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PERFORMANCE APPRAISAL: MANAGING THE PROCESS AND PERCEPTIONS OF SUPERVISOR EFFICIENCY IN THE TEST DEPARTMENT AT LOCKHEED MARTIN ASTRONAUTICS-DENVER

A DISSERTATION SUBMITTED TO
THE GRADUATE COUNCIL
IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF
DOCTOR OF MANAGEMENT

DEPARTMENT OF MANAGEMENT

BY

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ABSTRACT

The purpose of this study is to understand if there exists a difference in employee and supervisors' perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction. The multi-source employee evaluation system is relatively new to the test department at Lockheed Martin Astronautics. It has been in existence for only four years. To this point, the multi-source employee evaluation system has never been critically studied. In the competitive environment of the aerospace industry, the employee evaluation process is a very important function in the technical organization (Wilson, Mueser, and Raelin 1994, Longnecker and McGinnis 1992, DeLeon and Even 1997). Hence, evaluating technologists constitutes one of the most difficult task to accomplish for technical managers. Managing today's technical employees requires knowledge, skill, and insight into motivation theory, process theory, and procedural justice theory. An inequitable performance evaluation systems can lead to employees' performance being adversely affected (Hellriegel, Slocum, and Woodman 1998). In the performance management arena, the perceived fairness of the procedure used to evaluate employees is a better predictor of satisfaction than the absolute amount of compensation that employees receives (Greenberg 1998). However, in the final analysis, what is very important to technical organizations is that the appraisal process used provides the necessary information about employee performance with sufficient accuracy to permit the reliable extraction of the required

information to evaluate employees equitably. Results indicate that employee and supervisors' perceptions about their multi-source performance appraisal in the test department at Lockheed Martin Astronautics do not statistically differ. On the other hand, results also indicate that supervisors and employees perceive the evaluation system as having inequitable components.

ACKNOWLEDGMENTS

I am very thankful to God for his continuing blessings which have enable me to be a parent and perform my work.

I am grateful to my parents (Edward L. Patterson, Sr., and Dorothy D. Patterson), for instilling in me the moral character and the values necessary to complete my doctoral studies. Through words and behaviors, they have taught me to be faithful, to work hard, to be persistent, and to always do my best.

I am extremely appreciative of the love and support offered by my daughter, Seantay Patterson, who continually had to make sacrifices for my dream. I could have not accomplished this endeavor without her efforts.

A special thanks to Jeanette Washington for being my dear confidant. Thanks to the A-Team (Kurt Miller, and Jeremy Tucker) for their support. Thanks also to Dr. Robert G. Stein for serving as my chair, and to my other committee members (Dr. Wilhelmina A. Hooper, and Dr. Jay A. Rothman).

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CHAPTER I

INTRODUCTION

Managing the performance appraisal process is one of the most critical, sensitive, and controversial practices in the career of a technical manager (Wilson, Mueser, and Raelin 1994, Longnecker and McGinnis 1992, DeLeon and Even 1997, Dreyer 1997). "It is critical in the sense that it is the one regular opportunity where [technical] professionals get formal feedback on the worth of their contributions. It is also sensitive and controversial because if handled poorly it can have devastating effects upon the individual professional's self-esteem and can create a demoralizing atmosphere in the appraisee's place of work" (Wilson, Mueser, and Raelin 1994, 51). Employee appraisal systems are the most commonly used managerial instrument use to judge employee performance (Mikkelsen, Ogaard, and Lovrich 1997, Falcone 1995), and as such they produce both intended and unintended consequences for employees and the organization (Chris 1996, Mikkelsen, Ogaard, and Lovrich 1997). "Whatever advantages a good performance appraisal system may possess for the task of human resource management, ultimately its utility must be measured by its contribution to the success of the organization" (Mikkelsen, Ogaard, and Lovrich 1997, 82).

Lockheed Martin Appraisal System

Lockheed Martin Astronautics (LMA) conducts employee performance appraisals in the belief that the process is a useful managerial tool that can serve to provide many benefits to the organization such as:

1. Improved employee productivity
2. Enhanced employee development
3. Improved discussion of performance goals and assignment outcomes
4. Increased manager-employee communication
5. Providing input on accomplishment and outcomes
6. Providing a better format for more efficient work planning and goal setting
7. Providing valuable information for pay increases, training, and promotional decisions

(Lockheed Martin Corporation 96)

This belief at LMA is based on the presumption that their employee appraisal system is properly conducted. As a result of this belief, the test department at LMA endeavors to know if there is a difference in employee and supervisor perception that their employee performance appraisal feedback process affects employee performance.

The system for annual performance assessment and development at Lockheed Martin Astronautics is known as the Employee Performance Assessment and Development System (EPAD or EPADS). This system applies to all elements of Lockheed Martin Astronautics, including field sites and off sites. Field sites and off sites may tailor the systems, with the approval of the Vice President, Human Resources, to meet local operating conditions.

The evaluation system works with a performance assessment and development discussion that occurs at least annually for each salaried employee between the employee and the next appropriate level of supervision. The schedule for this annual review is announced prior to the annual salary planning process in order to complete all EPADS forms before salary management deadlines. In addition to the annual evaluation, new employees receive a performance evaluation (EPADS) within 90 days of start date. An annual performance rating number that is documented on the EPADS form and reported for each employee on the annual Salary Management Plan; the scale is 1 to 5. The contributors to the EPADS may include the immediate supervisor, manager, or lead, the employee, the functional supervisor, an internal customer, knowledgeable peers, or subordinates. Employee performance is evaluated in terms of products, services, skills, qualifications, and overall contribution and value to the organization. Departments responsible for performance assessment include both the employee's assigned work unit and the functional or home shop. While both departments collaborate in determining the employee's performance evaluation and both may offer developmental coaching and planning, performance assessment is initiated jointly by the immediate supervisor and the employee (Figure 1.1).

Management and supervision have a responsibility to work with employees to develop their skills and provide assistance with their development needs. Identifying and planning activities in these areas is a part of the EPADS process. Communication on a regular basis between both the supervisor and employee is essential to effective individual performance and positive growth of the organization. Management and employees are

jointly responsible for initiating and maintaining positive performance communication. The assignment of a mentor can aid in the performance process.

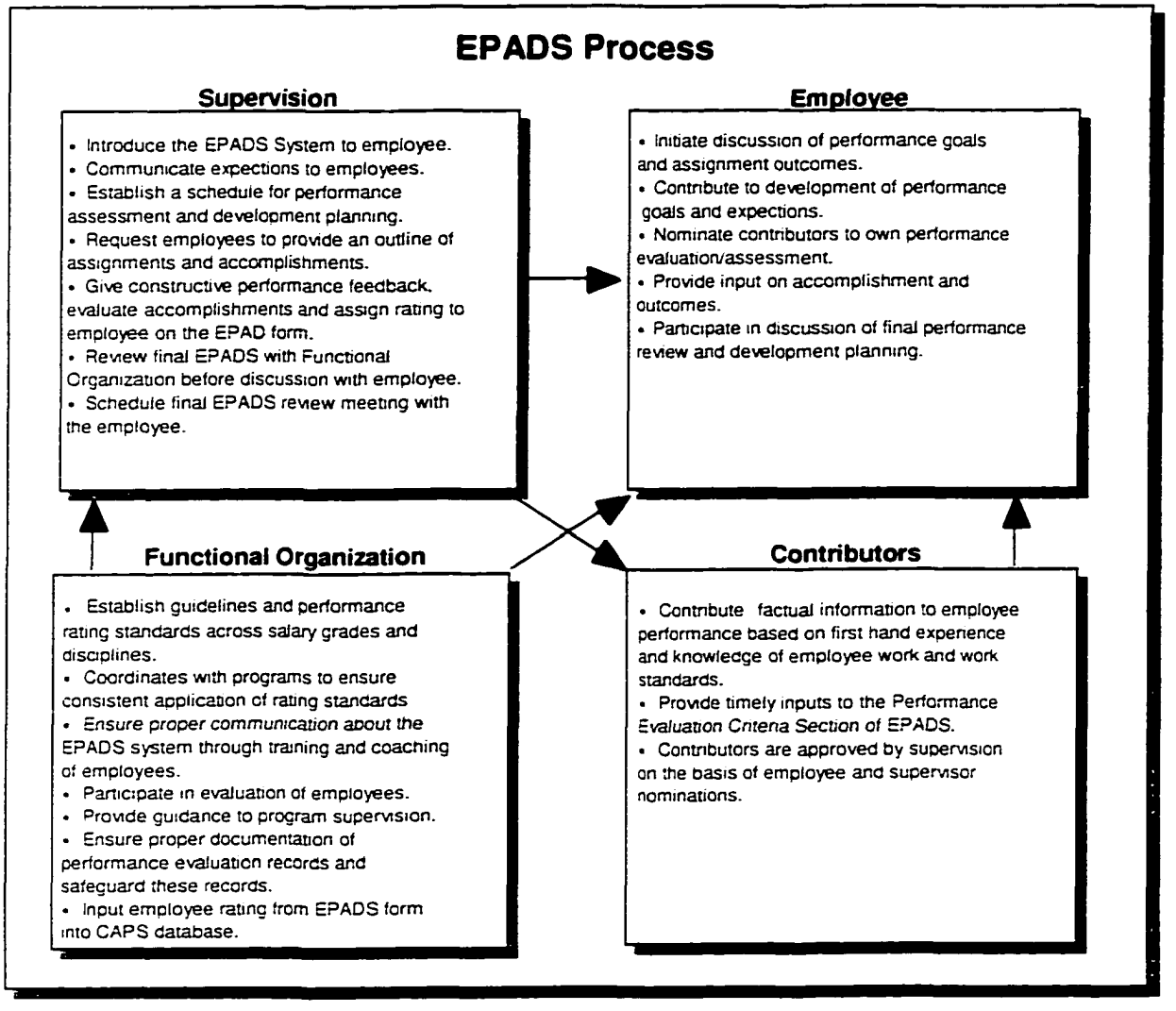


Figure 1.1 (Lockheed Martin Corporation 96)

LMA believes that their EPAD process is designed to help employees manage their actions to help their organization achieve its goals. In contemporary management terms, LMA's EPAD process is what is commonly called *performance management*. Performance management requires management to set up a set of objectives with subordinates, measure

their performance, offer regular feedback, find out where problems lie, coach subordinates when they need help, and offer rewards (Lee 1996, Bradt 1991, Neale 1991).

Multi-Source Appraisals

Although single-source supervisory-only performance appraisals are the most common form of evaluating employees in organizations (Chris 1996, Barclay 1997, Deleon and Even 1997), there are many other alternative sources of performance appraisal apparatus (Deleon and Even 1997, Chase 1997, Frazee 1996, Hass1996). One alternative form of performance appraisal that is becoming increasingly popular is multi-source appraisal or 360 degree feedback systems (Edwards and Ewen 1996, Edwards 1983). As noted above, Lockheed Martin Astronautics uses a multi-source assessment process to evaluate its employees (see Figure 1.1). This appraisal model recommends that performance information come from multiple individuals who interact with the employee (Edwards 1983, Deleon and Even 1997, Lepsinger and Lucia 1997). The increased interest in multi-source assessments can be linked, at least in part, to a greater stress on employee involvement and participative management styles (Barclay 1997, Kanter 1989, Ledford et al. 1989). Many organizations have migrated to multi-source appraisals for performance management because it yields valid, high-quality information for use in decision-making (Deleon and Even 1997). "Many organizations use multi-source assessment, or '360 degree feedback', to gauge employees' competency on the basis of their work behavior. The term captures the essence of the process: people in an individual's entire circle of influence in the workplace-rather than the supervisor alone-provide confidential feedback about job performance. That such feedback has value is no longer in dispute, given recent surveys estimating that 90% of Fortune 1000 firms have implemented some form of

multisource assessment for career development, performance management, or both" (Edwards and Ewen 1996, 41).

The advantages of multi-source appraisals are currently being recognized. First, considerable research and evidence suggests that they can be reliable and valid predictors of job performance (Edwards and Ewen 1996, Lepsinger and Lucia 1997, Waldman 1997). Secondly, multiple individuals who interact with the employee may have access to a wider range of performance dimensions (Lepsinger and Lucia 1997, Waldman 1997), and they may be able to make more precise inputs to the appraisal. Finally, the literature has indicated that not only are multi-source appraisals likely to be based on different, perhaps more accurate information, the performance management literature would predict that multi-source appraisals may be more effective in producing behavioral changes than single-source supervisory-only performance appraisals (Mikkelsen, Ogaard, and Lovrich 1997, Neale 1991).

Organizations are beginning to adopt multi-source appraisals mainly for such reasons as a perception of greater fairness and credibility in performance ratings (Edwards and Ewen 1996). In spite of the increasing interest in multi-source appraisals and their many advantages, practitioners are often reluctant to use them due to concerns when participants know that career advancement and compensation are at stake. "When information is used for performance management, feedback providers may hold back on their ratings for fear that negative comments might hurt the career and pay opportunities of the feedback recipient" (Edwards and Ewen 1996, 43). Participants may also inflate ratings when they worry about the effect of their responses on coworkers' career and pay (Edwards and Ewen 1996). Certainly, both intuitiveness and logical assumptions would

support this concern. Nonetheless, the research cited above has theorized that multi-source appraisals may be effective in producing behavioral changes in work performance. Thus, the proposed study will address factors that impact the employee and supervisor perception in the test department at Lockheed Martin Astronautics that performance appraisal feedback affects employee performance.

Statement of Problem

The EPAD process as it is implemented today may be incompatible with the needs of the technical staff in the test department at Lockheed Martin Astronautics. Deming (1986) recommended that organizations simply abolish the practice of using performance appraisals to evaluate employees. Pearce and Porter (1986) and Bowman (1994) identified several factors that may make performance appraisals inappropriate or misguided in organizations. Bowman argues that performance appraisal merit systems encourage destructive zero-sum competition, destroy morale, and inhibit motivation without examining the underlying causes of variation that these systems attempt to evaluate. Pearce and Porter suggest that many appraisal feedback recipients will perceive performance feedback that they are satisfactory as negative. They hypothesize that attitudes toward the performance appraisal systems and organizational commitment will be negatively affected for those receiving satisfactory ratings. For theses reasons, it is not surprising that technical managers often perceive no after effect, either positive or negative, from conducting performance appraisals and see little practical value in pursuing such activities (Waldman 1997, Napier and Latham 1986). Nevertheless, performance appraisals currently serve LMA's organizational requirement for evaluation, albeit sometimes poorly.

For some engineers and technical staff, it may affect their development negatively (Deming 1986, DeLeon and Even 1997, Bowman 1994, Dreyer 1997, and Chris 1996). As a result, LMA's EPAD feedback process needs to be analyzed to understand if it affects employee performance. To accomplish this task, the supervisor and subordinate feedback loop will be researched and evaluated thoroughly. This component of the EPAD process is the most critical to the development of LMA's test department and its people. West and Patterson's (1998) research points out that the feedback loop between employee and the supervisor (the organization) is not only critical to business performance: it also far outstrips emphasis on quality, technology, competitive strategy or research and development in its influence on the bottom line. If the feedback loop is not functioning correctly at LMA, major changes might need to be made to the EPAD process in general to compensate.

The EPAD process is relatively new to Lockheed Martin Astronautics. It has been in existence for only four years. To this point, the EPAD process in the test department at LMA has never been critically studied. The employee evaluation process is a very important function in a technical organization (Wilson, Mueser, and Raelin 1994, Longnecker, McGinnis 1992, DeLeon and Even 1997). Hence, this research is vital to the growth of LMA's test department and the next logical step for organizational improvement.

A study of the EPAD process at Lockheed Martin Astronautics is interdisciplinary and will make a very significant contribution to the theoretical and applied literature in the field of technical management. Current research on performance appraisal feedback between supervisors and employees in technical fields is scant; findings thus far indicate

that the feedback loop can be problematic (DeLeon and Even 1997, Bowman 1994, and Chris 1996). Thus, the test department within the corporation will use the results from this study to modify, if necessary, how it implements and evaluate the appraisal process.

Purpose of the study

The purpose of this case study is to understand where LMA's EPAD system provides appropriate feedback to subordinates to increase their work performance in the test department. LMA's management is very concerned about the feedback process during EPADS administration. LMA further understands that for any performance management system to be successful, it must tap into key elements of employee motivation. Therefore, the theories of motivation used in this study to describe and analyze how personal factors (internal to person) interact to produce certain kinds of changes in employee behavior are the Herzberg's Motivation/Hygiene Theory, Path-goal Theory, Expectancy Theory, and Equity Theory (Hellriegel, Slocum, and Woodman 1995, Mathis and Jackson 1997). These motivational theories of management have received wide acceptance from many contemporary organizational theorists (Mathis and Jackson 1997, Adams 1963, Boone and Kurtz 1987, Harder 1992, Hellriegel, Slocum, and Woodman 1995).

Herzberg's Motivation/Hygiene Theory assumes that one group of factors, motivators, accounts for high levels of motivation. Another group of factors, hygiene factors, can cause discontent with work (Mathis and Jackson 1997, Boone and Kurtz 1987, Hellriegel, Slocum, and Woodman 1995). Mathis and Jackson (1997) further state that the implication of this theory for management is that managers must carefully consider hygiene factors in order to avoid employee dissatisfaction; even if all maintenance needs are addressed, employees may not be motivated to work harder. Only motivators cause

employees to exert more effort and thereby attain more productivity, and this theory suggests that managers should use the motivators as tools to enhance employee performance.

Path-goal Theory indicates that effective leadership is dependent on the degree to which one is able to improve the achievement of subordinates' goals, as well as clearly defining the paths to goal attainment for subordinates (Boone, Kurtz 1987, 412). Hellriegel, Slocum, and Woodman (1995) note that goal-setting is a process intended to increase efficiency and effectiveness by specifying desired outcomes toward which employees and the organization should function. Goals are the future outcomes that employees and the organization desire and strive to achieve (Locke and Latham 1990).

Expectancy Theory maintains that a subordinate's perception of achievement (compensation or purpose) via effective job performance is directly linked to a function of the perceived probabilities and consequences of success and failure (Boone, Kurtz 1987 and Bradt 1991). Hellriegel, Slocum, and Woodman (1995) add that expectancy theory states that employees are motivated to work when they believe that they can get what they want from their jobs. Such expectancy might include satisfaction of safety needs, excitement of a challenging task, or the possibility of setting and achieving goals. "A basic premise of expectancy theory is that employees are rational people who think about what they have to do to earn rewards—and how much the rewards mean to them—before they perform their jobs" (Hellriegel, Slocum, and Woodman 1995, 188).

Equity Theory refers to subordinates' tendency to attempt to balance their efforts and rewards with the rewards that others receive for their efforts (Boone, Kurtz, 1987 and Bradt 1991). "Thus, if one employee believes his or her efforts are being under-rewarded

in comparison to his or her colleagues' efforts, the employee will attempt to restore balance by either securing additional rewards or reducing his or her efforts" (Bradt 1991). Hellriegel, Slocum, and Woodman (1995) point out that equity theory focuses on employees' feelings of how fairly they are treated in comparison with their co-workers. The authors believe that the theory views interpersonal relationships as exchanges in which employees make contributions and expect certain results. Employees compare their situations with their co-workers to determine equity in a situation.

Lockheed Martin Astronautics is ultimately tasked with establishing an environment that can employ all subordinates' abilities with the goal of improved performance. Lockheed Martin Astronautics is no different than other business entities. The leadership of LMA is committed to mission success, and they embrace this commitment through their people. As a result of their pledge, they have committed their resources to this study.

In addition, this study will provide feedback to Lockheed Martin Astronautics about how it evaluates employees to increase their performance. "Recent research estimates that 92% of all U.S. organizations employ some type of formal performance appraisal system. However, it is estimated that less than 20% of all employee appraisals are effective in accomplishing their purposes. In a recent survey of 410 members of a technical service division of a Fortune 100 organization, the top reasons cited for appraisal failure focused directly or indirectly on the manager. Appraisals are ineffective when the manager lacks knowledge of the subordinate's actual performance and does not have clearly defined standards by which to judge this performance" (Longnecker and McGinnis,

1992). Longnecker and McGinnis (1992) further stated the top ten causes of ineffective performance appraisals of technical personnel (n =268):

1. Manager lacks information of subordinate's actual performance – 56.3%
2. Unclear standards by which to evaluate subordinate's performance – 45.1%
3. Manager not taking the appraisal seriously – 44.0%
4. Manager not prepared for the appraisal review with employee – 42.9%
5. Manager not being honest/sincere during evaluation – 42.0%
6. Manager lacking appraisal skills – 28.4%
7. Subordinate not receiving ongoing performance feedback – 26.9%
8. Insufficient resources provided to reward performance – 18.3%
9. Ineffective discussion of employee development – 14.2%
10. Manager using unclear/ambiguous language in the evaluation process – 13.8%

A careful review of the findings from this study will offer Lockheed Martin Astronautics insight into its EPAD process. As a result, this study will verify that the EPAD process is not only clearly understood, but also establishes clear performance standards, monitors performance, and provides ongoing feedback.

Practical Significance

The results of this research will be of interest to practitioners in light of the fact that many technical organizations are restructuring in such a way that multi-source appraisals have the potential to provide more meaningful and valid data than single-source supervisory-only performance appraisals (Chris 1996, Barclay 1997, Deleon and Even 1997, Edwards and Ewen 1996).

