7537 (CM	INDINAL AFT 104 87 51 8 700 105 1344 1344 1-394475 47 1-394475 47	HOXIMATION) > Z =0.1106 Provination) Chister.0410	SICY JANA	F-TEST APPAGK Fon Variable Average	- SIGNIFIC	MCC-0.1302 FIED BY YAR E USED FOR	TICS Base
					MILCO	XON SCORES	(RANK SUNS	•
				15451	Z	SUM OF	EXPECTED UNDER NO	STD DEV UNDER NO
				703 NCO	21		7.00	5.16
				250	ILCORON 2-SAM MITN CONTINUI - 5.80	PLE TEST (1 TY CORRECT) Z*-1.1040	KORMAL APPR	0X(IM110K) >121-6.2464

TABLE FORTY- continued

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Question 40 (p .0559) does, however, seems to suggest that the individual on the negative path perceives salary and bonus to be less important than those on the positive path.

H7: Perceived pay-performance linkage by those who perceive a postive path and those who perceive a negative path.

The positive and negative groups were compared with respect to questions 27 and 28 using the Wilcoxon rank sum test (Table 41). Employing .05 significance level HO could not be rejected with respect to either of the questions.

H8: Perceived performance (self-reported) of managers who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to question 61 using the Wilcoxon rank sum test (Table 42). Employing .05 significance level H0 could not be rejected.

H9: The perceived performance of those managers who reported a strong pay-performance linkage and those who reported a weak pay-performance linkage.

First the respondents were grouped according to their pay-

TABLE FORTY-ONE- HYPOTHESIS SEVEN, COMPANY B PLANT ONE

AMALYSIS FOR VARIABLE Q27 CLASSIFIED BY VARIABLE GROUP , AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUNS)

LEVEL	•	SUN OF SCORES	EXPECTED UNDER HO	STD DEV Under no	NEAN Score
POS NEO	12	78.00 13.00	84.00 7.00	3.61 3.61	6.50 13.00
	MILCOXON 2-SAM (MITH CONTINUI S= 13.00	PLE TEST (TY CORRECT Z= 1.5254	NORMAL APPI ION OF .5) PROB	XXIMATION) > Z =0.1272	
	T-TEST APPROX.	SIGNIFICA	NCE+0.1531		
	KRUSKAL-MALLIS CHISQ= 2.77	TEST (CHI	-SQUARE APP PROB >	ROXIMATION) CHISQ=8.8961	

ANALYSIS FOR VARIABLE 928 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUNS)

LEVEL		SUN OF SCORES	EXPECTED UNDER NO	STD DEV Mder Hø	MEAN SCORE
P05 NE0	12	79.00 12.00	84.80 7.80	3.59 3.50	6.58 12.00
	MILCOXON 2-SAMPL (MITH CONTINUITY S= 12.00 Z	E TEST (N Correcti = 1.2537	ORMAL APPROJ DN DF .5) PROB >	(IMATION) [2]=0.2100	
	T-TEST APPROX. S	IGNIFICAN	CE=0.2338		
	KRUSKAL-MALLIS T CHISQ= 1.94	EST (CHI- DF= 1	SQUARE APPRO	XIMATION) 154-0.1636	

TABLE FORTY-TWO- HYPOTHESIS EIGHT, COMPANY B PLANT ONE

AMALYSIS FOR VARIABLE 061 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

NILCOXON SCORES (RANK SUNS)

LEVEL		SUM OF	EXPECTED UNDER NO	STD DEV UNDER HO	SCORE
P05 NE9	12	87.88 4.88	84.00 7.00	3.35 3.35	7.25 4.80
	NILCOXON 2-SAMP (MITN CONTINUIT S= 4.80	LE TEST Y CORREC Z=-0.751	(NORMAL APP TION OF .5) 2 PRGB	ROXIMATION) >[Z]=0.4526	

T-TEST APPROX. SIGNIFICANCE=0.4670

KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 0.81 DF= 1 PROB > CHISQ=0.3674 performance linkage based on questions 27 and 28. Those individuals whose responses totaled 7 or less were classified as the strong pay-performance group (SPP), those whose responses totaled 8 were dropped from this analysis, and those whose responses totaled 9 or more were classified as the weak pay-performance group (WPP). Next these groups were compared with respect to questions 61 and 62 using the Wilcoxon rank sum test (Table 43). Employing .05 significance level HO could not be rejected with respect to either question.

A RCB design was used to anlayze responses to questions 1-53 with managerial levels serving as treatments and blocking on departments. Although significant differences exist across managerial levels, Duncan's Multiple Range Test indicates that the managers' responses are similiar except that the plant manager's responses are different from the departmental managers (Table 44). The performance rankings were also analyzed using a RCB design, with (0 62) managerial levels serving as treatments and blocking on departments, which indicated significant differences (.0338949) between the rankings assigned by the plant manager and division managers. Additionally, the responses to all questions are contained in Table 45.

TABLE FORTY-THREE- HYPOTHESIS NINE, COMPANY B PLANT ONE

AMALYSIS FOR VARIABLE 061 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

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MILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF	EXPECTED UNDER NO	STD DEV Under Ho	MEAN SCORE
SPP HPP	\$	52.88 14.88	48.00 18.80	4.43	6.50 9.67
	MILCOXON 2-SAU (MITH CONTINU) 5= 14.80	PLE TEST (ITY CORRECT Z=-0.7891	(NORMAL APP) FION OF .5) B PROB	NOXIMATION) > Z =0.4296	
	T-TEST APPROX	. SIGNIFIC	NCE=0.4479		
	KRUSKAL-MALLIS CNISQ= 0.81	TEST (CH)	I-SQUARE API	RDXIMATION) CHISQ-0.3667	

AMALYSIS FOR VARIABLE 96200 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUNS)