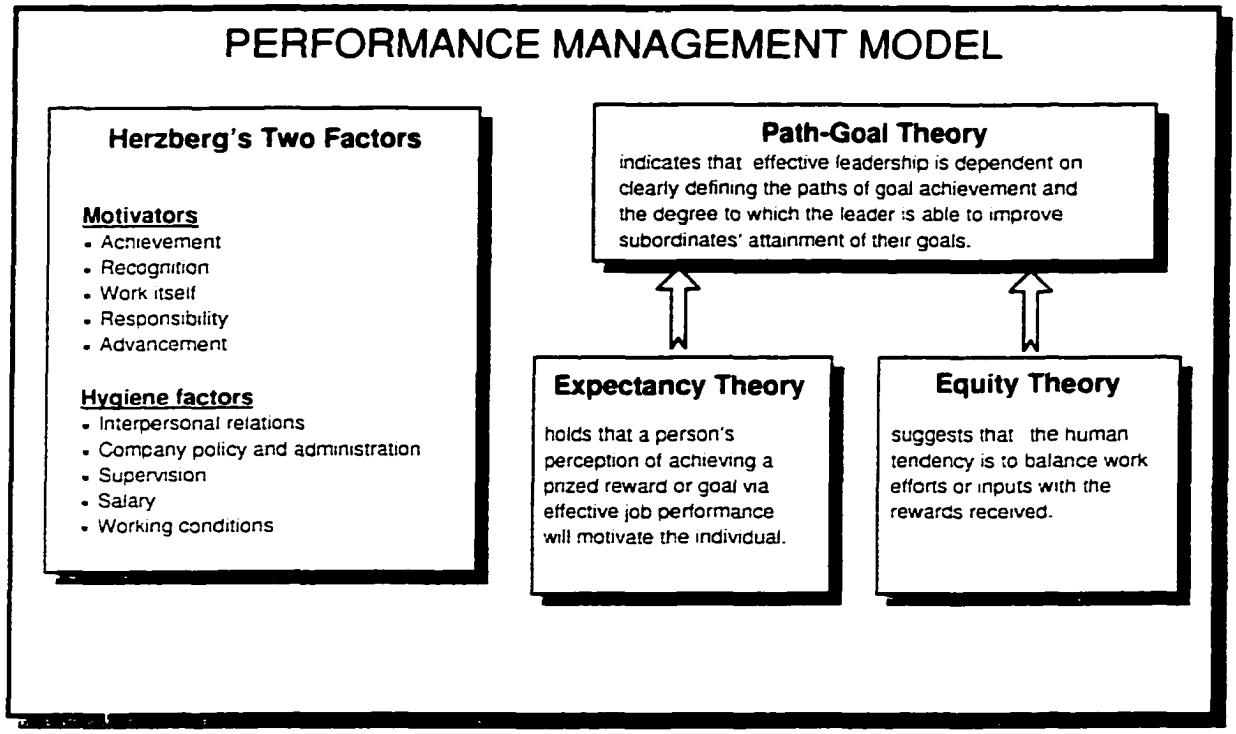


Figure 1.2 (Boone and Kurtz, 1987)

It may also suggest that supervisor and employee feedback during the EPAD process may improve job performance. Moreover, technical organizations may benefit from knowing that using multi-source appraisal systems can enhance the acceptability of employee appraisal systems in general. Finally, the results of this study may offer a possible solution to the problem of perceived multi-source appraisal incompatibility with the needs of the technical staff in the test department at Lockheed Martin Astronautics.

This study is theoretically significant for two reasons. First, the results may support Bowman (1994) and Gabor's (1990) theory by showing that performance appraisal systems encourage destructive zero sum competition, destroy morale, and inhibit motivation. Secondly, and perhaps more important, is that the predicted feedback between the supervisor and employee during the appraisal process may be directly linked to performance improvement in a technical environment. Such findings would be contrary to

Bowman's theory (1994), as he would predict performance appraisals perversely affecting job improvement.

Research Questions

Question 1: Is there a statistically significant difference in employees' perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Question 2: Is there a statistically significant difference in supervisors' perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Question 3: Is there a statistically significant difference between employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

The hypotheses emanate from the three proposed research questions and the aforementioned theoretical underpinnings (Herzberg's Motivation/Hygiene Theory Path-goal Theory, Expectancy Theory, and Equity Theory).

H_0 = There is no difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

H_1 = There is a difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

Definition of Terms

The term **motivation** refers to environmental factors acting on or within an employee that causes the employee to behave in a specific manner (Hellriegel, Slocum, and Woodman 1995). It is the willingness of an employee to pause and to focus on some point and then set out to do some creative thinking (De Bono 1993). Such motivation arises from an understanding of the possibility of new ideas and an understanding of the creative potential of the human mind (De Bono 1993).

The term **multi-source appraisal** involves gathering information about a person's behavior from a boss or bosses, direct reports, colleagues, team members, internal and external customers, and suppliers. According to Lepsinger and Lucia (1997), this method provides a complete portrait of behavior on the job that looks at employees from every angle and every perspective. It is like having a full-length portrait, a profile, a close-up of the face, and a view from the back all in one.

The term **satisfaction** refers to many factors that affect the employee's satisfaction with the job – including challenging work, interesting co-workers, salary, the opportunity to learn, and good working conditions (Hellriegel, Slocum, and Woodman 1995). According to Hellriegel, Slocum, and Woodman (1995), the primary focus is on the employee's degree of satisfaction with having achieved goals. Satisfaction with performance is positively associated with the number of successes experienced. Sources of satisfaction are associated simply with striving for difficult goals (such as responding to a challenge), and believing that benefits may be derived from the experience regardless of the outcome (Hellriegel, Slocum, and Woodman 1995).

Assumptions of the Study

In considering the applicability of this study to other technical organizations, it is important to be mindful of the fact that the subjects in this study work in an aerospace environment and have experienced at least one multi-source appraisal previously. Such experience is critical for the validity of the research; however, technical organizations cannot assume that its employees will view the feedback loop similarly if they have never experienced such multi-source appraisals.

Limitations of the Study

Methodologically, the study is limited largely to a common method with data coming from a single source. Hence, the external validity of this study is questionable given that data collection is confined to only one organization and somewhat restricted job types, and this organization was not selected randomly. The opportunity to randomly select test departments could enhance the external validity of the study. However, inasmuch as researchers cannot force any organization or individual to participate in a study, random selection of research sites in this case was not feasible.

The Management Academic Discipline

The employee appraisal process is an integral function of the management discipline. Boone and Kurtz (1987) state that management is the use of people and other resources to accomplish objectives. They further state that management involves the creation of an environment in which people can most effectively use other resources to reach stated goals. Management's job is to aid employees to accomplish organizational

goals. Therefore, managers need a system that develops employees and helps them improve competencies so that they can add to the organization (Hildebrand 1997). Performance management is the system used for conducting performance appraisals, setting goals, communicating expectations, observing, documenting, giving feedback, and helping employees develop skills. (Chris 1996, Barclay 1997, Deleon and Even 1997, Hildebrand 1997).

Correctly evaluating employees' performance is one of the key ingredients affecting management's ability to fulfill its mission. The effectiveness of management to provide a product or service that fits customers' needs is critical if the organization is to survive in today's competitive market. The many products or services of a business are provided in part (or entirely) by employees. Therefore, developing employees' competencies through performance evaluations/appraisals is necessary function of management and is directly related to the science of management.

Overview of Study

This section will provide an overview of the dissertation, providing a road map of chapters II through VII.

In chapter II, the previous literature and past research is investigated to describe the current level of knowledge pertaining to employee evaluations. The first section provides a synopsis of motivation and motivational theories as they relate to the employee performance and satisfaction. The second section discusses employee performance appraisals from a historical perspective to current trends being used by the most successful business entities. The third and final section of chapter II covers multi-source performance

appraisals, including the history behind the methodology, processes being implemented, and current empirical research efforts.

In chapter III, the general research outline in chapter II relating to performance management is narrowed to identify the individual components which directly relate to the employee performance appraisal feedback and employee satisfaction. These two separate pieces are linked to their theoretical underpinnings and described in detailed. In addition, the research site and subjects are identified.

In chapter IV, all pieces of the proposed research as described in chapter II are related to a developed performance management model with its conceptual support. The development of the performance management model is directly linked to the data collected in chapter III. Also, the limitations and methodological flaws of the model is discussed in great detail.

In chapter V, the statistical methodology is described and used to validate the relationship of the collected data and the synthesis model. Using a survey, collected data is statistically validated to demonstrate that the data and equivalent relationships apply to more than one situation. In addition, the advantages and limitations of the test statistics is discussed.

In chapter VI, all collected results are put into proper context. Common descriptive statistics are presented as well as non-parametric statistical analysis. Non-parametric statistical analysis was used because the collected data provided an ordinal data set.

In chapter VII, the results are summarized, reviewed, and interpreted. Also, this chapter includes areas for future research and logical extensions.

CHAPTER II

SEARCH OF THE LITERATURE

The purpose of this chapter is to provide a search of the literature for a detailed analysis of competing ideas, concepts and theories as they relate to employee appraisal systems. As a part of this discussion, this chapter describes the level of knowledge pertaining to employee appraisal systems, and addresses as well the issues of employee motivation, performance appraisals and procedural justice, noting the relevance of each of these topics by reviewing and relating them to the appraisal process.

Motivation

Motivation represents the dynamics acting within an employee that causes the employee to behave in a specific, goal-directed manner (Hellriegel, Slocum, and Woodman 1995). Mathis and Jackson (1997) state that motivation is the desire within an employee causing that employee to function. Employees usually act for one reason: to obtain an objective. In addition, Boone and Kurtz (1987) state that motivation refers to the forces leading to specific behavior directed toward the satisfaction of some necessity. Hunger and the desire for financial security are necessities (Boone and Kurtz 1987). People's behavior designed to satisfy these necessities is motivated behavior, or motivation (Boone and Kurtz 1987).

Employee motivation affects organizational productivity, so the fundamental management task is to channel employee motivation effectively and precisely to achieve organizational goals (Fletcher 1998, Hellriegel, Slocum, and Woodman 1995). With the

flattening of organizations and the greatly increased emphasis on being quickly responsive, increasing amounts of work are done in the team environment (Fletcher 1998). Employees need to be assigned, get up to speed quickly with team members they may have never met before, work long hours that are highly focused and motivated, and then move on to new assignments as demanded by business conditions (Fletcher 1998). Thus, for an organization to be effective, management must tackle the motivational aspects involved in stimulating employees' desires to be members of the organization and productive workers (Hellriegel, Slocum, and Woodman 1995).

The construct of organizational productivity and commitment has occupied a prominent place in organizational behavior research. Organizational productivity and commitment is of interest to both behavioral scientists and practicing managers. Productive and committed people are thought to be more likely to remain with the organization and work toward organizational goal attainment (Mowday, Poter and Steers 1982). Poter and Lawler (1968) viewed organizational goal attainment of employees in terms of high levels of effort on behalf of the organization, a strong desire to stay with the organization, and an acceptance of its major goals and values. Sheldon (1971) viewed commitment as positive evaluation of the organization and the intention to work toward its goals. These scholars conceived of commitment as involving some form of psychological bond between people and organizations.

Commitment is a global attitude that results from environmental mastery, a sense of support, and a feeling that one's efforts are acknowledged and reciprocated by the organization. These global features that contribute to identification with an organization should influence commitment (Ogilvie 1987).

Mintzberg's (1989) research points out that individuals entering an organization join a living system with its own culture. The individuals may come with a certain set of values and beliefs, but the culture of the organization will weigh heavily on the behavior the individual will exhibit once inside the organization. Mintzberg (1989) further states that the stronger the identification the individual has with the organization, the more likely the individual is to sustain the organizational ideology or motivation. Thus, a strong organizational belief system can aid an individual's desire to become a productive and committed member of the organization.

Mathis and Jackson's (1997) study states that the long-term economic health of most organizations depends on efforts of employees with the appropriate knowledge, skills, abilities, and motivation. The hallmark of the companies in the 1990s will be to utilize the abilities of their skilled and knowledgeable employees by recognizing and rewarding them for helping their company achieve success (Fletcher 1998). The old paradigm of command and control does not work anymore. Savvy companies are starting to listen to employees who are demanding to be rewarded, recognized, and appreciated (Romano 1997). Simply involving employees in the organization's goals and long-range vision is often enough to get employees' creative juices flowing, rekindle employees' passion and excitement, and sometimes broaden the scope of an employee's job and career (Fletcher 1998, and Romano 1997).

Hellriegel, Slocum, and Woodman (1995) identify a key motivational principle that states that an employee performance is a function of both ability and motivation:

Performance = f(ability X motivation).

They go on to argue that no endeavor can be performed successfully unless the employee who is to carry it out has the ability to do so, i.e., a talent for performing specific tasks. This ability might include intellectual (verbal, abstract, and spatial skills) as well as manual competencies (physical strength and dexterity)

They also discuss the core motivational process (steps) which focus on the factors within a employee that drive, sustain, or stop behavior (Figure 2.1):

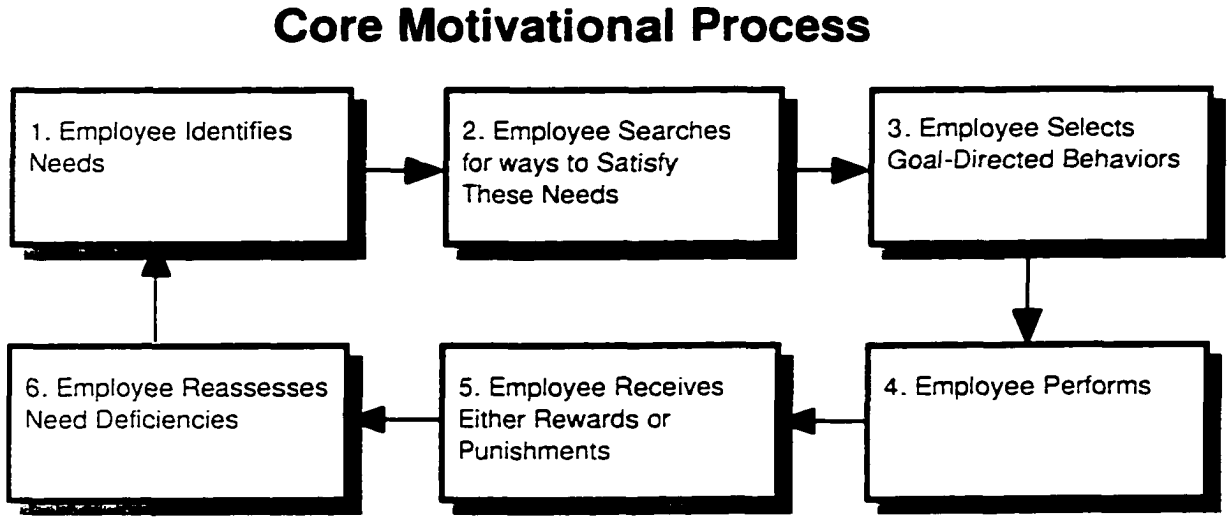


Figure 2.1 Source: Hellriegel, Slocum, and Woodman (1995)

1. The process begins with an employee identifying needs—insufficiencies (psychological, physiological, or social)—that may be experienced at any particular time. Needs create tensions within the employee, who finds them uncomfortable and wants to reduce or eliminate them.
2. Hence, needs act as energizers to spur the individual to act to meet them.
3. Motivation is goal-directed. A goal is a specific result an employee wants to achieve. Accomplishing goals may significantly reduce the individual's needs.

4. The employee may have a strong desire for advancement and an expectation that working long hours will lead to a promotion which makes the employee perform.
5. By giving promotions and raises, the company sends signals (feedback) to the employees that their need for advancement and their behaviors are appropriate.
6. When the employee receive these rewards, they reassess their needs.

Boone and Kurtz (1987) note that motivated behavior can be subdivided into individual and group behavior. They say that effective management requires a keen understanding of both aspects of motivated behavior. They support this premise by using the field theory of Kurt Lewin (1951) who points out that employees are influenced by many factors and that this establishes their behavior patterns. Lewin labels his conceptualization of behavior as field theory and suggests the following formula:

$$B = f(P, E)$$

where behavior (B) is a function of factors (f) relating to person (P), as well as the environment factors (E) that affect the individual. The identification of both personal and environmental influences is an important offering to management's understanding of behavior and motivation (Boone and Kurtz 1987).

Motivational Theories – The Early Research

Many managers are having a hard time switching their focus from control to motivation. To learn the psychology of motivation, managers have to unlearn the partial truths that make up the psychology of control. Frederick Winslow Taylor's scientific management is a case in point. Generations of managers have been taught to maximize productivity by determining the one best way of designing work roles (Maccoby 1993). The management logic of today's organizations focuses on reciprocity rather than

authoritarian control (Romano 1997), a logic which requires relations of respect that encourages individuals to take responsibility within a framework of rules that can be changed to improve performance (Romano 1997).

In reviewing the past and present research on motivation, a number of theories have been developed in an attempt to explain motivational behavior. Approaches to understanding motivation differ because many individual theorists have developed their own views and theories. They approach motivation from different starting points, with different ideas in mind, and from different backgrounds. No one approach is considered to be the correct one. Each has contributed to the understanding of human behavior. Boone and Kurtz (1987) point out that Maslow, McClelland, Herzberg, Skinner, Vroom, and Rotter are some of the more noteworthy names associated with the various theories that have been advanced to explain why employees behave as they do. Each of these viewpoints offers an important perspective or insight related to the study of motivation (Figure 2.2).

Abraham Maslow

Arguably, one of the most noteworthy explanations of individual motivation is the proposition formulated by psychologist Abraham Maslow (Boone and Kurtz 1987), which theorized that people are driven by several needs, not just one, that ascend in a definite order. Specifically, these necessities can be categorized as physical or physiological needs, safety or security needs, love or social needs, ego or status needs, and self-actualization or self-fulfillment needs (Figure 2.3). Until the more basic needs are adequately fulfilled (Mathis and Jackson 1997), a person will not strive to meet higher needs.

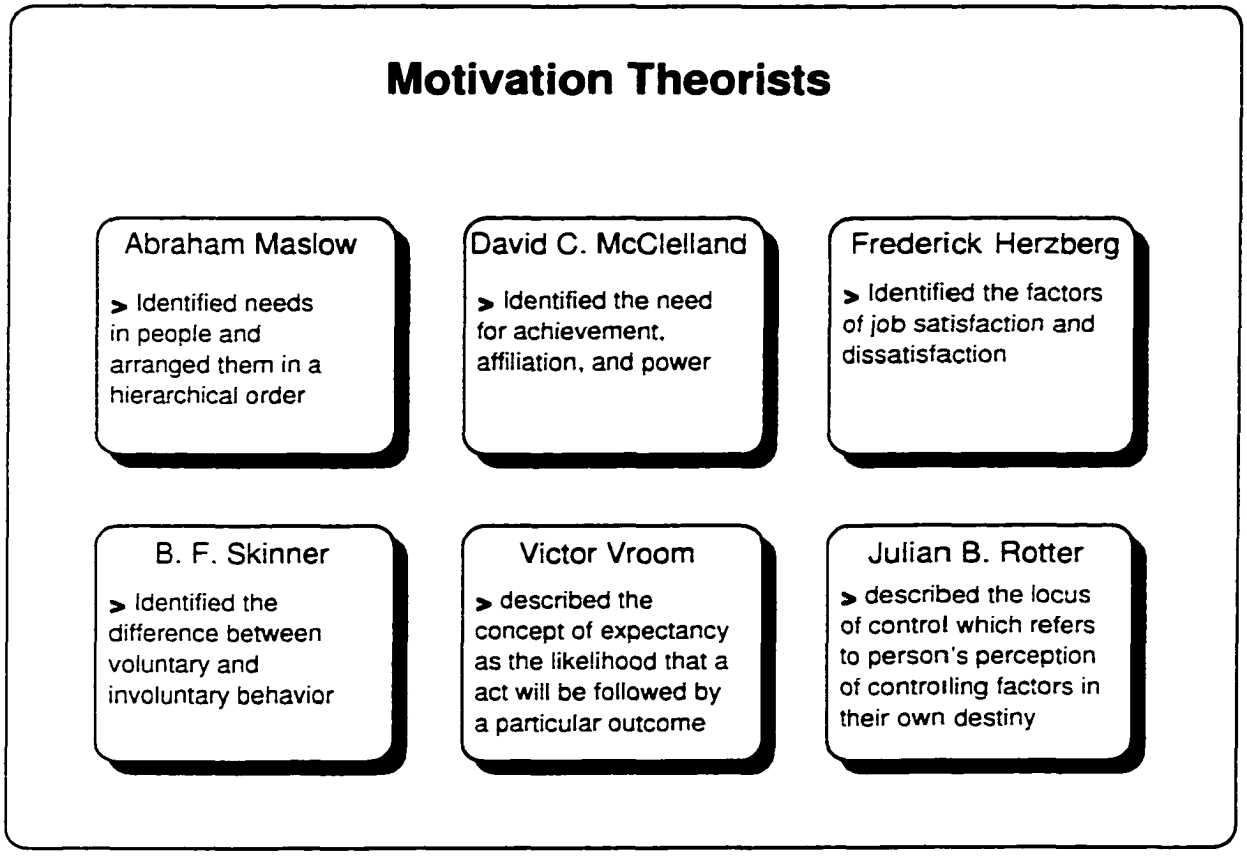
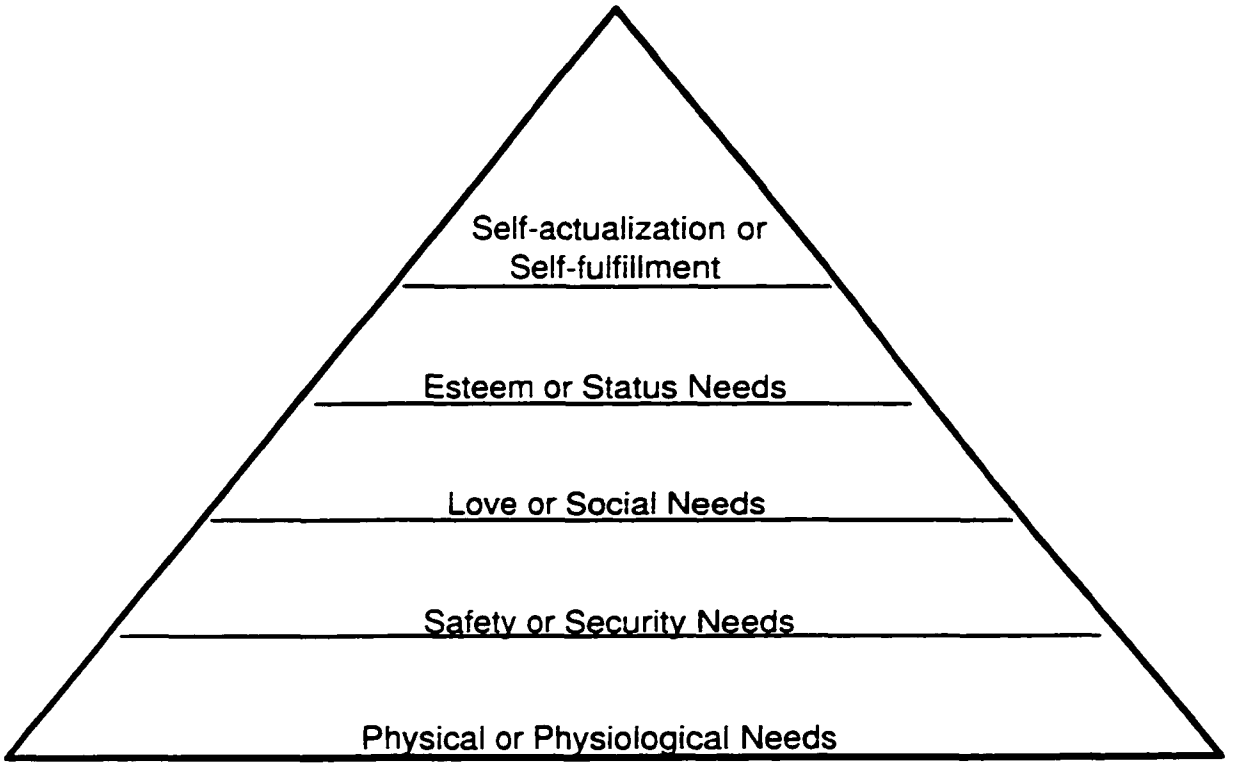


Figure 2.2 Source: Boone and Kurtz (1987)

An assumption often made by managers and practitioners who use Maslow's hierarchy is that employees in modern technologically advanced societies have satisfied their physiological, safety, and belonging needs (Mathis and Jackson 1997). Therefore, they will be motivated by the needs for self-esteem, esteem of others, and then self-actualization. Consequently, conditions to satisfy these needs should be present at work: the job itself should be meaningful and motivating (Boone and Kurtz 1987, Mathis and Jackson 1997).