LEVEL		SUN OF SCORES	EXPECTED UNDER NO	STD DEV UNDER HO	NEAN
SPP HPP	8 3	48.00 18.00	48.80 18.00	4.44 4.44	6.88 6.88
	MILCOXON 2-SAM (MITH CONTINUI 3= 18.00	PLE TEST (TY CORRECT Z. 0.112	NORMAL APPI ION OF .5) PROB	ROXIMATION) >[Z]=0.9104	
	T-TEST APPROX.	SIGNIFIC	NCE=0.9126		
	KRUSKAL-MALLIS CNISQ= 0.00	TEST (CH)	-SQUARE API PROB >	CHISQ=1.0000	

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TABLE FORTY-FOUR- QUESTIONNAIRE RESPONSE COMPARISON, COMPANY B PLANT ONE

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PROCEDURE
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DEPENDENT VARIABLE.	463P						
source	*	SUM OF SQUARES	MCAN SQUARE	F VALUE	7 ~ 87	B-SQUARE	3
MODEL	:	1693.78889869	26.46545984	11.11	1000 . 0	. 972272.0	44 . 74 34
EROR	429	1299.23076923	2.01799803		RODT MSE		
CORRECTED TOTAL	;	2953.01446792			1.42056257		3.03773545
SOURCE	*	17PE 1 35	F VALUE PR > F	*	111 3471.	33 F VALUE	
BLOCK TREAT	22	1415 78809849 78.8008000	15.48 0.0001	22	1615.738998	15.40	0.001

DEMERAL LIMEAR MODELS PROCEDURE

DUMCAN'S MULTIPLE RANGE TEST FOR VARIALE, RESP Note: This test controls the type I comparisonnise earor rate. Not the experimentmise earon rate

ALPHA+0.05 BF+624 HSE+2.018

0.4344 0.44325 0.44532 0.453826 0.45444 0.440125 NUMBER OF MEANS Critical Range

MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

34178	TREAT	•	•	•	•		П	~	•	-	13	21	5	
CAN'L Y	=	55	53	53	53	53	5.5	52	55	53	53	33	53	22
LINDIC ION JUL N	MEAN	3.6961	3.4520	3.4340	5.1807	3.1887	3.1500	5.0109	2.8491	2 8 5 8 2	2.7547	2.7358	2 6415	2.5472
	DUNCAN GROUPLING	••	•							-				

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APPENDIX I- COMPANY B, PLANT TWO STATISTICAL ANALYSIS OF HYPOTHESES

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H1: Perceptions of equitability of the performance report with respect to its perceived use (high or low) for performance evaluation purposes.

First the respondents were grouped on question 4 (all questions came from Appendix E), responses 1-3 formed the high use group and responses 5-7 formed the low use group. Individuals who responded to the question by answering N (neither) were eliminated from this part of the analysis. These groups were then analyzed with respect to questions 26 (Q26A) and 33 (Q33A) using the Chi-Square test of independence (Table 46). Since no disagree existed with respect to Q26A no statistical analysis could be performed. Due to the small size in three cells with respect to Q33A HO could not be accepted or rejected.

H2: Perceptions of equitability with respect to positive and negative path perceptions

First the respondents were grouped according to their responses to questions 24 and 25, if the responses totaled 7 or less they were placed in the positive path group, 8 discarded for this part of the analysis, and 9 or more formed the negative path group. Next these groups' responses to questions 26 and 33 were analyzed using the Chi-Square test of independence (Table 47). Since none of

TABLE OF GROUP BY 426A GROUP 926A FREQUENCY PERCENT ROM PCT COL PCT TOTAL AGREE ł 13 92.86 100.00 92.86 13 92.86 HIG 1 7.14 100.00 7.14 LON 1 14 TOTAL 14 100.00 TABLE OF GROUP BY 433A OROUP **Q33A** FREQUENCY ROW PCT COL PCT DISAO TOTAL AGREE ł 12 85.71 92.31 100.00 1 7.14 7.69 50.80 13 92.86 MIG . LON 1 7.14 7.14 100.00 50.00 1.10 Ŭ. ŬŬ Ŏ. ŎŎ 12 85.71 TOTAL 14 2 14.29 STATISTICS FOR TABLE OF GROUP BY Q33A PROB))F VALUE STATISTIC CHI-SQUARE LIRELIHOOD RATID CHI-SQUARE CONTINUITY ADJ. CHI-SQUARE MANTEL-MAENSZEL CHI-SQUARE FISHER'S EXACT TEST (1-TAIL) 6.462 4.432 1.122 1 1 1 1 -0.011 0.035 0.290 0.014 0.143 0.143 <u>.</u> (Z-TAIL) 8.679 PHI CONTINGENCY CDEFFICIENT CRAMER'S V 0.562

SAMPLE SIZE = 14 MARNING: 75x OF THE CELLS HAVE EXPECTED COUNTS LESS THAN 5. CHI-SQUARE MAY NOT BE A VALID TEST.

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TABLE FORTY-SIX- HYPOTHESIS ONE, COMPANY B PLANT TWO

the respondents perceived the performance report to represent a negative path no statistical analysis could be performed. Thus HO could not be accepted or rejected.

Since no negative path individuals existed no analysis could be performed with respect to hypothesis 3-8 therefore the data from all Company B plants was pooled and the following hypotheses are analyzed with respect to the pooled data. H1 and H2 with respect to the pooled data were as usual, either no analysis could be performed due to missing quadrants or small numbers existed in three cells and H0 could not be accepted or rejected (Tables 48 and 49).

H3: Perceptions regarding task role characterisitics by those who perceived a positive path and those who perceived a negative path.

The groupings formed for H2, positive and negative groups, were analyzed using the Wilcoxon rank sum test with respect to questions 5, 7, 8, 9, 10, 11, 14, and 23 (Table 50). Employing .05 significance level H0 could not be rejected.

H4: Perceptions of supervisory style by those individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with



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TABLE FORTY-EIGHT- HYPOTHESIS ONE, POOLED DATA COMPANY B TABLE OF GROUP BY 426A **426**A GROUP FREQUENCY PERCENT RON PCT COL PCT AGREE I TOTAL ... 23 100.00 100.00 100.00 205 23 23 100.00 TOTAL 23 188.88 TABLE OF GROUP BY 433A BROUP **Q33A** FREQUENCY PERCENT RON PCT COL PCT AOREE IDISAG | TOTAL 19 82.61 82.61 100.00 4 17.39 17.39 100.00 POS 23 TOTAL 19 82.61 17.39 23 190.00

TABLE FORTY-NINE- HYPOTHESIS TWO, POOLED DATA COMPANY B

TABLE OF GROUP BY Q26A

.

OROUP	426A	
FREQUENCY PERCENT RON PCT COL PCT	AGREE	TOTAL
NIG	21 95.45 100.00 95.45	21 95.45
LON	4.55 100.00 4.55	4.95
TOTAL	+(22 100.00	, 22 100.00



GROUP	Q 53A		
FREQUENCY PERCENT ROW PCT COL PCT	AGREE	DISAG	TOTAL
NIC	19 86.36 90.48 100.00	2 9.09 9.52 66.67	21 95.49
LON	0.00 0.00 0.00	1 4.55 100.00 33.33	4.55
TOTAL	19 86.36	3 13.64	, 100.00

STATISTICS FOR TABLE OF GROUP BY Q33A

STATISTIC)	VALUE	PROB
CMI-SQUARE LIKELINGOD RATIO CMI-SQUARE CONTINUITY ADJ. CMI-SQUARE MANTEL-MAENSZEL CMI-SQUARE FISHER'S EXACT TEST (1-TAIL) (2-TAIL)	1 1 1	6.635 4.317 .1.176 6.333	0.010 0.038 0.278 0.012 0.136
PHI CONTINGENCY COEFFICIENT CRAMER'S V		8.549 8.481 8.549	

SAMPLE SIZE + 22 MARHING: 75% OF THE CELLS HAVE EXPECTED COUNTS LESS THAN S. CHI-SQUARE MAY NOT BE A VALID TEST.

TABLE FIFTY- HYPOTHESIS THREE, POOLED DATA COMPANY B

THEL	M 05 EXF Contro UND 12.00 4 12.00 4 12.00 4 12.100 4 12.100 4 12.00 4 10.00 4	CTTTO 15:00 15:00 15:00 15:00 17:000	10 000 10 0.21 0.21 0.21 0.21 0.21 0.21 0.21 0.	1 EVEL 1 605 #60	R 29 81 81 81 82 84 84 84 84 84 84 84 84 84 84 84 84 84	Sum of Scores 23.50 23.50 23.50 25.51 26.1.1755 26.1.1755 21.1755 21.1755 21.1755 21.1755 21.1755	CTTCTTT CTTCTTT CTTCTTT CTTCTTT CTTCTTTT CTTCTT	
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MILCONOM 2-3400 (MITN CONTINUTTY 3- 27.00 2 1-7251 AFPROX. 3 TRUSIAL -MULLIS 1	E 1231 (MO) 7 CORRECTION 20 1.6543 110M1F1CANCI 1237 (CM1-9)	PAGE 21130	■ X 1 MAT 5 00) > Z + 0 .] 8 2 2 10 X 1 MAT 10 N)		MILCONOM 2-3A (MITM COMTINU 5- 27.00 T-7631 APPROM RBUSKAL-MALL CHILLO	PLE 7231 (17 CORREC 2- 1.402 31041715(3 7231 (CM	I COMMAL AFT I COM OF 3) B P10B AMCE+0.1714 1-39WARE AFT 1-39WARE AFT	NOK (MAY 100) > 2 -0. 60 -1 2 -0. 60 -1 2 50 -1

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1-TEST APP	NOK. SIGN	IFICANC	E+4.7345			T-TEST APPROL	I. SIGNIFIC	MCC-0.2124	
ERUSEAL -MA	143 451	CMI-3	- 100 - C	0x1MA7304) N139+0.7996		1.0(CH130- 1.0(13 1231 (CH	-sevant API	201159-9.1795
TUVA WEL SIGATM	110 310	CLASSIF	IED DY YAR	1916 0000	ICA THE	S FOR VARIABLE	423 CLA351	JEB BY VANI	1111 0000
AV	nat scon	ES MERE	USED FOR	1163		AVERADE	SCORES MEN	E USED FOR	1169
_	MILCOXON	SCORES	(RAMK SUMS	-		MILCI	DXON SCORES	CINK SUNS	
VEL	25	M OF	EXPECTED UNDER NO	STD DEV UNDER HD	IEVEL	8	SUN OF	EXPECTED UNDER NO	518 M CV UNDER 110
	***		11.50	1.23	705 NC Đ	2-	23.00	19.30	4.5 1
MILCOXON (MITN CON 5+ 24.6	2-54MPLE	TEST CORRECT	100 05 51	0×1MATION) > Z • 0 . 3322		MILCOXON 2-54 (MITH CONTINU 5+ 25.00	MPLE TEST (117 CORRECT 2+ 0.8440	NORMAL APPR 104 0F . 3) PROS	0X1MAT200) >121-0.3076
1-TEST A	PROX. 310	DHIFICA	NCC+0.3402			T-TEST APPROX	. SIGNIFICA	NCE+0.4045	
401364-1-1 CN136-	MLL13 TC:	IL CHI	-Seuant API	ROXEMATION) CH150-0.5020		RUSKAL-MALLI CH159* 0.82	S TEST (CHI	-Square APP	REXEMATION) CHI39-0.3447

respect to questions 1, 2, 3, 6, 12, 13, 15, 16, 17, 19, 20, 21, and 32 using the Wilcoxon rank sum test (Table 51). Employing .05 significance level HO could not be rejected with respect to any of the questions.