Boone and Kurtz (1987) noted that Maslow's needs hierarchy is only a general model. Maslow believed that while most employees behave a certain way, the hierarchy model is not completely accurate.



Maslow's Hierarchy of Needs

Figure 2.3 Source: Boone and Kurtz (1987)

Overlap occurs where several needs may be acting at once, although one probably predominates. In addition, the amount of need satisfaction varies from employee to employee. The dedicated employee may move swiftly through meager lower-level need satisfaction in order to reach a point of self-expression (Boone and Kurtz 1987, Mathis and Jackson 1997).

Maslow's model has been of considerable value to the practice of management. Perhaps its most important contribution is that it has encouraged managers to use a wide variety of motivational tools to appeal to several incentives, rather than depend on one or a few.

David C. McClelland

David McClelland proposed a theory of motivation that he believes is rooted in culture. He stated that we all have three particularly important needs: achievement, affiliation, and power (Figure 2.4). When a need is strong in a person, its effect will be to motivate that person to act to satisfy the need (McClelland 1971). McClelland's research suggested that the need for achievement was important to business people, scientists, and professional persons, and the need for power was important to managers (Hicks and Gullett 1975). Boone and Kurtz (1987) also notes that McClelland identified three types of managers: affiliation managers (affiliation greater than power, high inhibition); personal power managers (power greater than affiliation, low inhibition); and institutional managers (power greater than affiliation, high inhibition). McClelland's research concluded that the institutional managers, who were high in the need for power and self-control, but low in the need for affiliation, were typically the most successful leaders (Hicks and Gullett 1975).

McClelland studied achievement motivation extensively. His Achievement Motivation Theory states that people are motivated according to the strength of their desire either to perform in terms of a standard of excellence or to succeed in competitive situations. His research concluded that that most people believe that they have an achievement motive but that probably only 10% of the U.S. population is strongly motivated to achieve. The amount of achievement motivation that people have depends on their personal childhood and adult experiences and the type of organization for which they work.

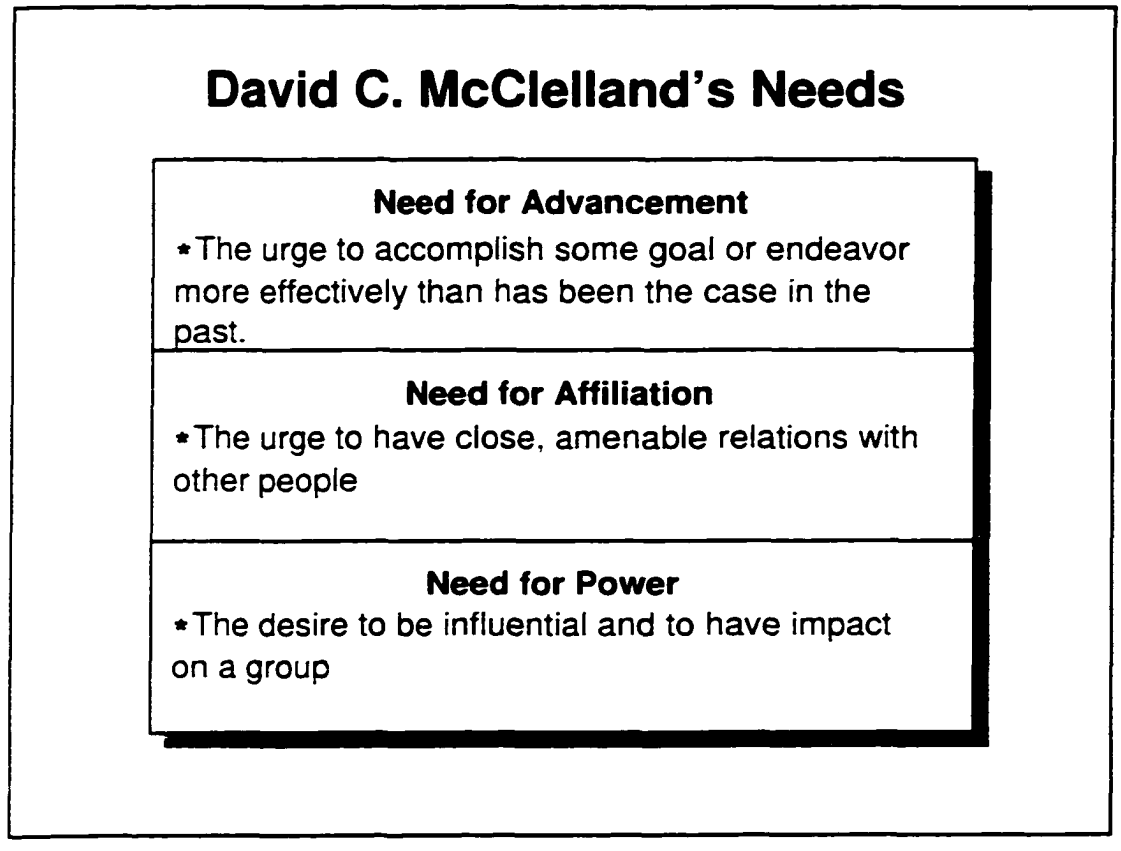


Figure 2.4 Source: McClelland (1971)

Fredrick Herzberg

Mathis and Jackson (1997) identifies another contributor to the field of motivation. Fredrick Herzberg. His motivation/hygiene theory assumes that one group of factors, called motivators, accounts for the high levels of motivation. Motivators are intrinsic factors, or internal factors directly related to the job. Another group of factors, called hygiene or maintenance factors, can be a cause of dissatisfaction with work (Figure 2.5). These factors are associated with an employee's negative feelings about the job and are related to the context or environment in which the job is performed. Hygienes are extrinsic factors, or factors external to the job.

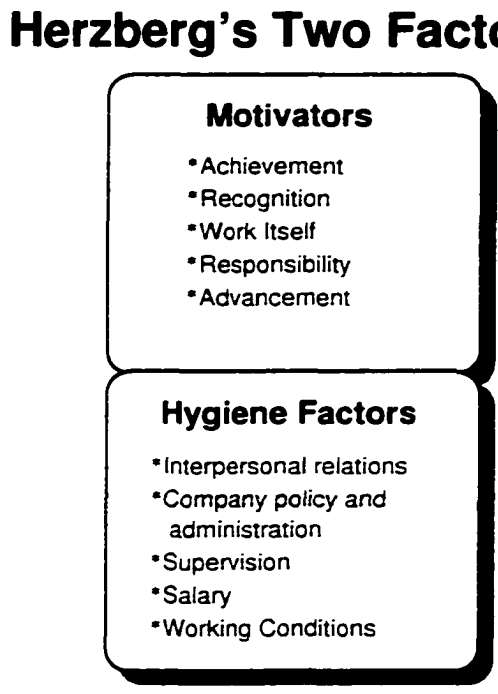


Figure 2.5 Source: Herzberg, Mausner, and Snyderman 1959

Feelings of unfairness were among the sources of job dissatisfaction reported most frequently to Herzberg and his associates (Herzberg, Mausner, and Snyderman 1959). Although the development of job dissatisfaction can often be beyond an individual manager's control, treating subordinates fairly and equitably is important to maintaining their performance. *Equity Theory* focuses on an individual's feelings of how fairly he or she is treated in comparison with others (Adams 1963) and can be used to explain Herzberg's research.

The implication of Herzberg's research for management is that although managers must carefully consider hygiene factors in order to avoid employee dissatisfaction, even if all these maintenance needs are addressed, employees may not be motivated to work harder (Herzberg, Mausner, and Snyderman 1959). Only motivators cause employees to exert more effort and thereby attain more productivity, and this theory suggest that managers

should use the motivators as tools to enhance employee performance (Hellriegel, Slocum, and Woodman 1995).

Herzberg's research illustrates that intrinsic feelings about motivation can be misleading. The opposite of satisfaction may not be dissatisfaction, and eliminating dissatisfaction may not make people satisfied. The implications for management are further complicated by the inconsistency of the research findings (Boone and Kurtz 1987). Herzberg's conclusions have been confirmed by other studies, but they have been challenged by still others (Malinovsky and Barry 1965, and Centers and Burgental 1966). Some studies have found that certain people apparently reverse the motivators and hygienic factors (Malinovsky and Barry 1965, and Centers and Burgental 1966). Employees are motivated by the same factors that Herzberg's theory considered to hygienic, and they are dissatisfied by what he labeled as motivators. While the results of such investigations may vary, Herzberg's recognition of the two-factor theory of job dissatisfaction is a widely discussed contribution to the literature of motivation both by academicians and by practicing managers (Boone and Kurtz 1987, Hellriegel, Slocum, and Woodman 1995).

B.F. Skinner

According to Gilbert and Gilbert (1991), B.F. Skinner, a noted psychologist, offered some important contributions to the study of motivation. Skinner distinguished between operant behavior (that which is voluntary) and reflex behavior (that which is involuntary). He argued that operant behavior can be modified through the process of reinforcement. Reinforcement in this case refers to the confirmation of outcomes of behavior—either positive or negative. "A positive reinforcement strengthens any behavior that produces it: a glass of water is positively reinforcing when we are thirsty, and if we

then draw and drink a glass of water, we are more likely to do so again on similar occasions. A negative reinforcer strengthens any behavior that reduces or terminates it; when we take off a shoe that is pinching, the reduction in pressure is negatively reinforcing, and we are more likely to do so again when a shoe pinches" (Skinner 1974, 74).

Gilbert and Gilbert (1991) state that the Skinner's implication for management is that the work environment that succeeds in rewarding desirable behaviors and eliminating undesirable behaviors can help to change worker behavior. Workers understand that they are being evaluated in an objective manner and not according to the whim of a manager. With positive feedback, workers can build self-esteem and self-confidence and perform only those behaviors that are rewarded with positive feedback. Skinner further suggests that employees will continually seek ways to receive reinforcement, and this reinforcement then increases motivation.

According to Skinner, managers are responsible for creating a work environment that will enhance motivation. Managers have the choice of using one of four partial reinforcement schedules to shape behavior: fixed interval schedules, variable interval schedules, fixed ratio schedules, and variable ratio schedules (Figure 2.6).

Kurtz and Boone (1987) found that researchers investigating the relative effectiveness of these four schedules suggest that some are more effective for learning new behaviors while others are more effective for sustaining them. Generally, any partial schedule is more effective for sustaining behavior than continuous reinforcement (Rosenbaum 1982).

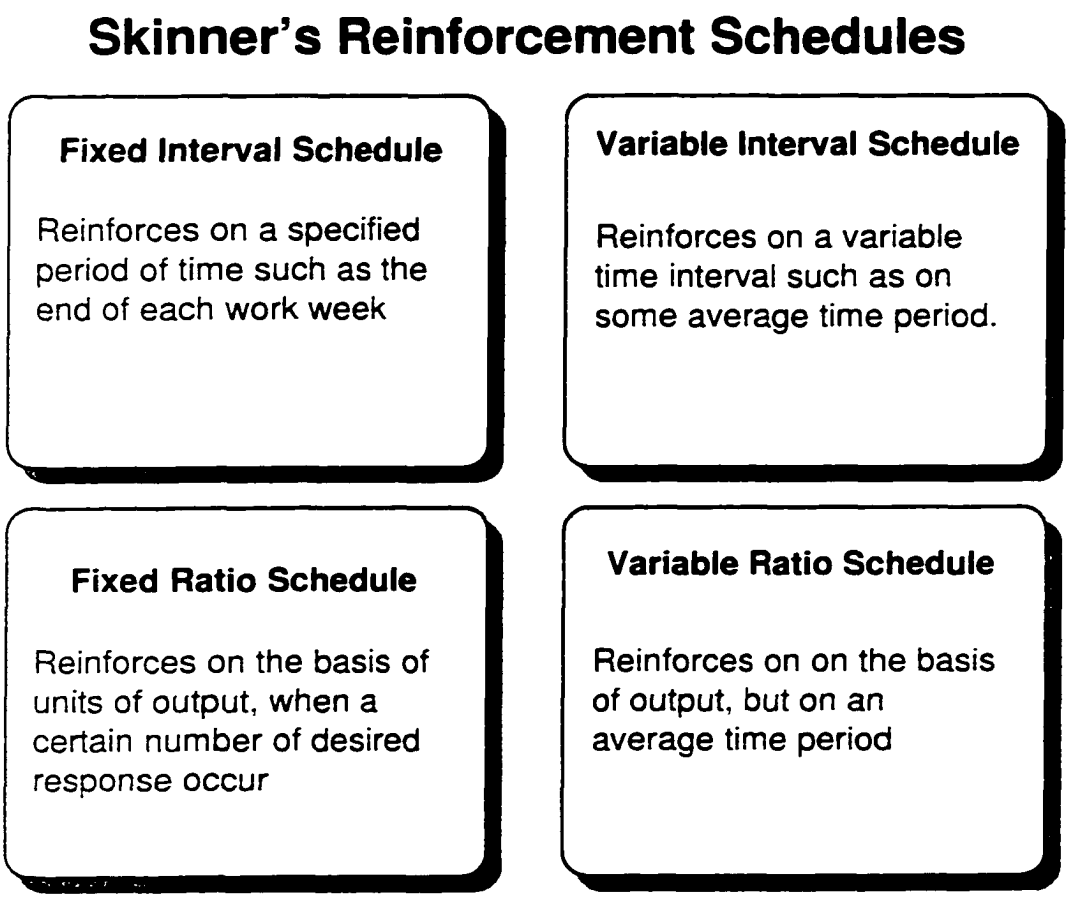


Figure 2.6 Source: Kurtz and Boone (1987)

Victor Vroom

The various process theories of motivation focus on employee motivation through the satisfaction of needs to enhance individual performance. The most prominent process theory is the *Expectancy Theory* (Hitt, Middlemist and Mathis 1989) of Victor Vroom, professor of administrative sciences and psychology at Yale University. He described the concept of expectancy as a monetary belief concerning the likelihood that a particular act will be followed by a particular out come (Figure 2.7) (Vroom 1964).

Expectancy Theory The Process

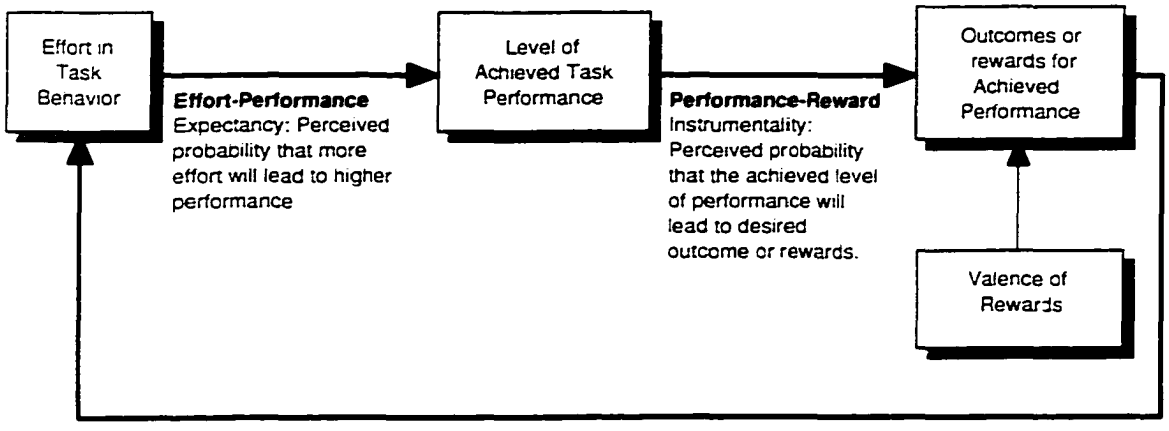


Figure 2.7 Source: Vroom 1964

Vroom believed that the forces to perform any act is a function of the expectancy and the perceived value of the outcome. The basic concept is that employees take actions that are likely to result in rewards that are considered worthwhile (Lawler and Poter 1967). A generalized definition might be: expectancy theory refers to motivated behavior designed to achieve highly probable and valued rewards (satisfaction of safety needs. the excitement of doing challenging task. or the ability to set and achieve challenging goals). which. in turn. lead to job satisfaction if the rewards are deemed fair (Hellriegel. Slocum. and Woodman 1995, and Boone and Kurtz 1987).

Julian B. Rotter

The final noteworthy contribution to the literature of motivation theory is Julian B. Rotter's discussion of the locus of control (1954). Rotter's locus of control theory refers to an employee's perception of the controlling factors in his or her own future. Employees who believe that what they do affects their lives are said to have internal control. By contrast, external control describes a situation in which employees perceive outside

variables as the determining factors in their own destinies. The prevailing locus of control in a work force influences the effectiveness of management.

It is axiomatic that employers want motivated employees. It is less clear, however, what precisely produces motivation in employees. Maslow, McClelland, Herzberg, Skinner, Vroom and Rotter offer compelling views of the factors that energize, direct, and stop behavior. Of these theories, the process theories (description and analysis of how behavior is driven, sustained, or stopped) of expectancy and equity are two of the most prominent and form the theoretical basis for this study.

Motivation Theories in Organizations

Motivation theory provides managers with methods that can be used to improve productivity (Arnold and Krapels 1996). Admittedly, coercive authority or threats of fear can also be used in formal organizations to influence employee behavior, but motivation provides an alternative that is less threatening and usually more effective and long lasting (Meyer 1975). To make use of what is known about worker motivation, managers must be diagnosticians. They must draw from many fields such as economics, psychology and sociology to develop a thorough understanding of what might motivate an individual employee (Arnold and Krapels 1996).

Although the practice of employee motivation has existed for years, motivation theory, as it is defined today in organizations, refers to the force or energy that gets the motor of behavior started, and keeps it running and provides it with direction toward specific goals (Hudy 1992). Hudy (1992) states that to make motivational theory successful in an organization, management must focus on inherent factors like rewards that come directly from performing the task itself instead of external factors like rewards that

are given for performing a task. Meyer's (1975) research suggests that organizations that focus their attention on money in order to motivate people often produce the exact opposite result. When pay becomes the primary goal, an employee's interest becomes focused on the payment rather than the performance of the task. Developing skills, recognizing and rewarding employees for helping their company achieve success, endorsing creative, open work environments, communicating with employees and involving them in the corporate vision are the hallmarks of the company of the 1990s.

Employee motivation is perhaps the ultimate management challenge (Hudy 1992). Most managers are faced with the task of motivating dissimilar and often unpredictable groups of people (Hudy 1992 and Meyer 1975). Further, although motivation is an important determination of individual performance, it is not the only factor (Arnold and Krapels 1996). Such variables as ability, experience, and environment also influence performance (Arnold and Krapels 1996). Motivational theory in general provides the basic premise for how to direct employees to accomplish tasks in the work environment (Arnold and Krapels 1996). The discussion below about performance appraisals represents an attempt on the part of management to understand motivation and utilize it to influence its workforce.

Performance Appraisals

In many organizations, performance appraisal systems remain one of the great paradoxes of effective human resource management (Cleveland, Murphy, and Williams 1989). On one hand, appraisal systems can provide valuable performance information to a number of critical human resource activities, such as the allocation of rewards, e.g., merit pay; promotions; feedback on the development and assessment of training needs; other

human resource systems evaluation, e.g., selection predictors; and performance documentation for legal purposes (Cleveland, Murphy, and Williams 1989). Appraisal systems seem to offer much more potential for enhancing the effectiveness of human resource decisions and for satisfying employees' need for performance feedback (Ilgen, Fisher, and Taylor 1979). On the other hand, there is evidence that appraisal systems are a practical challenge to academics who often design them and to the managers and employees who must use them. As Banks and Murphy (1985, 335) state, "Organizations continue to express disappointment in performance appraisal systems despite advances in appraisal systems, and new appraisal systems are often met with substantial resistance. In essence, effective performance appraisal in organizations continues to be a compelling but unrealized goal." This negativity is echoed by practitioners in the private and public sectors (George 1986 and Meyer 1991).

Such a conclusion raises questions about why the development of effective appraisal systems remains an elusive goal. One explanation has been offered by Folger, Knovsky, and Cropanzano (1992), who observed that appraisal systems have traditionally been designed and implemented around a "test" metaphor that treats performance disagreements between managers and employees as disputes over the most accurate view of reality, in which truth can be measured against some precise, consistent standard. Appraisers become truth seekers who record objective reality using reliable and valid measure. The underlying assumptions of the test metaphor becomes questionable, however, when applied to performance appraisal. Work settings are assumed to permit the reliable and valid measurement of objective performance, but increasing numbers of employees now work in service jobs, where objective results are unavailable, or in groups, where

individual performance results are difficult to measure (Folger, Knovsky, and Cropanzano1992).