The p values for questions 2 (.0966) and 17 (.0731), however, do indicate that some relationship exists. With respect to question 2, it appears that the individual who perceived a negative path also neither agreed nor disagreed that he could speak frankly with his supervisor. Additionally, the individual who perceived a negative path also indicated that he only agreed somewhat that his supervisor emphasized the quality of his work (Q 17) on the other hand the positive group generally agreed that the quality of work was a concern of their supervisor.

H5: Motivation of individuals who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to questions 29, 30, 31, 36, and 37 using the Wilcoxon rank sum test (Table 52). Employing .05 significance level HO could not be rejected with respect to any of the questions.

H6: Job facet perceptions of those who perceived a positive path and those who perceived a negative path.



	MILCO	KON SCORES		2		MILCO	ION SCORES	CRAME SUNS	-
	2	SUN OF SCORES	EXPECTED UNDER NO	STB DEV UNDER NO	ובאנו		SUN OF	EXPECTED UNDER NO	STA DEV UNDER HO
	£-	45.38 19.39	115.50	33	785 1105	\$-	46.3	449.50	6.32
icy	11COXON 2-3AN NETN CONTINUE - 19.30	PLE TEST (TY CORRECT Z. 0.4676	NORMAL AFFI	121-0.4400		MILCOXON 2-SAN (MITN CONTINU) 3+ 4.50	PLE TEST (TY CORNECT Z=-1.2610	NORMAL APPR 104 05 .5) Prod	0X1MAT 10 4) > 2 = 0 . 2070
÷	-TEST APPROX.	SIGNIFICA	MCE-0.4435			T-TEST APPROX.	SIGNIFICA	MCE-0.2171	
20	NUSKAL -MALLIS NISQ+ 0.29	TEST (CM) 0F- 1	- 394AR API	Pack (MAT 100) CM159-0, 5930	AMALYS	IS FOR VARIADLE AVERADE	OLT CLASS	IFICO DY VA Ac used for	TICS
7315	FOR VARIABLE	015 CLASS	171CO DY VA	RIABLE MOUT		MILCI	IXON SCORE	S (RAMK SUR	2
	AVERADE	SCORES WEI	AC USED FOR	1169		:	SUM OF	EXPECTED	TO DEV
					12421	*	SCORES	UNDER NO	
	MBLCO	XION SCORE	s (name sun	5)	50 10 10	₽-	85. N 85. N	113.30	6.9
	2	SCORTS	EXPECTED UNDER NO	STB BEV UNDER NG		MILCOKON 2-3AI	PLE TEST	(NORMAL AFF	(#0[]W]X0
	2-	10.01 21		5		34 28.56 7-7677 50000	247.1 -2	I PROB	> Z •0.0731
80	ILCOXON 2-SAN HITN CONTENUE	TY COARCI	TION OF ST	NOKIMATION)	AMALVSI	POR VANIABLE	119 CLASSI	FIED BY VAN	IABLE CHOW
* •	- 23.00 -T e st Approx.	2- 1-119	3 FA05	> 2 •0.2430		AVERADE	SCORES MER	E USED FOR	1123
20	NU34- 1.40	TEST (CM		PROXIMATION) CHISQ-0.2374		MELCO	KON SCORES	CAME SUMS	•
					12421	2	SUN OF SCORES	EXPECTED UNDER NO	378 96V UHBER HB
					705 NEO	5	436.50	440.50	7.67
						MILCORON 2-SAN (MITN CONTINUT 5- 0.50	PLE TEST (17 CORRECT 20.0477	NORMAL AFT IDH OF . 5)	0x1MAT10M) >121-0.3940

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	-	518 BEV UNDER NO	6.17 6.17	0X1MAT10H) >121-0.1781		TIES	2	STD DEV	96 .2	(MITAN I CHI)	> 2 -0.2022		TABLE SHOW	1163	•	STO MEY WIDER HO	7.78	0XIMATION) >121-0.2747	
101 11 11 11 11 11 11 11 11 11 11 11 11	CRAME SUNS	Exfectes under no		NORMAL AFF	MCE-0.1005	IFICO DY VAN AE USED FON	S (RAME SUNI	EXPECTED UNDER NO	449.50	CHORNAL APPI	PROB	ANCE-0.2910	FIED BY VAR	IE USED FOR	CRAME SUMS	EXPECTED UNDER NO		NORMAL APPR 100 05 51	WCE+6.2037
03 CLASSIF	New Scene	Scones	27.00	TY CORRECT 2. 1. 3441	SIMIFICA	412 CLASS	exen score	SUN OF	110.50	1631 8100	2+ 1.075	. SIGNIFIC	413 C(ASSI	SCORES NEI	IXen Scenti	SCORES	24.50	WHE TEST (ITY CORRECT Z= 1.9924	. SIMIFIC
I PON VANJADLE AVERADE	MILCI	= ;	R	M1LC0X0W 2-5A (M17W C0M71WU) 5- 27.00	T-TEST APPROX.	S FOR VARIADLE AVERADE	MILC	*	**	MILCOXON 2-54	5. 24.50	T-TEST APPROX	I FOR VARIADLE	AVERAGE	MILCI	=	1 -	MELCOXON 2-54 (METM CONTENU) 5- 24-59	T-TEST APPROX
116A 1 VHV		104	2			ISA IWW		12/21	202 100				AMAL YSI			ובאנו	705 NEB		
ADLE GROUP 11E3	•	STD DEV UNDER NO		0X1MAT 10 0) >121-0.2369		10×1 141 1011) CH139+0.2131	1.145 010UP		2	SID DEV UNDER NO	7.82	Rox I MAY LON)	- 121-0 . 0466		PROXIMATION) CN134-8.0844				
IED DY VARI E USED FOR	CRANC SUNS	EXPECTED UNDER NO	13.55	Iou of	MCE+0-2465	-30uart Are Free >	ITEN VE GIT		(NAME SUR	CXPECTED UNDER NO	11.50	I NORMAL APP	104 0f .5)	ANCE+0.1073	I-SQUARE AP				
01 CLASSIF	New Scents	SUN OF SCORES	23.99	PLE 1231 () 177 CORRECT 2- 1.1829	SIGNIFICA	1 TEST (CHE	42 CLASSIF		exem score	SUM OF SCORES	436.00	1631 314M	TY CORRECT	SIGNIFIC	a rest (CH				
3 796 VARIADI E Averade	MILCE	2	* -	MILCOXON 2-5AN (MITN CONTINUI 3- 29.50	T-TEST APPROX.	CHISQ- 1.95	S POR VARIABLE			8	2-	MILCOXON 2-54	(NITH CONTINU 5. 29.00	T-TEST APPROX	KRUSKAL-MALLI CH139+ Z.98				
ICAINNY							AMAL YSI			LEVEL		1							