Further, rather than assessing performance objectively and accurately, evaluations are often subjectively biased by cognitive and motivational factors (Longenecker, Gioia, and Sims 1987, DeNisi and Williams 1988). Finally, supervisors often apply very different standards to employee performance, resulting in inconsistent, unreliable and invalid evaluations across the organization (Folger, Konovsky, and Cropanzano 1992). In light of these findings, a detailed study of performance appraisal systems is now required to provide the necessary background and comprehension for this study.

Performance Appraisals – The Early Research

In systemically researching and reviewing past and present performance appraisal systems, a perspective on the history of performance appraisals is necessary. The use of performance appraisals is not new concept. References to "Imperial Raters" are found in the Wei Dynasty in China that flourished during the third century A.D. (Pratt 1991). Although the practice of formal evaluation has existed for centuries, performance appraisal, as it is practiced today, started with the Industrial Revolution in the 18th century; however, the widespread use of performance appraisal techniques with employees didn't start until after World War I (Barclay 1997, and Pratt 1991). By the early 1950s, performance appraisal for measuring managerial and professional employees was an accepted practice in organizations (Barclay 1997, and Pratt 1991). Indeed, Longnecker and Mcginnis (1992) cite recent research which estimate that 92% of all U.S. organizations today utilize some type of formal performance appraisal system.

The earliest performance appraisal programs used during the Industrial Revolution were relative crude and simple. "Supervisors at the Henry Ford Model T Co. conducted daily performance [evaluations]. When employees finished their workday, they walked past a wall filled with cubbyholes. Each employee's name was on one of the cubbyholes, and each one had a blank piece of paper in it as the day's performance review. If workers pulled out a white piece of paper, it meant that they were doing good work and were invited back to their jobs for the next day. If they pulled out a pink piece of paper, they were fired" (Moffitt 1995, 28). Employees were evaluated and compensated primarily on the basis of quantity output. That is, the number of pieces they satisfactorily turned out (Pratt 1991).

It was not until later that supervisors acknowledged that in many jobs, the quality of work produced also affected an employee's impact on the organization (Demming 1986, Moffitt 1995). Then, as Moffitt states, evaluation procedures and compensation plans were expanded to incorporate work quality, in addition to quantity.

Various appraisal systems were used early on to measure work performance. Without question, the single-source supervisory-only performance appraisals system was most commonly used, often with a stop watch in hand (Bernardin and Beatty 1984, Cleveland, Murphy, and Williams 1989). Detailed standards were developed in advance for every small movement of the employee. In this system, the supervisor established working standards by direct observation. The boss then combined character and personality assessment with overall evaluation of quality and quantity of work produced (Moffitt 1995).

Thus, as Moffitt clearly points out, early performance evaluations were often highly subjective and allowed supervisors too much personal latitude. When faced with employees' complaints and appeals of their performance rating, supervisors had great difficulty explaining their rating subjectivity. Management needed a better method to evaluate employees' performance, a method that would place greater emphasis on job-relatedness and easier measured elements with the core factors being work and quantity (Moffitt 1995).

Since quantifiable performance goals were touted as the solution to the above problem, a particular variety of performance-related appraisals like Management by Objectives (MBO) and peer performance appraisal found widespread popularity (Figure 2.7) (DeLeon and Even 1997).

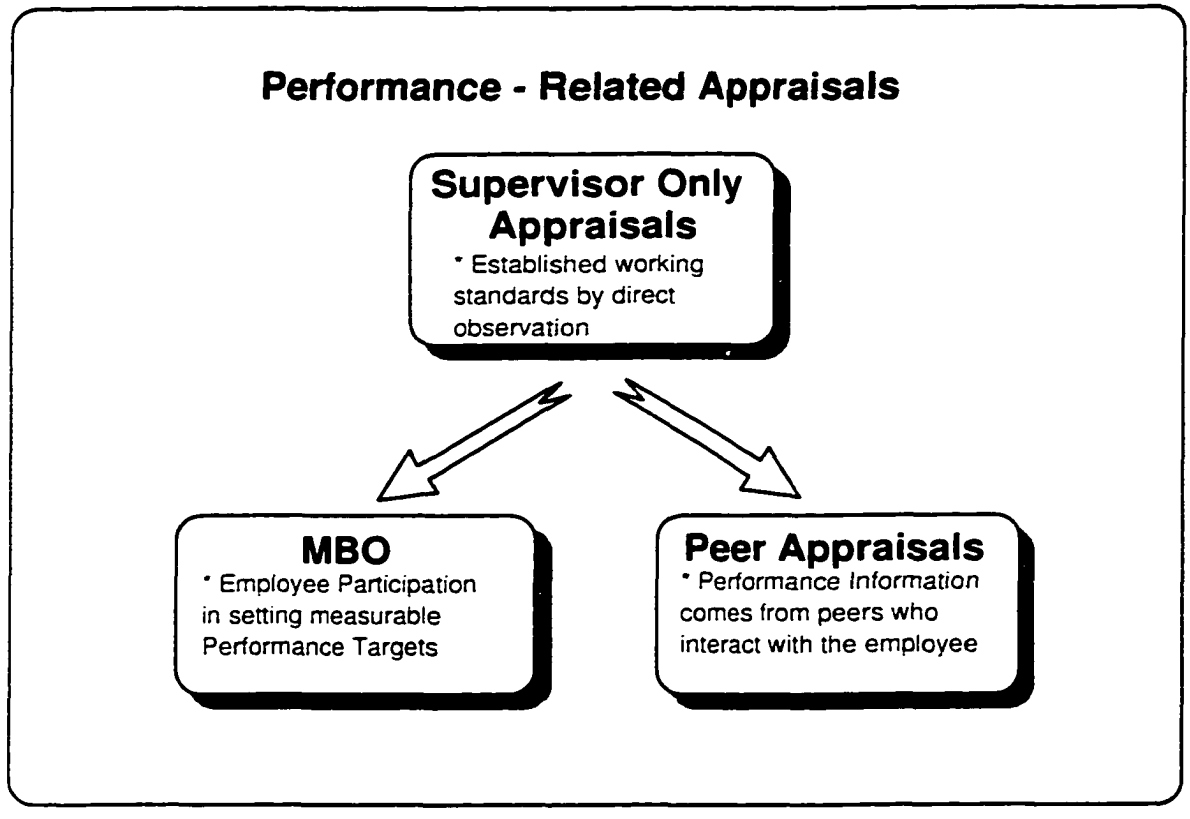


Figure 2.8 Source: DeLeon and Even (1997)

Management by Objectives

The very idea of management as a practice, like medicine or navigation, did not exist 40 years ago (Dumaine 1995). Management had been seen largely as the expression of rank and power (Dumaine 1995). In an age when downsizing has depopulated entire office towers, one of the most important and enduring ideas about management is that managers should treat workers as a resource rather than a cost (Drucker 1974). A growing number of managers recognize that, whenever possible, objectives should be set by the people responsible for accomplishing them (Romani 1997). It is much easier to obtain commitment to objectives when those persons responsible for their accomplishment have played a role in developing them. Linking individual and organizational objectives is facilitated when individual employees are permitted to participate in establishing their own objectives for a specified time period and know in advance that their performance will be evaluated by comparing actual results with expected, agreed-to-in-advance performance (Greenwood 1981). Management by objectives is an organizational process that accomplishes this activity.

While the phrase "management by objectives" was first coined by Alfred P. Sloan in the early 1950s, it was Peter Drucker (1974) who emphasized the results of managerial actions rather than supervision of activities (Greenwood 1981and Romani 1997). MBO is a philosophy and system of management that serves as both a planning aid and a method of working. A widely used management approach, it reflects a positive philosophy about people and participative management style (Greenwood 1981).

MBO involves managers and their subordinates jointly setting goals for work performance and personal development, evaluating progress toward these goals, and

integrating individual, team, departmental, and organizational goals (Odiorne 1965 and Romani 1997). These goals are used as measures for operating the unit and assessing the contribution of each member of the organization (Odiorne 1965). The manager and employee periodically evaluate the employee's success in attaining the goals. MBO programs are designed to improve employees' motivation through their participation in setting their individual objectives and knowing in advance precisely how they will be evaluated (Romani 1997).

MBO is a particularly flexible management technique that can be implemented for a single department or for the entire organization (Odiorne 1965). It is generally agreed that an MBO program should begin with the chief executive officer setting specific organizational objectives in consultation with the board of directors. The process should then extend throughout the organization.

Although early applications of MBO were limited to business organizations, it has since spread to such diverse organizations as the department of defense, educational agencies, local government bodies, and charitable organizations (Drucker 1993 and McConkey 1975). MBO has considerable merit where performance measures are vague or lacking (McConkey 1975, and Covaleski and Dismith 1981).

The process contains four components, each of which has several dimensions (Figure 2.8). The components are goal setting, subordinate participation, implementation, and performance appraisal and feedback. The arrows indicate that a strong interrelationship exists among the components and that all should operate simultaneously to make the MBO process effective (McConkey 1975, and Covaleski and Dismith 1981).

Goal Setting

Subordinates and superiors define and focus on job goals rather than rules, activities, and procedures (Boone and Kurtz 1987). The research by Boone and Kurtz (1987) suggests that the goal-setting process includes identifying specific areas of job responsibility, developing performance standards in each area, and , possibly, formulating a work plan for achieving the goals.

Participation

In the MBO process, a moderate to high level of participation by subordinates in goal setting is effective (McConkey 1975, and Covaleski and Dismith 1981). However, before subordinates can effectively participate in MBO, they must have some autonomy in their jobs, or an increase in autonomy must be planned as part of the process (Drucker 1974). Autonomy enables employees to plan and control what they do and how they do it, rather than merely doing what they are told (Drucker 1974). Thus, highly routine and programmed jobs should be redesigned before applying the MBO approach to them (Drucker 1974).

Implementation

Implementation of the MBO process requires translating the outcomes from goal setting to actions that ultimately will lead to attainment of the desired goals (Locke and Latham 1984). Action planning, which indicates how goals are to be achieved, often accompanies the implementation phase. During implementation, superiors must give greater latitude and choice to subordinates perhaps by discontinuing day-to-day oversight of their activities (Locke and Latham 1984). But superiors must be available to coach and

counsel subordinates to help them reach their goals. They must play a helping or facilitating role rather than a judgmental role (Locke and Latham 1984). Supervisors should hold periodic meetings during the year with subordinates to review progress, discuss any assistance needed, and modify goals as needed. This approach prevents employees from perceiving MBO as rigid system and encourages them to address significant new problems of change as they occur (Boone and Kurtz 1987).

Performance Appraisal and Feedback

Locke and Latham (1984) state that performance appraisal under MBO involves identifying goals and measurement factors, measuring performance against those goals, reviewing performance with the employee and developing ways to improve future performance. They further point out that subordinates develop a clear understanding of their progress through performance appraisal and feedback. Feedback is a key element of MBO because it identifies the extent to which employee have attained their goals. The knowledge of results is essential to improving job performance and fastening personal development in the form of new skills, attitudes, and motivation. There are many ways to recognize and reward performance beyond pay. Ultimately, however, the satisfaction of achieving goals is one of the most cherished rewards (Locke and Latham 1984).

The literature on management science says that MBO encourages self-evaluation of performance (McConkey 1975, and Covaleski and Dismith 1981). Honest self-evaluation by employees can provide insight into their own performance and the possible need to modify their behaviors to achieve their goals. When people are motivated, managers can turn their behaviors to achieve their goals. When people are motivated, managers can turn their attention to other issues, recognizing that their subordinates are taking charge of

attaining the agreed upon goals (Romani 1997, McConkey 1975, and Covaleski and Dismith 1981).

Managerial Significance

MBO has not been without its critics, however, particularly with respect to ways that organizations apply it (Romani 1997). These criticisms relate mainly to how managers actually use the process, rather than to how it is supposed to be used (Dumaine 1995). Romani (1997) points out that modern organizations have developed cleavages between the way Drucker conceived MBO, the way others have promulgated it, and the way it is practiced. In spite of these criticisms, MBO has the noteworthy advantage of increasing employee acceptance of appraisals through its insistence on employee participation in setting measurable performance targets (Figure 2.8) (Boone and Kurtz 1987, and DeLeon and Even 1997).

Peer Performance Appraisals

Peer performance appraisals have been practiced for many years. Due to the fact that they were first used in military settings (Landy and Farr 1983), much of the early research was conducted in these contexts. In reviewing past research, Kane and Lawler (1978) identifies three types of peer performance appraisals: peer nomination, peer ratings, and peer ranking. Peer nomination involves the selection of only a few peers, or perhaps even one, based on extremely high or low knowledge, skills, abilities, job performance, and/or other characteristics. In peer ranking, appraisers are asked to rank employees on one or more dimensions. Finally, peer ratings require appraisers to rate employees on absolute scales.

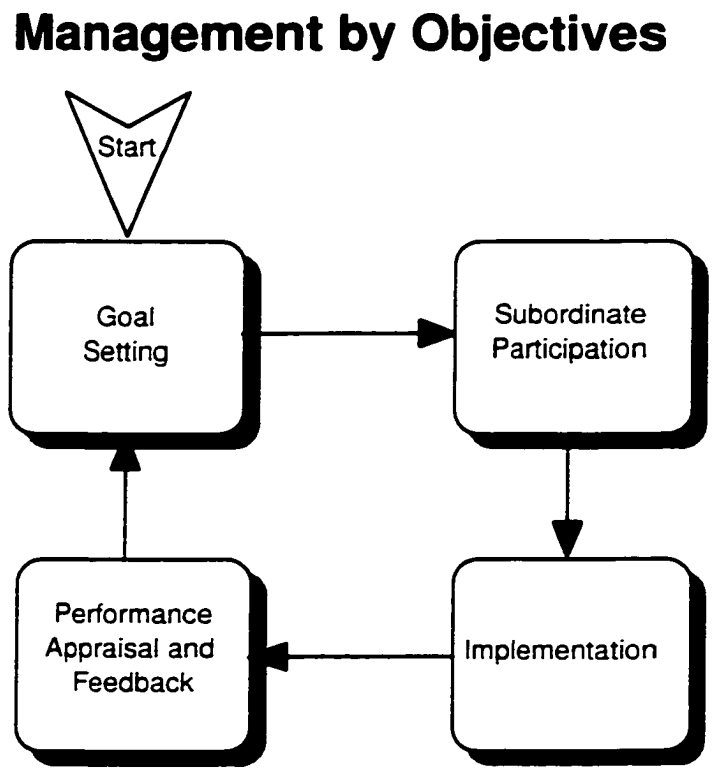


Figure 2.9 Source: Deleon and Even 1997

In these systems, employees evaluate themselves and receive feedback from their supervisors and peers (Antonioni 1996). The research of Kane and Lawler (1978) indicates that many of the systems tend to focus on improving the ratee's work behaviors as the primary outcome. In doing so, the organization communicates some very clear expectations—namely, that workplace behaviors will improve. If the peer performance appraisal process is not designed to help appraisees make improvements, those expectations will not be fulfilled. Appraisers will be disappointed and disillusioned, appraisees will feel frustrated, and ultimately the peer appraisal will fall into disrepute.

In an attempt to prevent this frustration and disappointment, Antonioni (1996) suggests that organizations be prepared to design a peer appraisal process that supports specific outcomes. Organizational members must have a clear understanding of the overall

purpose of the peer performance appraisal (Neale 1991). One overriding purpose is purely developmental: to help individuals be more aware of areas that need improvement and to work toward positive change (Neale 1991). Another possible purpose of peer appraisal is to collect information for evaluating individuals and making personnel decisions (Neale 1991).

Advantages and Disadvantages of Performance Appraisals

In recent years, performance appraisal instruments have developed wide application as important managerial tools for integrating diverse elements of human resource practice. The work of DeLeon and Even (1997) indicates that performance appraisals are crucial to effective human resource management. Performance appraisals are then typically used as input for various categories of administrative decisions such as job reassignment, promotion, salary increase, and manpower planning (Neale 1991). Most importantly, appraisals are used to gauge employees' competency on the basis of their work behavior; employees are rewarded for performing organizational work through pay, incentives, and benefits (Antonioni 1996, and DeLeon and Even 1997). Recent literature on performance appraisal emphasizes the potential of performance evaluation systems to serve as an integrated personnel management tool, and most contemporary employee assessment systems are intended to perform several functions simultaneously (Neale 1991, and Mikkelsen, Ogaard, and Lovrich 1997). The new performance appraisal systems include elements such as job enrichment strategy, appraisal of past performance, needs assessment of skills training, coaching and counseling efforts, performance-related pay awards and succession management (Neale 1991, and Mikkelsen, Ogaard, and Lovrich 1997). The evaluation process is seen as a continuous process, and the different elements mentioned

are integrated by means of a feedback loop moving information from supervision back to the employee (Mikkelsen, Ogaard, and Lovrich 1997).

Despite the many advantages of performance appraisals, the research indicates they can be problematic. Deming (1989) believes that performance appraisals should be eliminated altogether because they are useless in evaluating employees because performance problems are usually the result of dysfunctional systems, not unmotivated employees. Appraisals are worse than useless because they de-motivate, and they pit one employee against another (Deming 1989). However, eliminating performance appraisals ignores the fact that organizations need a process to identify which employees contribute to the organization's mission and which need further training or reassignment (DeLeon and Even 1997).

Another problem with performance appraisals is that employees do not know how they stand with their supervisors (Dreyer 1997). All too often employees believe they are performing fine only to discover during the evaluation process that their boss does not share their opinion (Dreyer 1997). Lack of communication, poor feedback or inadequate developmental perspective on assessing performance have a negative influence on employee perception of management quality and working conditions (Bandura 1977, Mikkelsen, Ogaard, and Lovrich 1997). The provision of internal and external feedback in the performance appraisal system is very important, both for its effect upon motivation and for the possibility of employee learning in collaboration with supervisors, peers and subordinates (Dixon 1994).

For employees to be healthy and satisfied with work and life-quality, they need to have some workplace priorities that they can control by their actions and tasks (Edwards

and Ewen 1996). The theoretical rationale for this belief is grounded on expectancy theory, equity theory, and social learning theory (Vroom 1964, Adams 1965, and Bandura 1977). Norms regarding the fairness of outcomes and processes that lead to those outcomes are an important component of evaluating employees. Participatory performance appraisal systems can be viewed as the capacity of procedures to be congruent with the norms regarding fair processes and/or the degree to which processes lead to outcomes that conform to normative standards of justice (Levy 1997). In participatory systems, employees have genuine influence over goals and developmental objectives; they receive a rating of the performance attained during the latest assessment period (Funderburg and Levy 1997, and Westerman and Rosse 1997). To the degree that these outcomes are not experienced during the performance appraisal, the employee will perceive both management quality and different aspects of their working situations in poor light (Mikkelsen, Ogaard, and Lovrich 1997).

In light of the above, the focus of the discussion below is multi-source performance appraisals, i.e., appraisals by coworkers, subordinates, customers, and other relevant organizational parties (Funderburg and Levy 1997, and Westerman and Rosse 1997).

Multi-source Performance Appraisals in Organizations

Many organizations are finding it strenuous to remain competitive in today's global markets. In the past ten years, there has been a clear shift in the structure of U.S. organizations (Funderburg and Levy 1997). Much more emphasis is being placed on fewer levels of management and more on individual accountability (Murphy and Cleveland 1995). The organizational systems designed for the traditional, hierarchical organizations will not fit the new business entities of today. An aspect of organizational life that must be

changed in this competitive environment is the performance evaluation of employees (Funderburg and Levy 1997). Funderburg and Levy (1997) state that with the increasing emphasis on decentralization and high performance work teams, the traditional appraisal systems do not complement the technological work of today. With an increasing orientation toward responsibility and flexibility, jobs are becoming much more complex and fluid. Further, Funderburg and Levy (1997) point out that with the decreasing number of supervisors relative to non-managerial employees, supervisors do not have the time or the ability to evaluate employees accurately. Thus, there is increasing evidence that organizations must consider alternatives to the traditional, supervisory-controlled performance evaluation process if employees are to receive the performance information necessary for improvements and continual motivation (Murphy and Cleveland 1995). One such alternative is the multi-source performance appraisal (Funderburg and Levy 1997).

The multi-source performance appraisal model recommends that performance information come from multiple individuals who interact with the assessment receiver (Edwards 1983). Employees select an evaluation team based on organizational guidelines (DeLeon and Even 1997). The evaluation team consists of a number of work associates, including the employee's supervisor, and others whom the employee believes are in a position to provide accurate performance feedback (Figure 2.9) (DeLeon and Even 1997). The employee also provides a self-appraisal. Members of the evaluation team provide their feedback to the employee's supervisor. The supervisor reviews and analyzes all feedback including his or her own feedback. The supervisor then generates a combined feedback report for the employee to see and evaluate (DeLeon and Even 1997). Finally, after the

employee and supervisor meet and discuss the appraisal, they design any necessary action plan to improve the employee's work performance.