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TABLE FIFTY-ONE- continued



The positive and negative groups were compared with respect to questions 34, 35, and 38-52 using the Wilcoxon rank sum test (Table 53). Employing .05 significance level HO could not be rejected with respect to any of the questions.

Questions 34 (p. 0725), 40 (p. .0616), 49 (.0631), and Q 51 (.0530) do, however, indicate that some relationship exists. The individual on the negative path indicated that he neither agreed nor diagreed that his salary and bonus depend on how well he performs (Q34), and that his salary and bonus were important (Q40) rather than very important to him. This individual also indicated that the quality of his job performance (Q49) and his work group's performance (Q51) is only somewhat important to determining his salary and bonus.

H7: Perceived pay-performance linkage by those who perceive a positive path and those who perceive a negative path.

The positive and negative groups were compared with respect to questions 27 and 28 using the Wilcoxon rank sum test (Table 54). Employing .05 significance level H0 could not be rejected with respect to either of the questions.

Questions 27 (p. .0603) and 28 (p. .0813) do, however, indicate that there is some difference in perceived pay-

		424 CLASSI 96082 NEI	FICD BY	T I I	Ist C enour		AVERAGE	431 CLA351 90 0023 MC R	TICO 14 VAN 5 USED 700	11CS
	MILCO	KON SCORES	CRAME				MILCO	XM SCARS	CRAME SUNS	-
VEL	8	sun er sconts	EXPECT UNDER		STB BEV Moer No	ובאנו	8	SUM OF	EXPECTED UNDER NO	STO DEV UNDER NO
	2-	22.00			7.62		8- 2	1 25.00	449.99	
	MILCONON 2-3AN (MITH CONTINUI) 3- 22.00	PLE 1231 (17 CORRECT 2- 0.7870	TANKA MOI		(IMATION) 21-0.4308		MLCOXON 2-544 (MITN CONTINUI 3- 22.00	PLE 7237 (177 COARC)	NORMAL AFR 104 0F 5)	INTIMITON)
	T-TEST APPROX.	SI ONI FICA	MCE-0.4	372			T-TEST APPROX.	SIGNIFICA	MCE-0.4241	
	RAUSKAL-MALL 13 CH1390 0.75	TE31 (CM) DF - 1	- Squart	APPRO	x (ma 7 (an)) x 1 a a) 1 3 4 - 0 , 3 7 3 4	ANALYS	J FOR VANIABLE Average	QM CLASSI Scores Ner	FICO DY VAR IE USED FOR	1115 MOUP
	IIS FOR VARIABLE	2 434 CLAS	11100	IY VAR	IABLE GROUP		MILCI	Xen sceres	CRAME SUNS	2
	AVERAGE	Scores H	ar var	ž	1169	18481	æ	Scores	EXPECTED UNDER HO	STB BEV WIDER HO
	MILC	COXION SCORE	ES (RAME	sms 1	•	703 NCO	£	21.00	440.50	7.52
TA.	2	SUN OF	CXPEC UNDER		STD DEV URDER NO		MILCOXON 2-54 (MITN CONTINU) 5- 21.00	PLE TEST (MORMAL APP	0X1MAT1041) >121-0.3041
12	2-	454.50	; =		1.02		T-TEST APPROX	SIGNIFIC	NCE-0.5114	
	MILCONON 2-34 (MITN CONTINU 3- 10.50	UPLE TEST	(NORMAL C1 10H 01	A CON	0X1MAT10H) > 2 +0,5245	ANALYSI	S FOR VARIABLE Average	457 CLA33 300403 MC	AL ASCA LA AN	1165
	T-TEST APPROX RRUSKAL-MALL 2	(, SIMIFI	CANCE+0. H1-30UAN	5295 74 77	80X [MA] 10H)		MILC	DXON SCORE	S (RAME SUR	18
		ž	-		CH [34-6 .4795	ובאנו	æ	SUM OF	EXPECTED UNDER NO	STE DEV UNDER NO
						504 100	2-	20.00	449.50	. 7
							MILCORDN 2-34 (MITN CONTINU S* 28.00	MPLE TEST 1117 COARCC 2+ 1.550	CHORMAL APP TION OF .51	**************************************

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TABLE FIFTY-TWO- HYPOTHESIS FIVE, POOLED DATA COMPANY B

	Ton VARIANC	CORES MENE	USED FOR 1	ABLE 000 00		IS FOR VARIABL AVERAG	E 437 CLASS E SCORES ME	ifico or va Re used for	RIANE Mou Ties
	MILCOM	en scents	(TAME SUNS)			17 BM	COXON SCONE	S CRAIK SUF	3)
VEL	8	SUM OF SCORES	EXPECTED UNDER NO	518 86V	I EVEL		SCORES	EXPECTED UNDER NO	STB BEV UNDER HO
	£-		11.31	22.1	101 103	2 -	452.50	449.90	59° 4
254	HITE CONON 2-34MP HITE CONTINUIT - 29.00	LE TEST (1) Y CORRECT	ION OF AFRO	121-0.0729		MILCONDM 2-5 (MITM COMITM 3+ 12.50	UITY CORFC	TION OF AND	(MOTINATION) >121-0.75
T	-TEST APPROX.	SI MIFICA	KCE=0.0029			T-TEST APPAG	K. SIGNIFIC	ANCE-0.7442	-
SICY JAMA	Pon VARIADLE	433 CLA33	IFICD DV VAN	TIABLE BROUP	AMAL VSI	I FOR VARIABLE	MO CLASSI	FICD DY VAR	IABLE MOUT
	AVERADE	SCORES NE	AE USED FOR	1123		AVERAGE	SCORES NEA	C USED FOR	71CS
	MILCO	Xen scene	S (RAMK SUN)	2		MILC	BXON SCORES	CRAME SUNS	-
L'NEI		SCORES	EXPECTED UNDER NO	STO DEV UNDER NO	18481	=	SUN OF SCORES	EXPECTED UNDER NO	STB BEV UNDER HO
	2-	20.50	19.9	4. F	703 NCO	2 -	440.50	11.50	9.62
	MELCOXON 2-544 (MITH CONTINUI 3- 28.39	PLE TEST 117 CONNEC 2- 1.443	100 05 51	10×1M110N) >121-8.1882		MILCONDM 2-34 IMITM CONTINU 3- 4.50	MPLE TEST (ITY CORRECT 21 8493	NORMAL AFR ION OF . 5)	•X1MAT100)
	T-TEST APPROX.	. SIGNIFIC	ANCE-0.1110			T-TEST APPROX	. SIGNIFICA	MCE+0.0717	
AMALYSE	S POR VARIABLE	434 CLASS	VA AS 831311	ALABLE GROUP	AMAL YS !!	S FOR VARIABLE	1668 13 149	FICD DY VAR	TABLE MON
	AVERAGE	SCORES M	ERE USED FOR	11C3		AVERADE	SCORES WER	10 USED 700	7123
	NILC	axen scori	ES CRAME SUM	31		MILC	exen scerts	CRAME SUNS	•
12421	=	SCORES	EXPECTED UNDER NO	STB BEV UNDER HO	IEVEL	I	SUN OF	EXPECTED UNDER NO	STO DEV UNDER NO
504 104	: -	497.00 6.0	449.59		101 100	€-	11.51 11.51	449.50	5.74
	MILCONOM 2-3A (MITH CONTINU 3- 8.00	MPLE TEST	CHORMAL AFI			MILCONON 2-34 (MITH CONTINU 3- 16.59	HPLE TEST (177 COARECT 20 0.1556	NORMAL AFR 184 OF 51	(NOTANTXO)
			TANCE - 1744	_		T-TEST APPROX	SIGNIFICA	MCD.0.000	

TABLE FIFTY-THREE- HYPOTHESIS SIX, POOLED DATA COMPANY B

	Pen Variable - Average 5	42 CLASSI	FICO DY VAR E us ed for	1454 61047 1165	ANALYSI	3 FOR VARIABLE 445 C AVERADE SCORE	LASSER	10 V VANI 1560 Fon T	ANE more
	MILCON	en scents	CRAME SUNS	-		MILCOXON 3	ICONES (I SIME MIVE	
אנו		sum or scores	EXPECTED UNDER NO	518 82V UNDER NO	I EVEL	н 200		KPECTED KDER NO	STA BEV WIDER HO
202	* -	15. S 1. S	19.5	6.42 6.42	101 1	ş= 2-		441.50	. 11
7-4	411.COXON 2-340 METN CONTENUTY 1- 8.50	LE TEST (HOMAL APT	10×11441104) >121-0.4399		MILCOXON 2-3AMPLE 1 (MITN CONTINUITY CC 3- 11.00 21	1231 (MD DAAECTIO D.4922	NAL APPR	DXINATION)
	I-TEST APPAGK.	SIGNIFIC	NICE-0.4462	ANONG SIGNA		T-TEST APPROX. SIG	NIFICANC AANEN	E-0.4243	
	AVERAGE	SCORES ME	ine usen foi	4 1165		AVERAGE SCORE	S MERE	SCD FOR T	51
	MILC	Xen scer	IS CRAME SU			MOLCOXON S	CONES (AMK SUMD)	
ונאפו	=	SCORES	EXPECTED UNDER NO	STB DEV UNDER NO	1949.1	200 10 200	53	IPECTED	STA DEV UNDER NO
ŝ	• • •	433.00	19.50	e.13 e.13		194 194 1		19.50	
	MILCOXON 2-544 (MITA CONTINUI 3- 12.00	TY CUARC	CTION OF PRO	PROXIMATION)		MILCORON 2-54MPLE 7 (MITN CONTINUITY CO 5- 3 54 20-1	FEST (MO)	ACT ACT	XIMATION)
	T-TEST APPROX.	. SIGNIFIC	CANCE-0.714	•		T-TEST APPROX. 3104	IIFICANC	1913	
A JAMA	IS FOR VARIABL	E 444 CLA	331F1CB BY	VARIABLE OROUT	ISA TANA	S FOR VARIABLE 447 C	CLASSIFI	ED DY VARI	IABLE CROW
	AVERAD	E SCORES	HERE USED F	08 11 23		AVERADE SCORE	ES MERE	USED FOR 1	1163
	114	COXON SCO	AES (RAME 3	(500)		MILCOXON	SCORES (RAME SUNS	•
ונאנו	-	sun a scont	EXPECTO	LO STO DEV	TEAET	50	N O N O N O N O N O N O N O N O N O N O	XPECTED NDEA NO	STD DEV WIDER HO
183 1783	2-		;;	20 20 20 20 20 20 20 20 20 20 20 20 20 2				140.50	
	MILCOKOW 2-1 (MITH CONTI 3- 5.30	1111 CON	ICTION OF	AFFROXIMATION) 5) Rob > Z =0.2946		MILCORON 2-SAMPLE (MITH CONTINUITY C	TEST (MG DARECTIO 1.2589	AMAL APP	• • • • • • • • • • • • • • • • • • •
	ITAT TAPAT	AV SIGNI	FICANCE+0.2						