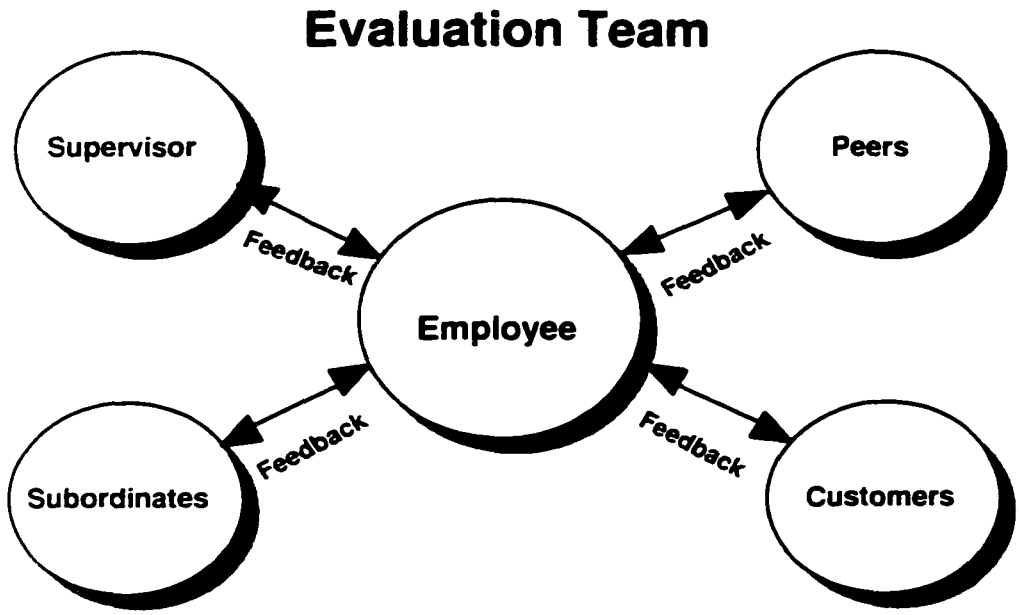


Figure 2.10 Figure: DeLeon and Even 1997

Advantages and Disadvantages of Multi-source Performance Appraisals

There are numerous advantages of multi-source performance appraisals. Five literature reviews address the reliability and validity of multi-source appraisals. DeLeon and Even (1997) conducted a study on a multi-source appraisal system at an operations office of a large federal agency. They compared results from a survey before and after implementation of multi-source appraisal system, and they found significant improvement in employee perceptions of the fairness and effectiveness of appraisals. They concluded that the multi-source appraisal system appeared to provide a tool that fosters perceived fairness and can enable organizations to respond successfully to the dramatic changes

taking place in the public sector today. The issue of fairness is critical to public organizations: it is a fundamental value for democratic systems, and it builds employee confidence in and acceptance of performance appraisal results (DeLeon and Even 1997). Allowing an organization's employees to develop performance appraisal criteria tied directly to the organization's mission and values provides a compelling vision of performance expectations (DeLeon and Even 1997).

Funderburg and Levy's (1997) study investigated the influence of individual and contextual variables on attitudes toward multi-source appraisal systems. They hypothesized that individual differences as well as contextual factors would influence employees' receptivity to the implementation of a multi-source appraisal system. Their findings also support the notion that organizations must begin to recognize the variety of employee needs and to understand the importance of providing a multitude of tools to improve performance. Consistent with DeLeon and Even (1997), they concluded that multi-source appraisals improved employee perceptions of fairness and effectiveness.

Mikkelsen, Ogaard, and Lovrich (1997) investigated the impact of a multi-source appraisal system which combines both judgmental and systematic developmental and goal-setting elements upon employee perceptions of the quality of management and the character of working conditions. Their study produced evidence of a strong connection between perceptions of the adequacy of the performance appraisal experience and attitudes toward the quality of management present and the favorablility of working conditions being encountered. The results of their study suggest that, in order to improve employee perceptions of the fairness of appraisals, more attention should be given to the

development of multi-source appraisal systems that give emphasis not only to the administrative functions, but also to developing communication, coaching and counseling.

Another advantage of multi-source appraisals is that they may be more effective in producing behavior changes than supervisor-only appraisals (Antonioni 1996, Church 1994, and Yukl and Lepsinger 1995). It is common knowledge that people desire the approval of others (Festinger 1954); thus, feedback from others would be valued, because such feedback clarifies expectations and can be used to make changes that will increase standing in the group. Indeed, Funderburg and Levy (1997) found that employees responded more strongly to multiple raters than supervisor-only appraisals, and, moreover, that multiple raters affected a greater number of outcomes than supervisor-only appraisals.

The major advantage of multi-source appraisals is that, in many cases, multiple raters may possess more knowledge regarding performance than supervisors only; thus, they are able to assess a wider range of performance dimensions (Antonioni 1996, and DeLeon and Even 1997), and they may be able to make more precise performance distinctions (Filipczak et al. 1996, and Mikkelsen, Ogaard, and Lovrich 1997). Mohrman, Resnick-West and Lawler (1989) state that multi-source appraisals are especially important in team and matrix organizations, and that they may not be useful in functional organizations. This is primarily due to the fact that in team and matrix organizations multi-raters may have a considerable amount of information regarding job performance, while in functional organizations multi-raters may not have substantial more performance information more than supervisors.

Finally, employees may prefer multi-source appraisals if they believe that their supervisors are unjust. A significant flaw in many of the arguments against multi-source

appraisals is the underlying assumption that supervisory appraisals are not problematic with regard to acceptability. The literature contends that multi-raters will be perceived as exceptionally biased in some cases because they are competing for the same organizational rewards; moreover, they can still be viewed as biased for other reasons (Mikkelsen, Ogaard, and Lovrich 1997).

Still another advantage of multi-source appraisals, with regard to bias, is that there are usually several raters, a feature that minimizes perceived bias. In addition, supervisors often do not have access to a large amount of performance data, as compared to multi-raters. In such circumstances, it would be equitable for employees to question the fairness of appraisals based on inadequate amount of performance data. Because no research supports this potential advantage, one of the aims of this research is to investigate this proposition.

Despite the numerous advantages of multi-source appraisals, user acceptance has been problematic. Three literature reviews address the four main impediments to the successful implementation of multi-source appraisal systems (Figure 2.10)(Kanouse 1998, Filipczak et al. 1996, and Yukl and Lepsinger 1995). The first impediment that organizations face is the improper utilization of multi-source appraisal systems (Kanouse 1998, and Yukl and Lepsinger 1995). All too often, organizations combine elements of multi-source appraisal systems with other performance management elements that are used to determine compensation (Kanouse 1998). The literature indicates that the two programs should always be separate and unique (Kanouse 1998, and Filipczak et al. 1996). When the two processes are combined, a potentially serious problem can stem from the fact that participants, realizing career advancement and compensation may be at stake, will be

reluctant to provide complete and honest feedback (Kanouse 1998, Filipczak et al. 1996, and Yukl and Lepsinger 1995).

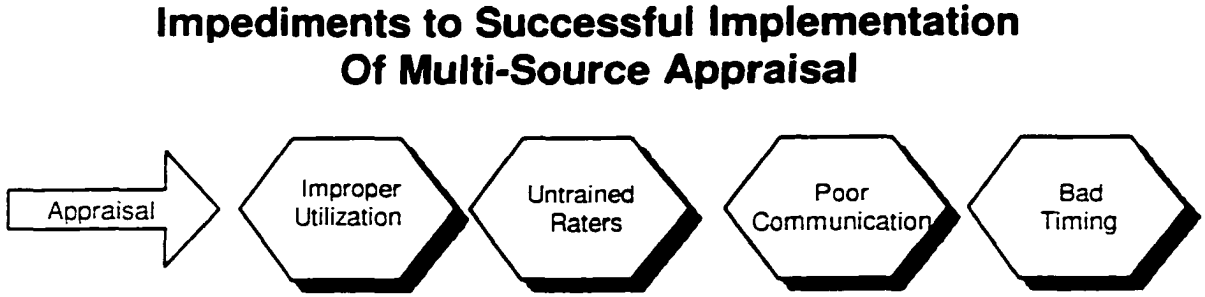


Figure 2.11 Source: Yukl and Lepsinger 1995

The second impediment to successful implementation of multi-source appraisal systems is the misuse of the system by ill-prepared and untrained practitioners (Kanouse 1998, Filipczak et al. 1996, and Yukl and Lepsinger 1995). Often, the raters are not instructed properly in the art of providing usable feedback (Kanouse 1998). Thus, training is very vital in implementing a multi-source appraisal system (Kanouse 1998, Filipczak et al. 1996, and Yukl and Lepsinger 1995). Raters need clear and concise guidelines for how to provide appropriate feedback (Yukl and Lepsinger 1995).

Poor communication is the third impediment of successful multi-source appraisal implementation (Kanouse 1998). The purpose of the multi-source appraisal systems must be communicated to ensure all participants understand why it is being implemented (Kanouse 1998, Filipczak et al. 1996, and Yukl and Lepsinger 1995). This includes, the organization's explanation of how the data will be used, and a clarification of the company's expectations (Kanouse 1998).

Finally, bad timing is fourth impediment of successful multi-source appraisal implementation (Kanouse 1998). The organization needs to understand its future before

considering a multi-source appraisal system (Kanouse 1998). The organization needs to know, with a high degree of certainty, that employees' jobs are secure and there are no significant organizational changes on the horizon (Kanouse 1998). If restructuring of the workforce occurs in the near future, employees will blame the multi-source appraisal system as a way for management to reduce the workforce (Kanouse 1998). Moreover, the chances of successfully implementing a multi-source appraisal system at a later date will be slim (Kanouse 1998).

Scant research on user acceptance of multi-source appraisals was performed through the 1970s because many organizations were not using this process for evaluating their employees (Yukl and Lepsinger 1995, Kane and Lawer 1978 and Lewin and Zwany 1976). Moreover, most of this research did not have as its primary purpose the investigation of user satisfaction; rather, the acquisition of information about user satisfaction was often secondary to ascertaining reliability and validity. In the 1980s, researchers began to rigorously study employee satisfaction issues with regard to multi-source appraisals (Antonioni 1996, Church 1994, and Yukl and Lepsinger 1995). Without doubt, widespread agreement that multi-source appraisals can improve employee perceptions of fairness and effectiveness stimulated such research. Unfortunately, research on multi-source performance appraisal satisfaction lacked a theoretical framework from which to generate a hypothesis to aid in understanding discordant research findings. In response, Barclay and Harland (1995) proposed that the literature on procedural justice could help provide the theoretical framework necessary to explain past research findings and to guide future inquiry.

Procedural Justice

Standards regarding the fairness of outcomes and the processes that lead to those outcomes are an important component of motivation. These standards, i.e. procedural justice, focus on whether the procedures that led to an action were appropriate, were clear, and gave appropriate opportunity for input (Mathis and Jackson 1997). Procedural justice can also be viewed as the capacity of procedures to be congruent with norms regarding fair processes and/or the degree to which processes lead to outcomes that conform to normative standards of justice (Greenberg 1986). On the other hand, procedural justice can refer to subjective assessments of processes by those that are affected by them (Greenberg 1986).

Early justice research focused on distributive fairness—the perceived fairness of outcomes distributions. Research on distributive justice in organizational settings has concentrated primarily on perceptions of equity (Adams 1965). Arguably, one the most influential approaches to procedural and distributive justice is equity theory (Adams 1965),which proposes that individuals evaluate outcomes based on norms of fair distribution. Specifically, individuals create a ratio of their own inputs to outputs then evaluate that ratio against a referent's ratio. The referent can be another individual, self standards, or contacts, which can be implicit or explicit. Should an individual perceive his or her ratio to be different than the referent's, he or she can resolve the inequity by altering inputs or outputs, by cognitively distorting inputs, by leaving the field, by taking action to change the input of the referent, or by changing referents. Equity theory's emphasis on perceptions of outcomes was likely a precursor to procedural justice theory, which emphasizes perceptions of processes. The most common focus of such research has been individuals' reactions to pay equity and inequity (Mowday 1982), although individuals'

reactions to equity have been shown to be important for a variety of other variables, including job challenge (Oldham et al. 1982), office space (Greenberg 1998), and layoffs (Brockner, Greenberg, and Brockner 1986). In general, organizational research on distributive fairness has shown that individuals' perceptions of the fairness of outcomes affect their attitudes and behaviors.

Research on fairness shifted to an emphasis on procedural fairness in the 1980s. Much of this research stemmed from the findings of Thibaut and Walker (1975) that, even when individuals received unfavorable outcomes, they evaluated an outcome more positively when they believed the process by which it was determined was fair. Thibaut and Walker demonstrated that input to a decision process increased individuals' perceptions of the fairness of the process – a finding Lind, Kanfer, and Early (1990) called the most reliable result in the justice literature.

Research has demonstrated the impact of procedural fairness in a wide variety of organizational settings: performance appraisal (Greenberg 1998), during testing (Konovsky and Cropanzano 1991), selection testing (Gilliland 1994), discipline (Trevino 1992), and layoffs (Brockner, Greenberg, and Brockner 1986). One consequence of the increased emphasis on procedural justice is that distributive justice has been largely ignored. However, Greenberg (1990 and 1991) emphasized the importance of considering procedural and distributive justice issues simultaneously.

Folger (1987) noted that although distributive justice and procedural justice are distinct but highly related constructs, the relationship between the two is complex. Justice research has indicated that perceptions of distributive justice and perceptions of procedural justice may affect each other (Lind and Tyler 1988 and Tyler 1988). Individuals may use

outcomes as an indicator of procedural fairness (Lind and Lissak 1985). Perceptions of procedural justice also may enhance the perceived fairness of the outcomes they produce (Lind and Tyler 1988). Not only do procedural and distributive justice influence each other: research has also suggested that they interact (Folger 1986). For example, procedural justice has a stronger impact when an outcome is unfair, and distributive justice has a stronger impact when a procedure is unfair (Brockner and Wiesenfeld 1996). It is clear that both procedural justice and distributive justice contribute to individuals' perceptions of organizational fairness; both affect how individuals react. However, individuals' reactions may differ depending on the extent to which they focus on outcomes, procedures, or both.

The findings that individuals distinguish between processes and outcomes when assessing a situation is not unique to the organizational fairness literature (Folger 1986). Research on ethical frameworks has suggested that individuals may differ in the extent to which they consider process or outcomes when making ethical decisions (Lind and Tyler 1988 and Tyler 1988). The literature suggests that these differences identified in ethics research may manifest themselves in broader settings and may influence individuals' reactions to organizational justice (Lind and Tyler 1988).

Explanations of Procedural Justice

The above findings have clearly demonstrated that procedural justice viewpoints impact employees' motivation, and that certain aspects of procedures enhance these viewpoints. Nonetheless, Thibaut and Walker's (1975) theory, that people desire certain procedural attributes because they may lead to valuable outcomes in the future, has been a reference in this discussion of why procedural justice effects occur. Because subsequent

research findings require a broader theory, two theories have been suggested which together help explain procedural justice effects: the self-interest theory and the group value theory.

The self-interest theory. This view is congruent with the theory proposed by Thibaut and Walker (1975). This theory proposes that employees seek to maximize their results in social interactions: however, since they realize that high outcomes are not always likely, employees acquiesce and social compromise often occurs. For this reason, employees desire fair procedures to ensure high outcomes in the future (Lind and Tyler 1988).

The research of Lind and Tyler (1988) indicates that this theory correctly predicts that procedural components become significant when decisions are important, and when employees are concerned with social compatibility. In addition, the theory correctly predicts that favorable outcomes, outcome control, decision fairness, and consistency drive procedural justice judgments. The principal weakness with this theory is that it fails to account for the fact that, even when an employee is faced with repeated negative outcomes with no hope of improvement, high input procedures still lead to increased satisfaction with outcomes (Paese 1985). Furthermore, the theory fails to explain the impact of non-instrumental expression and quality of treatment on outcome evaluations (Lind and Tyler 1988).

The group value theory. On the other hand, the group value theory, as described by Lind and Tyler (1988), accounts for the impact of non-instrumental expression and quality of treatment on procedural justice perceptions. Procedures are a component of groups or societies, and as such, employees expect that procedures will reflect the values of the

organization to which they belong. To the extent that procedures are consistent with these values, employees will perceive themselves as important, valued members of the organization. Thus, treatment as prescribed by these values offers positive information regarding status to the employee interacting with the system. As was the case with the self-interest theory, this theory does not predict nor explain the entirety of procedural justice findings. According to Lind and Tyler (1988), the primary weakness of this theory is that it does not account for outcome effects on procedural justice judgments.

Results from Tyler's (1994) recent study of six models of resource and relational concerns in predicting distributive and procedural justice supports two distinct thoughts of justice. While it is interesting that two highly disparate models are necessary to explain procedural justice effects, it is not surprising, given that organizations serve more than one function. Tyler states that employees obtain resources from organizations, as well as information which helps to shape their identities. It is reasonable to think that the former function would lead to effects supported by the self-interest model, while the latter function would lead to effects supported by the group value model.

In summary, employees express a preference for procedures perceived as fair, and they tend to be more accepting of low outcomes if procedures perceived as fair led to those outcomes. An added advantage is that procedural justice also impacts motivation which is important to institutions and organizations. Both structural characteristics of procedures and how procedures are enacted have been found by research to affect procedural justice perceptions (Tyler 1994).

Summary of Literature Review

In the context of this study, motivation represents the forces acting on or within an employee that cause the employee to behave in a specific, goal-directed manner (Hellriegel, Slocum, and Woodman 1995). Employee motivation affects productivity, so one of management's jobs is to channel employee motivation effectively to achieve organizational goals. One method of achieving productivity is rewarding employees' efforts through evaluations and/or appraisals.

Although supervisory performance appraisals are the most common form of performance appraisal in organizations, there are numerous other potential sources of performance appraisal data. One alternate form of performance appraisal that is becoming increasing popular is multi-source appraisal. There are numerous advantages to multi-source appraisals, however, user acceptability has been problematic. Path-goal theory, expectancy theory, equity theory, Herzberg's two factor theory, and procedural justice theory have been used to understand past research results on multi-source appraisal systems and will be used in this discussion as a framework for generating research on this subject.

With this search of the literature pertaining to employees appraisal systems complete, what follows is a detailed discussion of how the analysis of information is gathered. Chapter III identifies the individual ideas, components, pieces, concepts, characteristics which directly relate to the research in chapter II and shows how an appropriate model is, or can be, statistically substantiated.

CHAPTER III

ANALYSIS

Introduction

The purpose of the last chapter was to describe the level of knowledge pertaining to employee evaluations in general. In contrast, the purpose of this chapter is to identify the individual components that directly relate to the general information presented in chapter II. Building upon the work of chapter II, then, this chapter introduces pertinent individual components and describes how these components tie to and apply to this research endeavor.

The specific concepts that will be succinctly developed in this chapter are the development of a Motivation Model: the development of an Appraisal Model (Vroom's Expectancy Theory, Adams' Equity Theory, and Goal Theory): and Procedural Justice Theory.

Motivation Model

Building upon the information presented in chapter II, a basic model of motivation can now be presented that incorporates the concepts of **needs**, **drives**, **goals**, and **rewards**. As Szilagyi and Wallace (1990) note, the initial step in developing the motivation model is to relate these variables in a sequential or process framework (Figure 3.1). This model will serve as a foundation for the development of the overall model that will link and validate the components of this chapter.

The model presents motivation as a multi-step process (Szilagyi and Wallace 1990). First, the arousal of a need creates a state of unbalance (i.e., tension) within the employee that he or she tries to reduce through his or her behavior. Second, the employee searches for and chooses strategies to satisfy these needs. Third, the employee engages in goal-directed behavior or performance to carry out the selected strategy. An important individual characteristic, ability, intervenes between the choice of behavior and the actual behavior, because employees may or may not have the necessary background (ability, skills, experience, or knowledge base) to attain a particular chosen goal (such as becoming president of Lockheed Martin Astronautics at an early age). Fourth, an evaluation of performance is conducted by the organization concerning the success of his or her performance in achieving the goal. The employee usually evaluates performance directed at satisfying a need for pride in one's work. On the other hand, goal-directed behavior for satisfying a financial need (e.g., a merit pay increase) is generally evaluated by another person (usually a superior). Fifth, rewards or punishments, depending on the quality of the appraisal, are given. Finally, the employee assesses the degree to which the behavior and rewards have satisfied the original need. If this motivation cycle has satisfied the need, a state of equilibrium or satisfaction with respect to that particular need exists. If the need remains unsatisfied, the motivation cycle is repeated with possibly a different choice of behavior.

Consider, for example, an instrumentation engineer at Lockheed Martin Astronautics recently assigned to conduct an environmental test for a Defense program. Because the instrumentation engineer has been with Lockheed Martin Astronautics for a number of years, he or she wants to be promoted to the position of staff engineer (need

deficiency or arousal). A number of ways to satisfy this need are available, including continuing excellent performance, obtaining an advanced degree, asking for a promotion outright, or moving to another company (search for strategies). The instrumentation engineer decides to excel on this test to satisfy the need (choice of strategy).

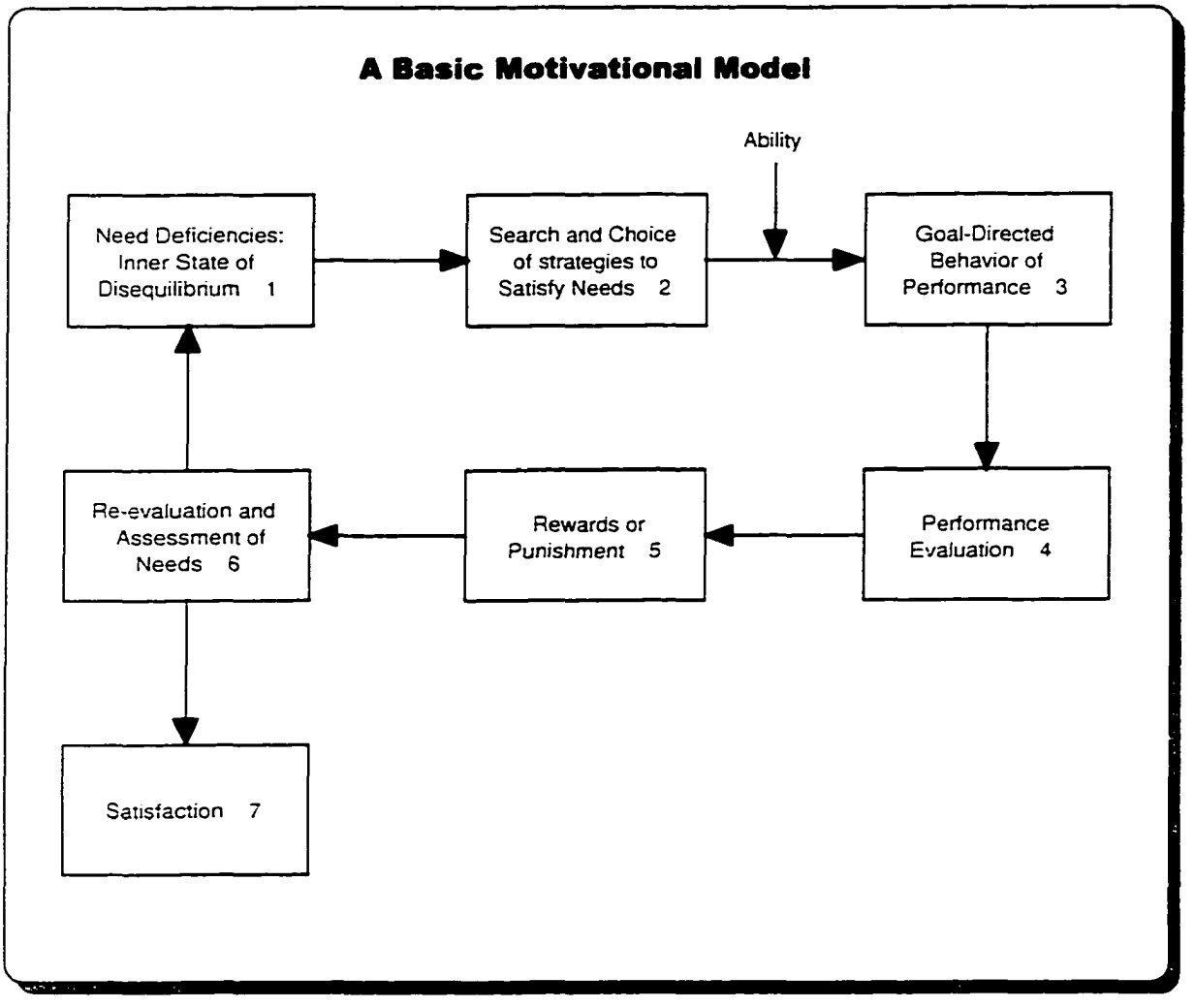


Figure 3.1 SOURCE: Szilagyi and Wallace 1990

Recognizing that he or she has the necessary ability to excel, the instrumentation engineer works hard toward the successful completion of his or her assignment (ability and goal-directed performance). After the test has been completed, the instrumentation engineer's performance is evaluated by the organization (performance appraisal), resulting

in a promotion to a staff engineer (reward). Because the original need for promotion has been satisfied, the engineer is in a state of equilibrium (satisfaction) with respect to this particular need. Other needs may arise later to start the cycle again.

The key component in this model that directly relates to this dissertation is the performance appraisal element. This element of the model is very critical because it can directly affect the corporation's competitive position. As a result, a discussion will follow about the development of a process model that will isolate the relevant pieces of information and elaborate on their individual qualities as they pertain to this research.

Process Model

Continuing with the discussion about motivation from the above section, the development of a process model based on the process theories of motivation is now in order (Figure 3.2). Process models are used to describe and analyze how personal factors (internal to the person) interact and influence each other to produce certain kinds of behavior (Hellriegel, Slocum, and Woodman 1998) as, for example, employees who exert more effort to obtain rewards that satisfy important needs than to obtain rewards that do not (Hellriegel, Slocum, and Woodman 1998). This model will incorporate the concepts of Vroom's Expectancy theory, Adams' Equity Theory, and Goal theory.

In the pervious section and chapter II, the discussion centered on the content theories of motivation. These approaches provide managers with a better understanding of certain work-related factors that incite motivated behavior. However, these components provide managers with little information or understanding of why employees choose a particular behavioral pattern or activity to satisfy personal needs or achieve work goals.

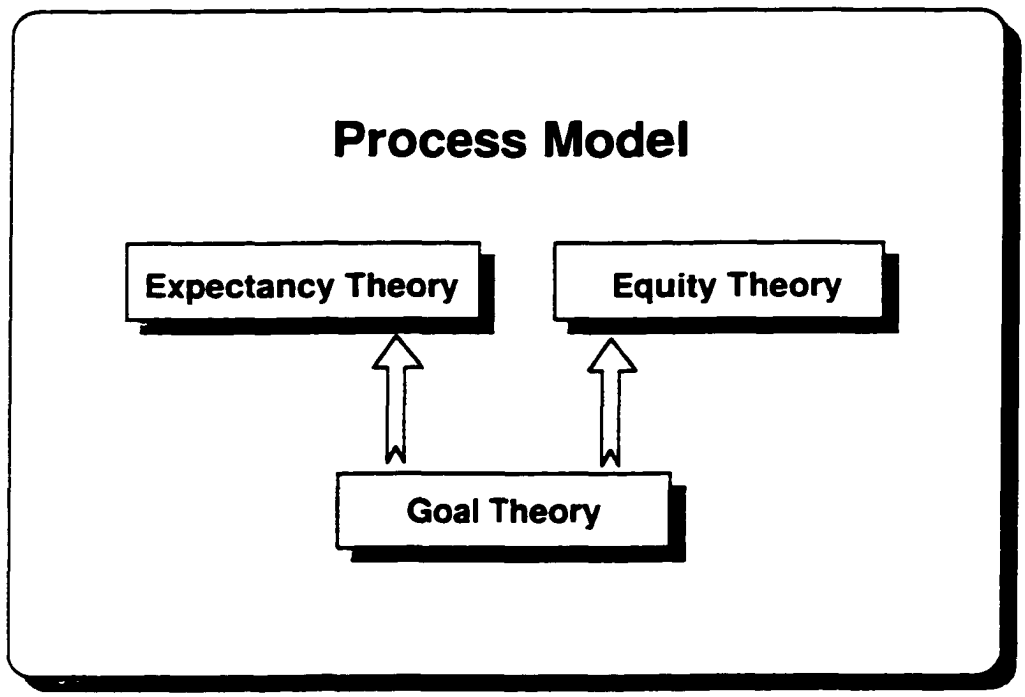


Figure 3.2 SOURCE: Szilagyi and Wallace 1990

Expectancy Theory

In its basic form, expectancy theory relates to choice behavior (Szilagyi and Wallace 1990). Specifically, the theory states that employees will evaluate various strategies of behavior (e.g., working hard each day versus working hard three days out of five) and then choose the strategy that they believe will lead to those work-related rewards that they value (e.g., pay increase). If the employee believes that working hard each day will lead to a pay increase, expectancy theory would predict that this will be the behavior he or she will choose.

As shown in Figure 3.3, the foundation of expectancy theory is the perceived relationship between effort, performance, and the reward received for performance. The key variables in Vroom's (1964) formulation are as follows:

An *outcome* is the end result of a particular behavior, and can be classified as a first- or second-level outcome. First-level outcomes relate to the result of putting in some effort on the job—in other words, some level of performance. Second-level outcomes are consequences to which first-level outcomes are expected to lead. That is, the end result of performance (first-level) is some form of reward (second-level).

Expectancy is a belief in the likelihood that a particular level of effort will be followed by a corresponding performance level. In practical terms, the issue is whether the person can actually do the assigned work. Based on probabilities, an expectancy can vary form 1.0 ("I should have little trouble getting the assignment done on time, or in reaching high performance levels") to 0 ("Even if I work extremely hard, there's no way I can get the work done on time").

Instrumentality refers to the relationship between first- and second-level outcomes – how performance levels and the rewards for this performance are related. Like a statistical correlation, instrumentalities can vary form +1.0 to −1.0. If the first-level outcomes always leads to second-level outcome ("Continued high performance is always rewarded with a good pay raise"), the instrumentality would equal +1.0. If there is no relationship between performance and rewards ("This organization never rewards good performance"), then instrumentality approaches zero.

Valance is the strength of a person's preference for a particular outcome. Stated differently, it concerns the value a person places on such rewards as pay increases, promotions, recognition, and so on. Valences can also have both positive and negative values. In a work situation, we would expect pay increases to have a positive valence.

while such outcomes as a supervisory reprimand may have a negative valence – in other words, they are not highly valued.

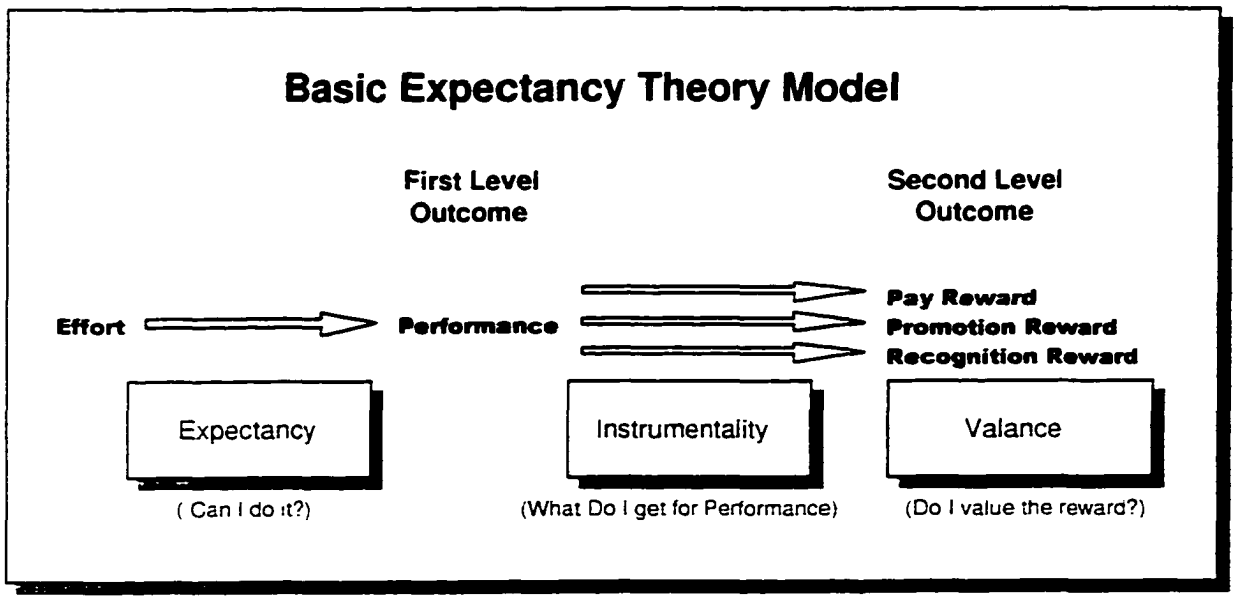


Figure 3.3 SOURCE: Szilagyi and Wallace 1990

Force to perform is the result of the preceding perceptual process and involves how hard a person decides to work and what behaviors he or she plans to exhibit (i.e., choice). Finally, wanting to perform well and actually doing so are moderated by the person's ability – his or her capacity for performing a task. In applied terms, it means what a person can do, rather than what he or she will or want to do.

To illustrate expectancy theory, consider the case of a technical manager of a large aerospace company who has been given the responsibility and authority to coordinate the build of a multimillion-dollar spacecraft. As shown in Figure 3.4, the technical manager believes that there are three possible first-level outcomes (completion of build ahead of schedule, completion on schedule, and completion behind schedule) that can lead to at least three second-level outcomes (pay raise, promotion, or recognition)

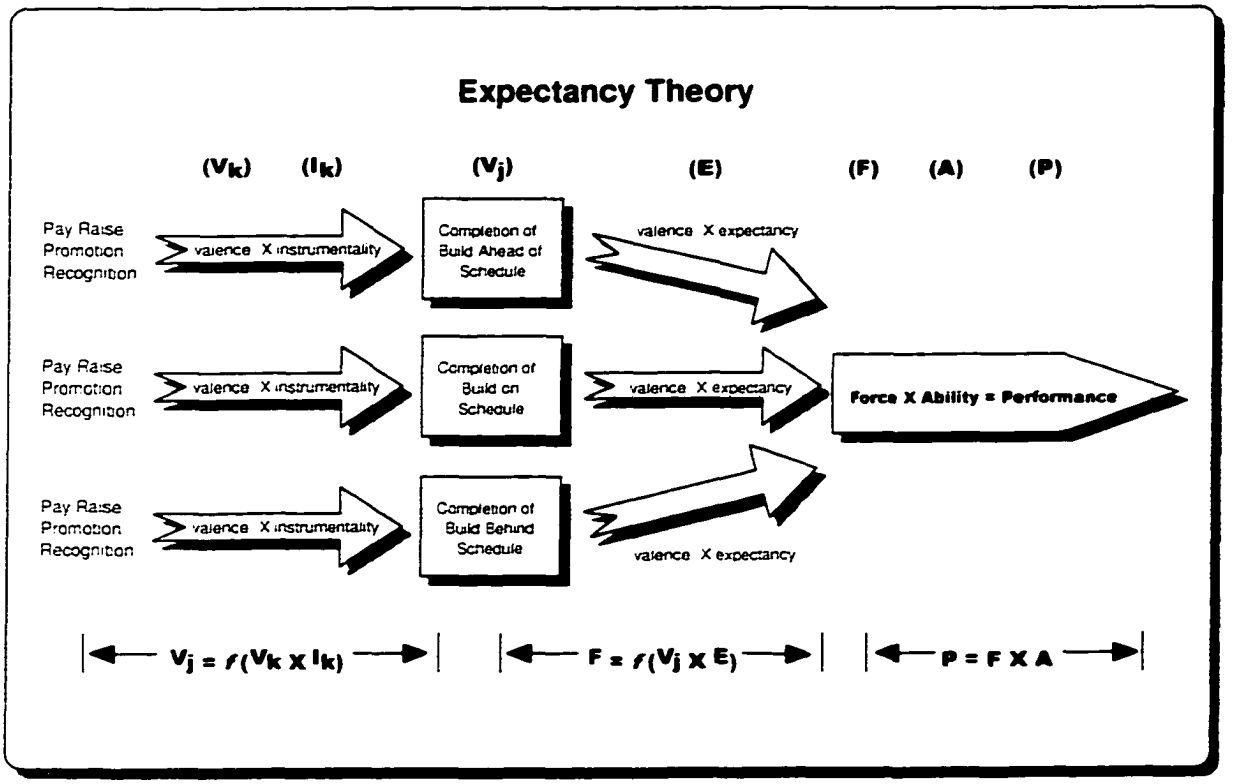


Figure 3.4 SOURCE: Szilagyi and Wallace 1990

Component 1 [$V_j = f(V_k \times I_k)$] suggests that the value for each first-level outcome is a function of the valence of the second-level outcome times the instrumentality of the second-level outcome (Szilagyi and Wallace 1990).

Component 2 [$F = f(V_j \times E)$] states that the force or motivation to perform is equal to the valance of the first-level outcome times the expectancy that effort will lead to that particular outcome (Szilagyi and Wallace 1990). According to expectancy theory, employees will choose behaviors that lead to valued rewards; therefore, the technical manager's choice of motivated behavior will be to attempt to complete the spacecraft build ahead of schedule.

Expectancy Theory and Multi-source Appraisals

Multi-source appraisals have been described as a goal-directed process (Murphy and Cleveland 1991) whereby participants are motivated to do what is rewarding and within their abilities. Thus a participant's choice to expend effort on rating can be framed using expectancy theory of motivation (Vroom 1964) which predicts an employee's cognitive choice to provide effort on a specific task (such as rating their peers', customers', or manager's performance). Using an expectancy theory heuristic, participants consider their ability to rate effectively as one of the factors in deciding whether to participate in the multi-source appraisals system (Westerman and Rosse 1997). Expectancy theory postulates that a low effort-performance expectancy level from the perspective of the rater ("I am not able to rate effectively") would have a negative influence on an employee's decision to participate in the feedback loop (Westerman and Rosse 1997).

An employee's choice of whether to participate in the appraisal process is likely to be influenced by the employee's assessment of the face validity of the rating instrument (Westerman and Rosse 1997). Because participation is at least partially voluntary, nontraditional appraisal formats (e.g., like multi-source appraisal) should be more practical and efficient than other assessment procedures to entice rater usage. Ambiguous, irrelevant criteria and time consuming rating instruments are likely to reduce rater perceptions of their ability to rate accurately and effectively (Westerman and Rosse 1997).

Equity Theory

The basic premise of equity theory focuses on an employee's feelings of how fairly he or she is treated in comparison with others. If employees perceive a discrepancy between the amount of rewards they receive and their efforts, they are motivated to reduce

it; Furthermore, the greater the discrepancy, the more the employees are motivated to reduce it (Szilagyi and Wallace 1990). Discrepancy refers to the perceived difference that may exist between two or more individuals (Szilagyi and Wallace 1990).

Equity theory is rooted on the comparison of two variables: inputs and outcomes (Hellriegel, Slocum, and Woodman 1998). Inputs represent what an employee contributes to an exchange; outcomes are what an employee receives from the exchange. Some typical inputs and outputs are shown in Table 3.1. However, the items in the two lists are not paired and do not represent specific exchanges.

J. Stacy Adams (1963) pioneered the initial development and testing of the equity theory. He defines a discrepancy, or inequity, as the condition that exists whenever an employee perceives that the ratio of his or her job outcomes to job inputs is unequal to a reference person's. The reference employee may be someone in the individual's group, in another group, or outside the organization.

Adams (1963) postulates that individual employees compare inputs and outcomes with workers of roughly equal status. If the two ratios are not in balance, the individual is motivated to reduce the inequity. Figure 3.5 illustrates the equity-inequity possibilities for an example employee. The figure presents a three-step process: (1) comparison of outcomes/input ratios between focal person and reference person; (2) decision (equity = satisfaction, inequity = dissatisfaction); and (3) motivated behavior to reduce inequity (Adams 1963, and Szilagyi and Wallace 1990).

There are a number of behavior patterns that an employee can follow to reduce an inequitable situation (Szilagyi and Wallace 1990). First, when inequity is caused by lower outcome/input ratio for the focal employee (underpayment), this employee may

attempt to improve the outcome (Szilagyi and Wallace 1990). For example, an employee who believes that he or she is being paid less than a peer for comparable inputs could ask management for an adjustment in income, such as a cost-of-living or pay-scale rate adjustment (Adams 1963, and Szilagyi and Wallace 1990).

Examples of Inputs and Outcomes in Organizations	
INPUTS	**OUTCOMES**
Age	Challenging job assignments
Attendance	Fringe benefits
Interpersonal skills	Job perquisites (parking space or office location)
Communication skills	Job security
Job effort (Overtime Hours)	Monotony
Level of education	Promotion
Past experience	Recognition
Performance	Responsibility
Personal appearance	Salary
Seniority	Seniority benefits
Social status	Status symbols
Technical skills	Working conditions
Training	Extra vacation days

Table 3.1 Source: Hellriegel, Slocum, and Woodman 1998

Another tool may be to decrease an input by reducing productivity or increasing time off form the job (Adams 1963, and Szilagyi and Wallace 1990). A third possible tool is for the focal employee to change his or her reference employee to bring a more realistic comparison (Adams 1963, and Szilagyi and Wallace 1990).

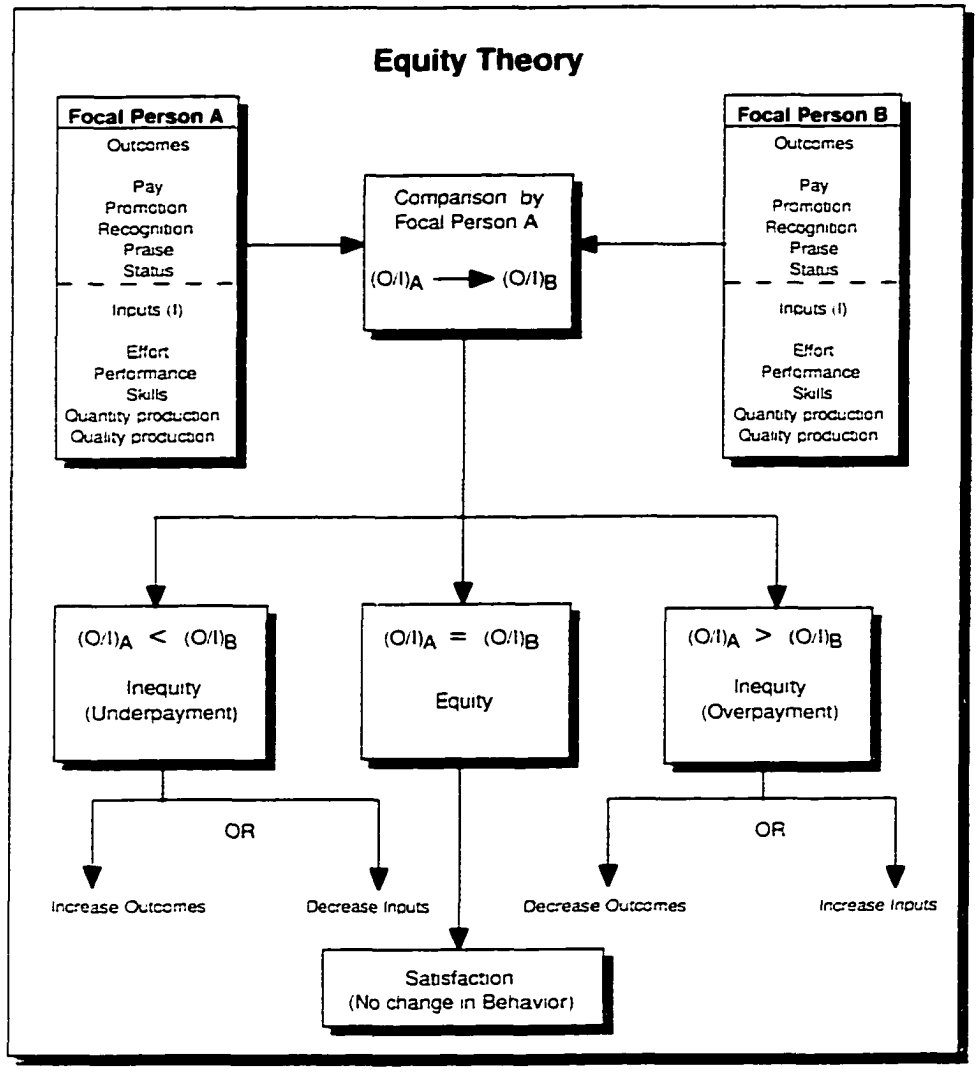


Figure 3.5 SOURCE: Szilagyi and Wallace 1990

When inequity is caused by the focal employee's ratio of outcomes/ inputs being greater than the reference employee's (overpayment), the employee will be motivated to remove this inequity by decreasing outcomes or, more probably, increasing inputs (Figure 3.6) (Adams 1963, and Szilagyi and Wallace 1990).