TABLE FIFTY-THREE- continued

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	AVENAGE :	scores men	Laster sums			MILCO	Xen scong	ERAME SUNS	-
		SUM OF SCORES	EXPECTED UNDER HO	STB BEV	ונענו	2	sum of scores	EXPECTED UNDER NO	STD DEV UNDER NO
		131 . U	15.51	1.14	703 NEG	£-	441.50 3.50	13.50	7.22
;	MILCORDM 2-SAN (MITN CONTINUE 20 7.00	PLE TEST (177 CORRECT 21.0533	HORMAL AFT	ROKIMAT ion) >121=8.3814	23Ă	LLCOXON 2-SAN MITN CONTINUE	PLE TEST (TY CONNECT 2+-1.5932	NORMAL AFT	121-0.111
	T-TEST APPROX.	Stonifici	INCE-0. 3099		•	-TEST APPROX.	\$104171CA	NCC+6.1226	
	KRUSKAL-MALL[] CM[59+ 1.2]	S TEST CON	- SQUARE AF	FROXIMATION) CHISQ-0.2722	ANAL YS IS	FOR VARIABLE	452 CLASS	 Ified by vai	RIADLE CROW
						AVERADE	SCORES ME	AE USED FOR	1123
AMALY	219PIUVA DOJ EIS.	C 446 C 1 4 3 3	1171CO DY VI	ANIABLE CHOUP	12/21		SUM OF SCORES	EXPECTED UNDER NO	310 92V
	AVERAGE	e sconts m	ine used fo	R 1165	765 110	*-		115.50	1.1
	3 1 EM	COXON SCORE	S (RANK SU	(S M	3-4	ILCORDM 2-5AF MITH COMTEMUL 4.00	PLE TEST (TONNAL AFT	0×1/41000
LEVEL	. 2	SUN OF	EXPECTED UNDER NO	STB BEV UNDER NO	-	-TEST APPROX.	310MIFIC	ANCE-0.1466	
	2 -		449.58	1.95	AMAL 7515	FOR VARIABLE	431 CLA33	IFIED DY VAI	RIABLE MOUT
	MILCOXON 2-5/ (MITN CONTIN 5- 1.00	AWPLE TEST UITY CORREC	(NORMAL AF	PROXIMATION)		AVERADE	scones we	RE USED FOR	110
	T-TEST APPRO	X. SIONIFI	CANCE+0.071	1		MBIC	DXON SCORE	S CRAME SUR	3)
	CHISQ+ 3.7	13 TEST (C	HI-SQUARC	APPROXIMATION) > CMI39+0.0345	ונאנו	æ	SUM OF	EXPECTED UNDER HO	STB BEV UNDER NO
					703 ME0	• N		449.50	7.24
						MILCOXON 2-34 MITN CONTINU 3+ 1.00	MPLE TEST 117 COAREC 21.934	TION OF ST	ROXIMATION)
					-	VAGOA VADA-	11011010		

TABLE FIFTY-THREE- continued

performance linkage between positive and negative path individuals. The negative path individual indicated that he strongly disagreed that if he did better on his variances his salary and bonus would increase (027), and he disagreed that he could use his variances to improve performance and increase his salary and bonus (028).

H8: Perceived performance (self-reported) of managers who perceived a positive path and those who perceived a negative path.

The positive and negative groups were compared with respect to question 61 using the Wilcoxon rank sum test (Table 55). Employing .05 significance level HO could not be rejected.

H9: The perceived performance of those managers who reported a strong pay-performance linkage and those who reported a weak pay-performance linkage.

First the respondents were grouped according to their payperformance linkage based on questions 27 and 28. Those individuals whose responses totaled 7 or less were classified as the strong pay-performance group (SFP), those whose responses totaled 8 were dropped from this analysis, TABLE FIFTY-FOUR- HYPOTHESIS SEVEN, POOLED DATA COMPANY B

AMALYSIS FOR VARIABLE Q27 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUNS)

LEVEL		SUM OF Scores	EXPECTED Under Ho	STD DEV . Under hø	MEAN Score
POS NEO	29 1	435.00 30.00	449.50 15.50	7.45 7.45	15.00 30.00
	WILCOXON 2-SAM (MITH CONTINUI S= 30.00	PLE TEST (Ty correct Z= 1.878	NORMAL APPI Ion OF .5) Prob	ROXIMATION) > 2 =0.0603	
	T-TEST APPROX.	SIGNIFIC	NCE+0.0704		
	KRUSKAL-MALLIS CHISQ= 3.78	TEST (CH)	-SQUARE API PROB >	ROXIMATION) Chisq=0.0517	

ANALYSIS FOR VARIABLE Q28 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

WILCOXON SCORES (RANK SUMS)