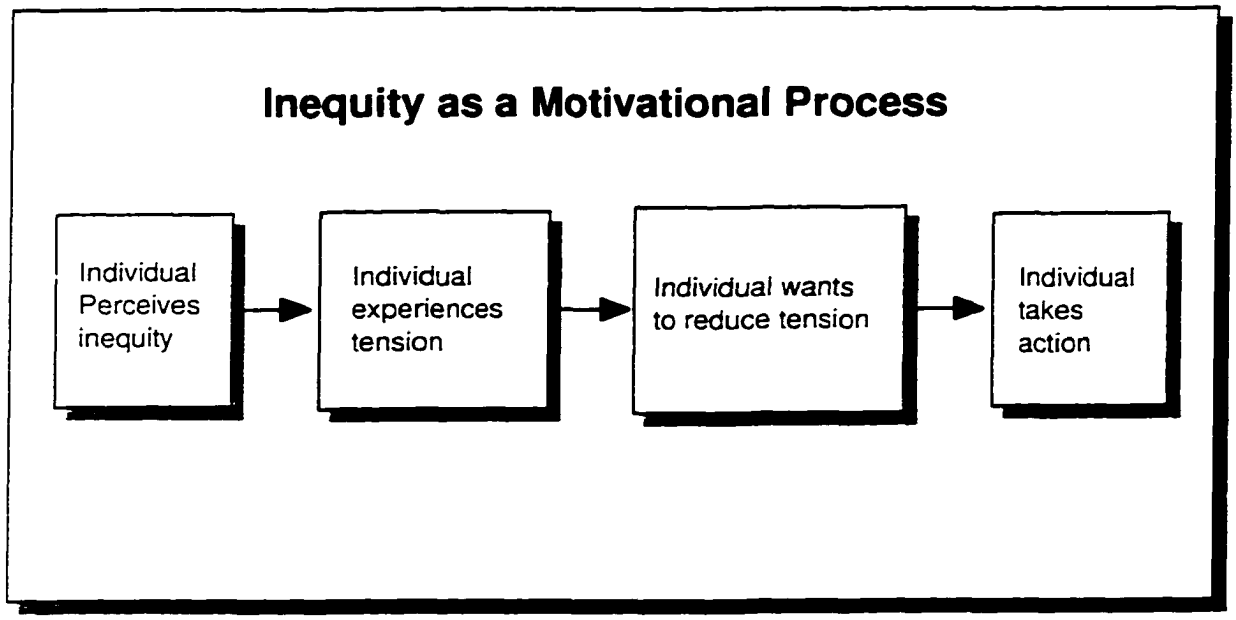


FIGURE 3.6 SOURCE: Hellriegel, Slocum, and Woodman 1998

Equity Theory and Multi-source Appraisals

Most research on performance appraisal feedback has been conducted on non-technical organizations (Luthans 1985, and Nadler 1979). However, Luthans (1985) relied on equity theory to formulate a prediction about how appraisal feedback might affect employees' performance in organizations. Equity theory in this case is represented by social comparison effects (Goodman 1977). According to equity theory, when the performance of a particular type of behavior results in feedback indicating that desired results were achieved (positive feedback), the likelihood of that behavior occurring in the future is increased (Goodman 1977). Similarly, appraisal feedback indicating a failure to achieve desired results (negative feedback) results in a decrease in the future likelihood of the action. Members of the organization would be expected to want to continue new behaviors only when they perceive that positive outcomes will occur as a result (Goodman 1977). From this perspective, positive appraisal feedback given to an employee would be

expected to increase performance and rewards, and negative appraisal feedback would be expected to decrease performance and rewards (Goodman 1977).

However, when rewards are tied to performance, appraisal feedback may serve as an indicator of how rewards are likely to be viewed by the group, and fairness may become a consideration. According to equity theory, individuals evaluate the fairness, or equity, of their rewards by comparing their inputs, such as effort and ability, and their outcomes (pay and status) to those of a referent other (Adams 1965). In the case of work groups, other members are likely to serve as referents. When group members' payment depends partly or wholly on group performance, as they should in groups with interdependent tasks (Gomez-Mejia and Balkin 1992), the combination of group with appraisal feedback creates the potential for equity comparisons. The level of employee performance is a potential indicator of an employee's effort (an input). Group members may feel underpaid when they perform at higher levels than other group members but must share in group outcomes. Similarly, group members who have performed at lower level may feel overpaid.

In situations of behavior change, individuals are likely to be sensitive to how the introduction of new behaviors affects the distribution of rewards (Gomez-Mejia and Balkin 1992). When new behaviors, perhaps requiring extra effort or the learning of new skills, create perceived inequity, group members will be motivated to reduce their performance of those behaviors (Adams 1965). When a specific new behavior seems to create inequity, stopping the performance of the behavior may be the most salient and certain way for group members to eliminate inequity (Gomez-Mejia and Balkin 1992). However, it is noteworthy that several other ways of restoring equity may be possible (Gomez-Mejia and Balkin 1992). Although a redistribution of pay could restore equity, in most organizations

such redistributions are not permitted (Gomez-Mejia and Balkin 1992). Likewise, group members could restore equity by cognitively distorting their perceptions of input and output or by changing referents, but in face of continuing appraisal feedback about employee and group performance, those equity-restoring strategies would be difficult (Goodman 1977). Finally, employees could modify this level of effort on the task to restore equity; however, they thereby run the risk of further modifying the distribution of employee performances and possibly the overall performance of the group. The strength of stopping the new behavior as an equity-restoring strategy is that it should return the group to the known state of inputs and outcomes that existed prior to the new behavior (Goodman 1977). Therefore, equity theory provides the framework to examine effects of appraisal feedback on employees' performance in organizations.

Goal theory

Motivation theorists and behavioral scientists have come to the realization that one of the most important elements in any motivation program is goals, or results expected, for the employee (Szilagyi and Wallace 1990). A goal is what the employee is consciously trying to accomplish.

The basic framework was noted by Edwin Locke, who proposed a theory of goal setting that describes the relationship between conscious goals and task performance (Szilagyi and Wallace 1990). The basic premise of the approach is that an employee's conscious goals influence his or her work behavior. Stated simply, difficult goals result in a higher level of performance than do easy goals, and specific difficult goals in a higher level of performance than do no goals or a generalized goal of "do your best" (Szilagyi and Wallace 1990). In practical terms, employee motivation and performance are improved if

the employee knows clearly, and is challenged by, what needs to be done (Hellriegel, Slocum, and Woodman 1998, and Szilagyi and Wallace 1990).

As depicted in Figure 3.7, goal setting usually involves five steps. First, certain incentives for performance are provided by the environment or, more specifically, some part or employee in the organization (Hellriegel, Slocum, and Woodman 1998). This step generally involves the establishment of what the organization wants accomplished (i.e., target results) and the clarification of rewards (pay increase, promotion, or recognition) associated with potential goal attainment. Second, the goal-setting participative process includes the manner in which the goals are esta shed. This usually involves the subordinate an his or her superior in either a t vay joint decision-making process (i.e., assigned goal se ng), or just a "do your best" ach (Szilagyi and Wallace 1990). Third, the nature of the establishe als deter he goal-setting attributes of clarity, difficulty, challenge, peer competi nd feedb Fourth, the acceptance of and commitment to the estab shed go ive the i ion to work toward goal attainment by the e ployee (Szilagy nd Wall 990).

or example, consider the te pervisor in a erospace company. The company has embarked on a cost effectivenes gram in attempt to reduce test cost by 20% over the previous year (environmental in ves). If this goal is met by the test supervisor, a cash bonus will be awarded (incent and goal-setting participative process). In translating the overall company gc o his or her particular area of responsibility, the supervisor believes that cutting tes ts by 20% w ll be difficult and challenging, but manageable task (goal-setting attr es). T supe isor accepts the notion that the goal is one that will be good for the comp , the d artm t, and his or her personal

development (goal-setting intention), and therefore works hard over the next year to attain the needed level of cost cutting (outcomes).

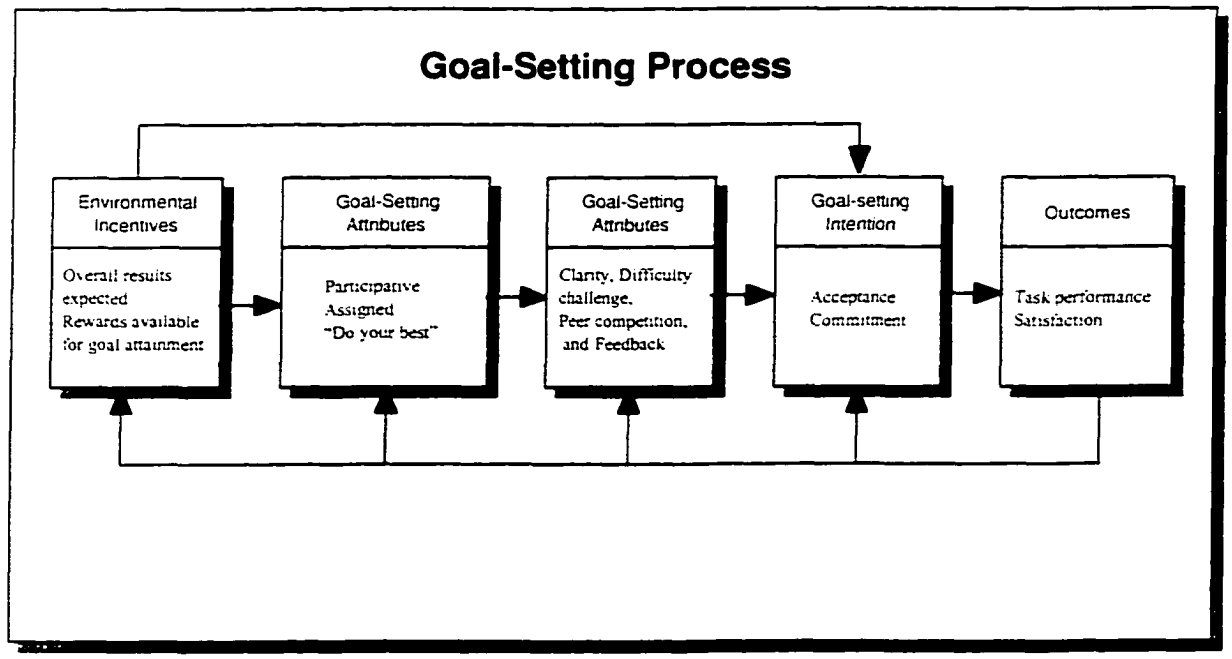


Figure 3.7 SOURCE: Szilagyi and Wallace 1990

Goal Theory and Multi-source Appraisals

The framework for understanding goal theory presented in the above section characterizes many elements contained in multi-source appraisals illustrated in earlier sections of this dissertation. Employee performance is only one variable of interest in the study of performance management because the goals and objectives of the organization are measured in terms of performance achievement (Szilagyi and Wallace 1990). In the organization, performance might translate into measures of group task completion, quality, and efficiency. However, at the employee level, performance might translate into behaviors and actions as rated by multi employees (i.e., peers, supervisor, subordinates, and customers).

An examination and review of the framework in chapter II emphasizes that organizations obtain feedback from reviewing and evaluating performance by many individuals, which allows for adjustments to be made with respect to goals given to the employee. The intention of such input allows for the improved performance through the techniques of feedback. The use of multi-source appraisals in an organization, then, is defined as the process by which an organization obtains feedback concerning agreed-to-in-advance goals about the effectiveness of its employees.

Procedural Justice Theory

To understand why employees react in one way or another to unfair treatment, this study must now identify the individual components that directly relate to the general information presented in chapter II concerning procedural justice. Building upon the work of chapter II, then, this section will introduces pertinent individual components of procedural justice and describes how these components tie to and apply to this research endeavor.

Procedural justice is concerned with individual reactions to the process used to establish the performance standards during the evaluation process (Greenberg 1990) –in other words, the means rather than the ends (Sweeney and McFarlin 1993). Research on this question has shown that employees are able to make clear distinctions between "the ends" and "the means" (Thibault and Walker 1975, Sheppard and Lewicki 1987, Dailey and Kirk 1992), and that these two notions have independent effects (Alexander and Ruderman 1987, Folger and Knovsky 1989, and Sweeney and McFarlin 1993).

Two procedural elements are seen to be relevant from the appraisal standpoint, i.e., degree of control over the process leading to selecting raters, and degree of control over the

performance improvement decisions. Some authors have shown that control over the process, for example, by giving employees the opportunity to choose raters, to participate in performance decisions, to voice the results of compensation decisions, or to receive accurate information, can produce a strong sense of process justice and more positive attitudes to the results and the organization (Levethal 1980, Lind and Tyler 1988, and Greenberg 1996).

Early studies testing the effect of control over evaluation processes in the field of performance management showed that perceptions of procedural justice explained a large portion of the variance in employee satisfaction (Dyer and Theriault 1976, and Weiner 1980). Similarly, Jenkins and Lawler (1981) found a link between involvement in the evaluation process and employee satisfaction. Folger and Konovsky (1989) also found a positive link between satisfaction and the existence of an appeal process in determination evaluation outcomes. However, the effects of procedural justice on appraisal process has not yet been clearly demonstrated. Mulvey (1992) found that the power to appeal against a performance outcome and consistency in the application of the appraisal process –both criteria of procedural fairness – were positively and significantly linked to employee satisfaction. While Williams (1995) did not specifically test the effect of employee input variable, her results nevertheless suggested that inclusion of that variable in the determination of employee evaluations may increase employee satisfaction. It is therefore possible to conclude that giving employees the chance to participate in decisions relating to the appraisal process and taking account of their input (e.g., voice) will have a positive effect on employee satisfaction.

With the narrowed scope of information presented in chapter II complete, what follows is the collection of all the relevant pieces of this proposed research and the development of the multi-source appraisal model that will link the data collected in chapter III to their theoretical underpinning. The limitations and methodological flaws of the model will be discussed in the following chapter.

CHAPTER IV

SYNTHESIS-MODEL FORMULATION

Introduction

The aim of this chapter is to introduce the performance management environment that exists in the Test Department at Lockheed Martin Astronautics and to formulate an appraisal model that will combine the relevant and critical elements identified in the previous chapter. The theoretical underpinnings of this developed model consists of motivation theory, process theory (expectancy theory, equity theory, and process theory), and procedural justice theory. The discussion concerning these components consists of a detained explanation about how these components are interrelated and linked. The discussion also points out the limitations and methodological flaws of the developed model. The end result of this chapter is a formulated model that will provide the necessary framework for putting collected results of this research in their proper context.

Performance Management Environment

In theory, the performance management environment should be one of complete communication between the employee, supervisor, peers, customers, and management. This environment should foster an atmosphere where the employee initiates the discussion of performance goals and assignment outcomes with his or her supervisor. The supervisor would then introduce the EPAD system to the employee. Next, the employee and the supervisor would then collaboratively develop performance goals and expectations by

establishing a schedule for performance assessment and development planning. Supervision would be responsible for requesting that the employee provide an outline of assignments and accomplishments throughout the year. That is, the supervisor and the employee would jointly be responsible for initiating and maintaining positive performance communications throughout the year. Before the supervisor and the employee would meet to complete the EPAD, the employee would be responsible for nominating contributors to his or her EPAD. The supervisor and the employee would collaboratively decide who would be the final contributors on the employee's EPAD. Supervision would be responsible for sending the employee's EPAD to the contributor in an effort to ensure the contributors of complete confidentiality. After the contributor is notified of request for input, he or she is tasked with providing factual information about the employee's performance based on first hand experience and knowledge of employee's work and work standards. Following the receipt of the contributor's input, supervision would then give constructive performance feedback, evaluate accomplishments, and assign a rating to the employee on the EPAD form. Prior to providing the final employee rating, the functional organization provides supervision with the appropriate guidelines and performance rating standards across salary grades and disciplines. The functional organization coordinates with all areas within the company to ensure consistent application of rating standards.

However, in reality, the performance management system is simply not implemented according to design or theory. Often, the communication between the employee and supervisor is ambiguous at best because supervision gets mixed signals from middle and upper management concerning the implementation of the EPAD process. Bandura (1977); Dreyer's research (1997) discusses the probable outcome of this

management approach, pointing out that poor communications or an inadequate developmental perspective on assessing performance can have a negative influence on employee perspective of management quality and working conditions.

In the competitive business of aerospace, many supervisors are very busy attempting to accomplish multiple tasks, and they wait until the last minute to complete their employees' EPADs. As a result of this event, the on-going feedback between the supervisor and the employee suffers in some instances and is nonexistence in others. The employee's performance goals and assignment outcomes are often not met during the appraisal period because the supervisor may not be able to provide the employee with the appropriate opportunity to realize predetermined activities. That is, the work load and extenuating circumstances often dictates what performance goals and assignment outcomes can be realistically accomplished prior to the employee being evaluated. Seen in this light, supervisors and employees have a tough task working together to predict exactly what types of goals and outcomes can be reached in a dynamic work environment. Therefore, employees, in some cases, are evaluated against performance goals and assignment outcomes that were not collaboratively agreed to in advance. This activity runs contrary to the how the EPAD process should be conducted. In fact, it is a direct violation of company's standards and procedures. Nevertheless, this activity continues to be over-looked by management.

Most employees want to send their EPADs to contributors who will only provide positive feedback. Because EPADs are used for many performance management activities such as pay increases, promotions, etc., employees are very reluctant to nominate a contributor who may have some negative performance issue with their work. Many

employees would prefer to work performance related items off-line with the co-worker. Moreover, contributors are also very reluctant to provide factual input on performance issues because they to not want to adversely affect the employee's ability to make money or to be promoted. Kanouse's study (1998) clearly supports the presumption that participants will be unwilling to provide complete and honest feedback if they realize career advancement and compensation may be at stake. Hence, in many cases, the majority of the performance input that is included on an employee's EPAD is provided solely by the employee's supervisor. The goal of a multiple-source appraisal system is to have all the stakeholders who directly work with the employee, contribute to the employee's evaluation. When the supervisor is the only person contributing performance input, the EPAD process is not in theory being conducted properly. Procedural Justice theory emphasizes that employees will perceive the evaluation tool as producing outcomes that are not normative to standards of justice, i.e., the EPAD process is not fair; Greenberg 1986).

Aside from these concerns dealing with EPAD implementation, there are three major issues that affect employees' perceptions of the EPAD process. First, upper management strongly suggests that all supervisors rate their employees' performance to fit a specified curve, regardless of individual employee performance, i.e., the number of 1s, 2s, 3s,4s,and 5s (see Chapter 1). Management justifies this practice by alluding to some conducted research in this area, which supports the company's notion that most employees' performance matches this curve. Thus, upper management is strongly aligned behind this research. As can be expected, employees in the highly technical field of aerospace believe that their performance ratings far exceeds the constructs of this curve. Hence, many

employees believe that upper management is instituting this curve for the sole purpose of deflating salaries and limiting opportunities. Employees have a hard time understanding that no matter how well or poorly they perform their jobs, their evaluation is to some degree adversely affected by a predetermined curve.

Second, after each supervisor aligns their employees in their units according to the prearranged curve, they attend a meeting with upper management to ensure that this requirements is met in all units. However, in some cases, a supervisor may be able to modify the curve to his or her benefit at the expense of another supervisor's employees. Because this environment exists, some supervisors believe that they really have limited control over their employees' evaluations. Moreover, some supervisors may become disenchanted with the process.

Third, during the meeting with upper management, other supervisors are allowed to make comments about how each supervisor rated his or her employees in their unit even when they were not selected as the employee's contributor. Many supervisors are baffled at these comments because in some cases they are hearing these inputs for the first time. If given enough time, some supervisors believe that they might have been able to correct these issues/concerns prior to the employee's evaluations. Therefore, some supervisors' motivation can be directly affected by the above process because they expect to be rewarded (satisfaction of having their employees rated higher) if they conduct the process correctly (Figure 4.1). Expectancy theory emphases that perceived probabilities that the correct effort will lead to highly probable and valued rewards, which, in turn, leads to job satisfaction and motivation if the rewards are deemed fair (Hellriegel, Slocum, and Woodman 1995, and Boone and Kurt 1987).

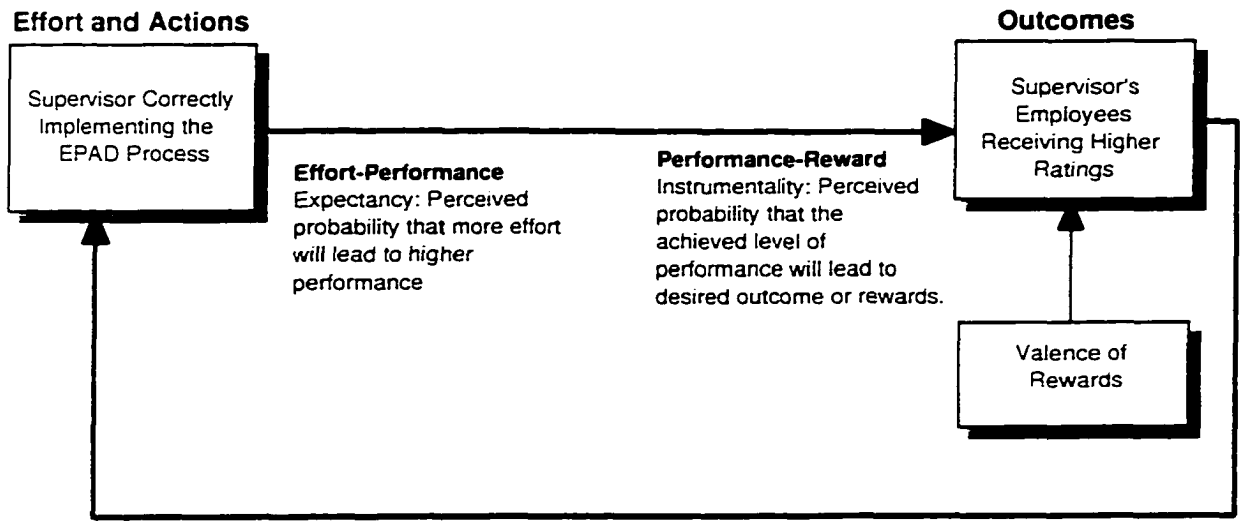


Figure 4.1 Source: Vroom 1964

Clearly, the EPAD process has many issues that could make supervisors question the suitability and functionality of the process. Deming (1989) suggested that organizations eliminate employee evaluations altogether because he believed that they de-motivate and pit one worker against another, and that they are not good indicators for evaluating employees' performance. Deming (1989) also pointed out that employee performance is directly linked to the organizational system, not to the employees' motivation. With some supervisors questioning the validity of the EPAD process, the end result of the EPAD process may be that some employees may loose faith in upper management's commitment to conduct a process that is fair and equitable. The literature distinctly indicates that when employees believe that they are in an inequitable situation their response may be to decrease their level of outputs to bring the situation back to equilibrium (see Figure 3.6; Adams 1965). As a result of this supposition, Lockheed Martin Astronautics is interested

in knowing if there is a statistical difference in employee and supervisor's perception in the test department that the EPAD system affects employees' satisfaction.