LEVEL	N	SUM OF SCORES	EXPECTED Under Ho	STD DEV Under No	NEAN Score
POS NEG	29 1	436.00 29.00	449.50 15.50	7.46 7.46	15.03 29.00
	MILCOXON 2-SAMPL (MITH CONTINUITY S= 29.00 Z	E TEST (CORRECT = 1.7432	NORMAL APPR Ion of .5) Prob	0XIMATION) > Z =0.9813	
	T-TEST APPROX. S	IGNIFICA	ICE=0.0919		
	KRUSKAL-NALLIS T CHISQ= 3.28	EST (CHI DF= 1	-SQUARE APP Prob >	ROXIMATION) Chise=0.0703	

TABLE FIFTY-FIVE- HYPOTHESIS EIGHT, POOLED DATA COMPANY B

ANALYSIS FOR VARIABLE 461 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES HERE USED FOR TIES

MILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF SCORES	EXPECTED Under Hø	STD DEV Under Hø	MEAN SCORE
POS NEG	28 1	428.08 7.00	428.00 15.00	7.57 7.57	15.29 7.00

MILCOXON 2-SAMPLE TEST (NORMAL APPROXIMATION) (MITH CONTINUITY CORRECTION OF .5) S= 7.00 Z=-0.9901 PROB >|Z|=0.3221

T-TEST APPROX. SIGNIFICANCE+0.3306

KRUSKAL-MALLIS TEST (CHI-SQUARE APPROXIMATION) CHISQ= 1.12 DF= 1 PROB > CHISQ=0.2909

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and those whose responses totaled 9 or more were classified as the weak pay-performance group (WPP). Next these groups were compared with respect to questions 61 and 62 using the Wilcoxon rank sum test (Table 56). Employing .05 significance level HO could not be rejected with respect to either question.

A RCB design was run on questions 1-53 with mangerial levels serving as treatments and blocking on departments the data was then analyzed with Duncan's Multiple Range Test (Table 57). Although the groups were significantly different across managerial levels the plant manager was from the departmental managers. The most different performance Rankings (Q62) were analyzed with the **FCB** managerial levels serving as treatments and desian. with blocking on departments which indicated that the rankings were significantly different (.00300726) across managerial levels. Further analysis indicated that plant managers were different from division managers (.00197187) and from departmental managers (.0109033). Additionally, table 58 shows all the respondents and their answers to every auestion.

TABLE FIFTY-SIX- HYPOTHESIS NINE, POOLED DATA COMPANY B

ANALYSIS FOR VARIABLE 461 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES WERE USED FOR TIES

MILCOXON SCORES (RANK SUNS)

LEVEL		SUN OF Scores	EXPECTED Under Ho	STD DEV Under Hø	MEAN Score
SPP HPP	26 3	402.50 32.50	370.00 45.00	12.62 12.62	15.48 10.83
	NILCOXON 2-SAM (MITH CONTINUI S= 32.50	PLE TEST (TY CORRECT Z=-0.951(NORMAL APPI ION OF .5) PROB	ROXIMATION) > 2 =0.3416	
	T-TEST APPROX.	SIGNIFIC	NCE+0.3497		
	KRUSKAL-MALLIS CHISQ= 8.98	TEST (CH) DF+ 1	-SQUARE APP PROB >	ROXIMATION) CHIS9=0.3219	

AMALYSIS FOR VARIABLE 96200 CLASSIFIED BY VARIABLE GROUP AVERAGE SCORES MERE USED FOR TIES

NILCOXON SCORES (RANK SUMS)

LEVEL		SUM OF	EXPECTED UNDER HO	STD DEV Under Ho	MEAN Score
SPP NPP	27 3	416.50 48.50	418.50 46.50	13.59 13.59	15.43 16.17
	MILCOXON 2-SAMP (NITH CONTINUIT S= 48.50	LE TEST (Y CORRECT Z= 0.1104	NORMAL APPR Ion of .5) Prob	OXIMATION) > Z =0.9121	
	T-TEST APPROX.	SIGNIFICA	NCE+0.9128		
	KRUSKAL-NALLIS Chisq= 0.02	TEST (CHI DF= 1	-SQUARE APP PROB >	ROXIMATION) CHISQ+0.8830	

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C.V.	37.2017	TESP MEAN	33962244	Ê				11 12.																						
-Sevare	£34963.	-	•	P VALUE	35.07			e. 947211 •	202																					
ů Î	0.001	ROOT MSE	1.24259448	· TYPE 111 55	2814 93584986 131.77396491	:		0.55702 0.562574	10 0.54449 0.544127	LFFERENT.	REAT	_			~		_	_												
YALUE	26.89			*	25		1355	202050	109585	ICANTLY D	H	1 22	1 55	55 2	53 1		55 21	33 1	55 7	9.5 9	5 25	55 1	53 10	53 14	5 55 5	53 10	93 4	53 13	53 4	
IQUARE P	294977	11415		7 ~ 5	1000.0	TEST FOR VA	986 MSE-1.94	0.542075 0.1	0.943912 0.9	E NOT SIGNIFI	MEAN	4.3286	3.8491	3 4224	5 4058	3.5285	3.5285	5.4404	3.3962	3.5200	3.2838	5.2642	3.2642	5.2075	5.2075	3.1509	5.1132	5.0577	5.0377	
MEAN	41.502	1.54		F VALUE	52 EV	TIPLE RANGE	A+8.45 DF+	6.532016	199195.0	E LETTER AR	DWI	•	• •	U	.													201	••	
SUM OF SQUARES	2946.78943396	1525.02641509	4471.73584986	17PE 1 55	2814 93584906 131.77358491	DUNCAN'S MUL	IL IN	9.504161 0.520068	15 0.577531 0.579621	MEANS WITH THE SAM	DUMCAN GROUT		•	•••		-				•••					~~.				14 364 1	
*	11		1059	1	25			100610.0	12 0.57446																					
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