Model Development

In the preceding sections and chapters of this dissertation, the components that drive and formulate the appraisal system were discussed. Now that the framework for employee evaluations has been presented, a more complete and integrative model for understanding collected results of this research can now be developed. This integrative model, presented in Figure 4.2, includes a number of theories, such as expectancy theory, equity theory, goal theory, and procedural justice theory, that have been found to be important influencers for the understanding the appraisal process in organizations.

This research has noted that no theory by itself has been widely accepted by both behavioral scientists and practicing managers. The integrative model (Figure 4.2) is not a universal approach, but only a means of integrating the various concepts that have been discussed in chapters II and III.

The focal point of this model is the EPAD process and how it is perceived by the employee and the supervisor. The outlying theories work as influencers to the EPAD process in general. It is these influencers that affect how the EPAD process is perceived. In this light, these influencers will be integrated to form the theoretical underpinnings of this model.

Each theory in the appraisal model emphasizes different aspects of the appraisal process. *Expectancy theory* is linked to the appraisal process by how employees evaluate rewards before they perform their jobs.

If the employee perceives the appraisal process as being implemented fairly across all labor grades, the employee assigns probabilities that his or her efforts will lead to desired first-level outcomes. These outcomes are linked to valued rewards (for example, high pay or job security) that the employee desire from their jobs (Hellriegel, Slocum, and Woodman 1998). It is the supervisor's job to make desired rewards attainable by clearly linking rewards and performance. Allowing the employee to choose performance goals and assignment outcomes during the EPAD process, is important to employee's perception of the evaluation process and job satisfaction.

Equity theory is linked to the appraisal model by emphasizing where employees make judgments about the value of rewards. That is, equity is determined by where employees compare themselves to others in similar situations. For example, if employees were working long overtime hours, they would expect that their peers in similar labor grades would also be required to work the same amount of overtime. If their peers could not work the same hours, the employee would believe that it would be equitable that he or she would receive a higher rating on their EPAD.

According to the equity model, employees are motivated to escape inequitable situations and to remain on the job and perform at high levels in equitable situations (Hellriegel, Slocum, and Woodman 1998). Because perceptions of fairness often vary among employees, different employees may react differently in various situations (Hellriegel, Slocum, and Woodman 1998). For example, supervisors, in general, believe that the EPAD process should be implemented fairly across all labor grades in all organizations. Often, the reality of the situation is that the EPAD process is not

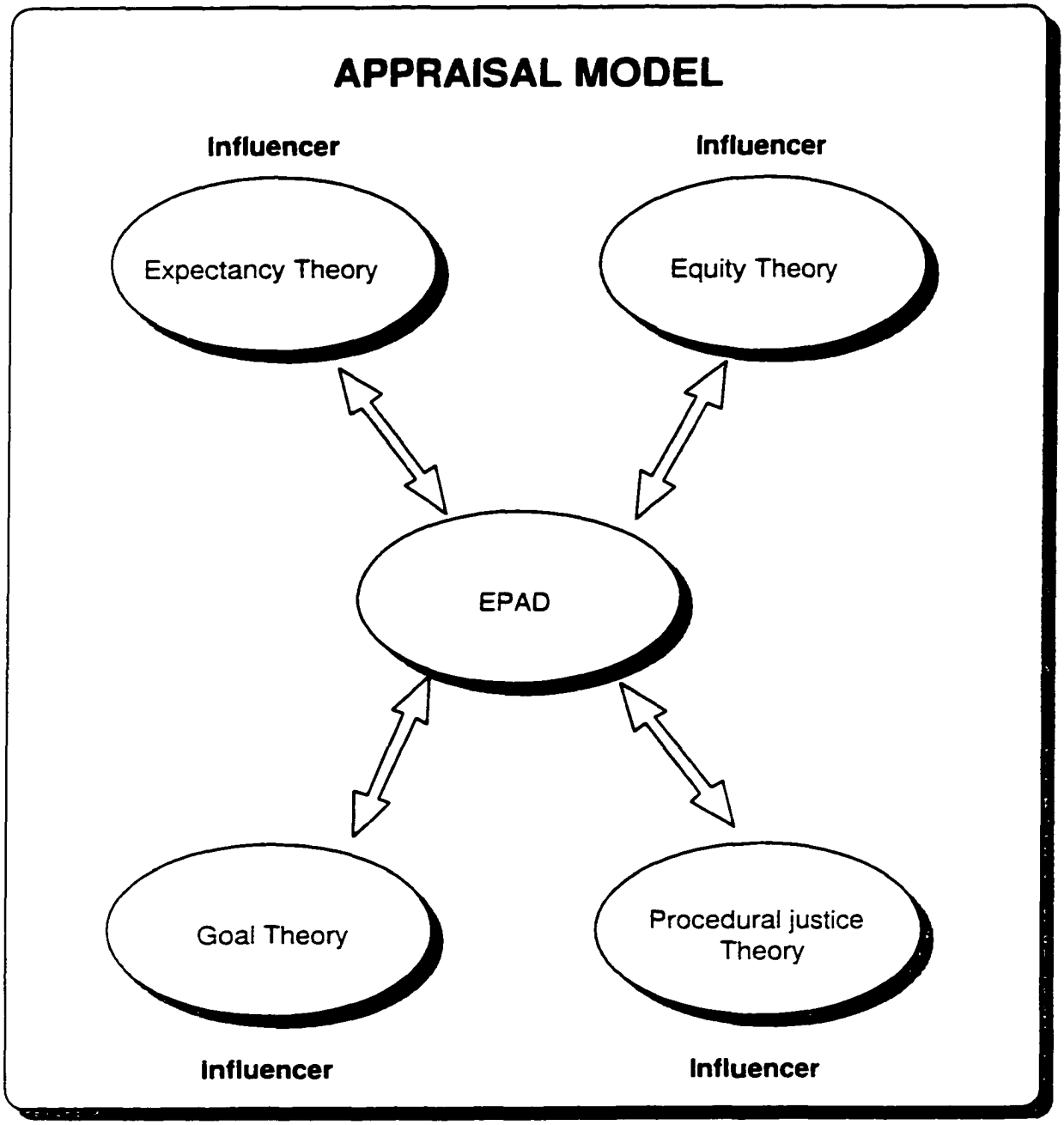


Figure 4.2 SOURCE: Szilagyi and Wallace 1990

implemented fairly. Some supervisors have an excellent relationship with their manager, and they can have their employees' performance rated higher during the EPAD process. Supervisors who do not have a good relationship with their manager may try to escape the inequitable situations by transferring or complaining to higher-ranking managers. On the

other hand, some supervisors might view the situation as equitable, and rationalize the inequality as a performance-based outcome. In addition, supervisors have to work with HR departments that often have hidden agendas. That is, the HR department might have a performance goal of having a number of women or minorities rated higher to meet some predetermined metric. Supervisors who are placed in situations often submit to the HR department request because the supervisors do not want to be perceived as not being a team player. On the other hand, some supervisor will berate the women or minority publicly in an attempt to bring the situation to equilibrium.

Goal theory is linked to the appraisal model by emphasizing that clear and challenging goals that are identified during the EPAD initiation lead to higher performance (Hellriegel, Slocum, and Woodman 1998). When a supervisor cannot identify the appropriate performance measures during EPAD initiation, the employee's performance will suffer. The EPAD training that supervisors receive at Lockheed Martin Astronautics is not enough to ensure proper identification of employees' goals because, as mentioned above, the work environment often dictates what goals and opportunities can be accomplished realistically. It is this fact that makes goal theory so instrumental in the development the appraisal model. The development of static goals in this dynamic work environment is not applicable to the equitable evaluation of employees' performance.

Hellriegel, Slocum, and Woodman (1998) point out that goal-setting is the process of developing, negotiating, and establishing targets that challenge the employee. Employees with unclear goals or no goals are prone to work slowly, perform poorly, exhibit a lack of interest, and accomplish less than employees whose goals are clear and challenging. In addition, employees with clearly defined goals appear to be more energetic

and productive (Hellriegel, Slocum, and Woodman 1998). Therefore, in the test department at Lockheed Martin Astronautics, employee goals that are static and not clearly defined in terms of the current work environment can lead to employees who exhibit poor work performance and exhibit negative attitudes toward the EPAD process.

Procedural justice theory is linked to the appraisal model by emphasizing the impact of the EPAD process in making decisions about employees' performance (Hellriegel, Slocum, and Woodman 1998). The perceived fairness of rules and procedures is referred to as procedural justice and thus is the link to employee appraisals in general. Procedural justice theory argues that employees are going to be more motivated to perform at a higher level when they perceive the EPAD procedure as a fair process which makes the decisions about the distribution of outcomes (Hellriegel, Slocum, and Woodman 1998). Employees are motivated to attain fairness in how decisions are made. Therefore, companies are tasked to develop appraisals systems that provide the employees the greatest latitude in controlling their performance outcomes. The motivation theories discussed above clearly indicate that employee performance can be adversely affected if the process used to control their performance is not fair. The following sections explain how procedural justice affects employees' perceptions of the evaluation process.

The literature has clearly shown that employees' reaction to pay raises, for example, are greatly affected by employees' perceptions about the fairness of the raises (Thibaut and Walker 1975). If, in the minds of the employees, the pay raises were administered fairly, the employees were more satisfied with their increases than if the procedures used to make these increases were judged to be unfair (Thibaut and Walker

1975). The perceived fairness of the procedure used to allocate pay raises is a better predictor of satisfaction than the absolute amount of pay received (Greenberg 1998).

During the administration of the EPAD, the employee can't directly control the decision but can react to the EPAD process in general. Even when a particular decision has a negative outcome for the employee, a fair EPAD process can help ensure that the employee feels that his or her interests are being protected (Greenberg 1998).

Employees' assessments of procedural justice have been directly related to their trust in management, intention to leave the organization, evaluation of their supervisor, employee theft, and job satisfaction (Thibaut and Walker 1975).

Thus, procedural justice theory is an interwoven aspect of the employee evaluation process. Any developed appraisal model must contain some element of procedural justice theory. The developed appraisal model in this dissertation uses procedural justice theory as its major theoretical basis for understanding future collected results.

Model Integration

The elements/theories of the appraisal model (Figure 4.2) are used in many organizations because they address certain important factors inherent in any job:

1. Employees can perform better when they know not only what is expected of them, but also how their individual efforts contribute to the overall performance of the organization.
2. Employees usually want some say in the results that are expected of them.
3. While performing, employees need to know how well they are doing.
4. Employees want rewards (e.g., money, recognition, opportunities for growth, and a sense of achievement) in line with their levels of performance.

These foundational elements have been translated into integrative operational terms (Table 4.1).

Step 1	**(Expectancy Theory and Equity Theory)**	This first step of integrating the appraisal model includes the preliminary activities that are directed toward understanding employee and supervisor's needs and issues in the organization. Each stakeholder in this process has some expected outcomes from the implementation process. The stakeholders expect the process to be equitable, and they want to participate in the development of the process.
Step 2	**(Goal Theory)**	Involved in this step are issues related to communicating goals and performance outcomes. The stakeholders' interaction is integrated at this point in the process. Each player adds his or her input to the process. Collaboratively the stakeholders fine-tune and narrow the goals and performance outcomes. In addition, this step is where the supervisors and employees receive training.
Step 3	**(Procedural Justice Theory)**	During the implementation process, the tool is continually modified to meet the demands of the organization. The stakeholders get together to review the process toward goal accomplishments. If a situation arises where the tool is not meeting demands, the stakeholders collaboratively fix the tool.
Step 4	**(Procedural Justice Theory)**	Finally, a flexible and adaptable model is integrated. As the model is used and updated, new factors are learned and evaluated.

Table 4.1 Source: Hellriegel, Slocum, and Woodman 1998

Limitations and Methodological Flaws of the Developed Model

Research on expectancy theory has indicated a number of problems. First, Lawer and Suttle (1973) note that expectancy theory has become so complex that it has exceeded the measures which exist to test it. The variables in expectancy theory have typically been measured using survey questionnaires, which are usually different from researcher to researcher and have not always been scientifically validated (Schmidt 1973). Comparisons from study to study are thus questionable (Schmidt 1973). A second problem, closely

related to the first, is the fact that the complexity of the model makes it very difficult to test fully (see Figure 3.4). Only a few studies have been reported that come close to testing all variables within the expectancy theory framework (Szilagyi and Wallace 1990). Finally, the research evidence is slim that employees mentally perform the complex multiplicative calculations required by the model before effort is exerted (Szilagyi and Wallace 1990).

Even though significant problems exist with expectancy theory, there are certain implications for its use in this dissertation. First, a manager can clarify and increase a subordinate's effort–to–performance expectancy through the use of coaching, guidance, and participation in various skills training programs. Second, rewards from evaluations must be closely and clearly related to those behaviors of employees who are important to the organization (Szilagyi and Wallace 1990). This requirement has definite implications to this study and for reward systems in organizations, especially for the need to make rewards contingent on an employee's performance. Finally, employees differ in the value (valence) they place on the rewards they can receive from their work. Managers therefore, should place some emphasis on matching the desires of the employee with the organizational reward (Szilagyi and Wallace 1990). Expectancy theory can provide the this research with a framework for explaining the direction of behavior of employees and for highlighting organizational influences that may affect their motivated behavior.

Research has also pointed out certain problems with equity theory. First, in many of the reported studies the reference person has not always been classified (Szilagyi and Wallace 1990). In current studies, rather than specifying a reference person, the employee is allowed to use an internally derived standard of comparisons (e.g., past experiences, beliefs, and opinions developed over time: Birnbaum 1983). This procedure helps alleviate

not only the problem of who the reference person is, but also the situation of multiple reference persons for multiple outcomes (Szilagyi and Wallace 1990).

Second, an over-reliance on laboratory studies to test the theory is a problem in which issues of generalizations to real-life organizations and managers become important (Szilagyi and Wallace 1990). The few field studies which exist have been quite supportive of inequity (i.e., underpayment) as a key predictor of turnover and absenteeism (Carrell and Dettrich 1976).

Third, the majority of research findings generally support the notions concerning underpayment, but supportive overpayment research has not been forthcoming (Szilagyi and Wallace 1990). In reality, this probably is not too surprising: how many employees in organizations admit to being overpaid? If a person initially perceives an overpayment situation, the easiest way to reach equity is change the reference standard or person (Szilagyi and Wallace 1990).

Finally, the theory has focused almost entirely on the outcome of pay. In sharp contrast, contemporary theories of motivation have generally shown that pay is not the only factor that motivates people (Szilagyi and Wallace 1990).

Equity theory provides this research with at least three guidelines to consider. First is the emphasis on equitable rewards for employees. When employees believe that they are not being rewarded in an equitable fashion, certain morale and productivity problems may arise (Adams 1965). Second, the decision concerning equity (or inequity) is not made solely on a personal basis, but can involve comparison with other workers, both within and outside the organization (Adams 1965). In other words, it is not important how much an employee is being paid, but also how much he or she is being paid compared to other

employees who have the same or similar jobs (Szilagyi and Wallace 1990). Finally, employees' reactions to inequity can take many forms. Motivated behavior to reduce inequity can include changes in inputs and changes in outcomes, with the level or direction depending on whether the inequity was perceived to be underpayment or overpayment (Szilagyi and Wallace 1990).

Even with its inherent limitations, equity theory has an appeal to this research endeavor. Employees get into situations in which they believe that the rewards for their efforts have not been adequate, particularly when they compared themselves to their peers. Understanding the manner in which this inequity is reduced is paramount to the development of the appraisal model.

Summary

This chapter described the employee evaluation environment in the test department at Lockheed Martin Astronautics and identified some issues with how the appraisal process is currently being implemented. In addition, this chapter presented an appraisal model with its theoretical underpinnings. The model's limitations and methodological flaws were discussed in detail. The outcome of the chapter, then, is a formulated appraisal model that provides the necessary framework for putting the collected data of this research in its proper context.

In the next chapter, the statistical methodology is described and used to validate the relationship of the collected data and the appraisal model. Using a survey, collected data is statistically validated to demonstrate that the data and equivalent relationships apply to more than one situation. In addition, the advantages and limitations of the test statistic are discussed.

CHAPTER V

VALIDATION

The purpose of this chapter is to validate the elements contained in the appraisal model that was developed in chapter IV through the use of a statistical analysis via a survey. The survey demonstrates that the component of the developed model applies to more than the collected data or the research that was used to develop it. The methodology of the survey is discussed in detail while the selection of the non-parametric statistical application to link and validate the components is also specified in this chapter. Succeeding chapters discuss how these pieces work in association with each other as the final product of this doctoral dissertation.

Survey

Using a survey can be thought of as a diagnostic activity or a fact-finding activity. In the case of this research endeavor, the use of a survey is defined strictly as a fact-finding activity, or as Fink and Kosecoff express it: "A survey is a method of collecting information directly from people about their ideas, feelings, health, plans, beliefs, and social, educational and financial background" (1998, p1). They go on to observe that "a survey can be a self-administered questionnaire that someone fills out alone or with assistance. Or a survey can be an interview that is done in person or on the telephone." The information collected in this survey comes from employees in the Test Department at Lockheed Martin Astronautics who describe their feelings concerning multi-source

performance appraisal feedback. The survey is a self-administered questionnaire that the Test Department's employees fill out alone. The employees are able to complete the survey privately and return the survey electronically via e-mail or fax the survey directly to a specified location.

Fink and Kosecoff (1998) point out three good reasons for conducting surveys:

1. A policy needs to be set or a program must be planned.
2. Someone wants to evaluate the effectiveness of the programs to change people's knowledge, attitudes, health, or welfare.
3. You are a researcher and a survey is used to assist you.

Clearly, in this case, the use of a survey will be to aid the researcher in the collection of information concerning employees in the Test Department at Lockheed Martin Astronautics feelings about their employee evaluation process.

However, surveys are by no means the only source of information for policy-makers, evaluators, or researchers, nor are they necessarily the most revenant (Fink and Kosecoff 1998). In table 5.1, Fink and Kosecoff (1998) note some other sources of information.

Survey Items
• Observations or eyewitness accounts
• Performance tests that require a person to perform a task (such as teaching a lesson to a class); observers assess the effectiveness
• Written tests of ability or knowledge
• Record reviews that rely on existing documentation, such as reviews of medical records in physicians' offices and hospitals and school attendance records.

Table 5.1 Source: Fink and Kosecoff 1998

In chapter III of this dissertation, expectancy theory, equity theory, goal theory, and procedural justice theory were introduced as the rationale to develop the appraisal model

presented in chapter IV which form the framework for the selection of questions for the study's survey. These theories, thus, will provide the reliability and validity needed to assure credible results.

The developed questions in this study's survey will be multiple-choice questions because of their efficiency and reliability. "The overwhelming majority of surveys rely on forced-choice or multiple-choice questions because they have proven themselves to be the most efficient and ultimately more reliable. Their efficiency comes from being easy to use, score, and code for analysis. Also, their reliability is enhanced because of the uniform data they provide because everyone responds in terms of the same options (agree or disagree, frequently or infrequently, etc.)" (Fink and Kosecoff 1998, p12).

Placing Questions in Order

All surveys should be preceded by an introductory section (Fink and Kosecoff 1998). Table 5.2 shows the introduction used in the developed survey for this study. In the introductory section of all surveys, the discussion should include a summary of the items that will be covered in the survey (Fink and Kosecoff 1998, p12). To bolster the reliability and validity of the survey, participants' confidentiality should be noted and strictly enforced.

Questionnaire
The purpose of this questionnaire is to learn how people view the EPAD procedures. Your opinion is valuable and appreciated. Your participation is voluntary. If you decide to participate, please DO NOT put your name on this questionnaire.

Table 5.2 Source: Fink and Kosecoff (1998)

In addition, a background section (Table 5.3) should be placed before the first question to aid participants in answering the questions honestly and accurately.

The EPAD system works with a performance assessment and development discussion that occurs at least annually for each employee between the employee and the next appropriate level of supervision. The contributors to the EPAD may include the immediate supervisor, manager, or lead, the employee, the functional supervisor, an internal customer, knowledgeable peers, or subordinates. Management has a responsibility to work with employees to develop their skills and provide assistance with their development needs. Identifying and planning activities in these areas is a part of the EPAD process. Communication on a regular basis between both the supervisor and employee is essential to effective individual performance and positive growth of the organization. Management and employees are jointly responsible for initiating and maintaining positive performance communication.

Table 5.3 Source: Fink and Kosecoff (1998)

In Table 5.4, Fink and Kosecoff (1998) provide a checklist of points to consider in selecting the order for questions in a survey.

Checklist to Guide Question Order
✔ For any topic, ask relatively objective questions before the subjective one.
✔ Move from the most familiar to the least.
✔ Follow the natural sequence of time
✔ See to it that all questions are independent.
✔ Relatively easy-to-answer questions should be asked at the end.
✔ Avoid many items that look alike.
✔ Sensitive questions should be placed well after the start of survey, but also well before its conclusion.
✔ Questions should be placed in logical order.

Table 5.4 Source: Fink and Kosecoff (1998)

The first set of questions should be related to the background section (Fink and Kosecoff 1998). Below, The survey questions are listed:

1- Strongly Agree 2- Agree 3- Neutral 4- Disagree 5- Strongly Disagree

	1	2	3	4	5
You understand the EPAD feedback process.	○	○	○	○	○
The EPAD feedback process is fair.	○	○	○	○	○
You are satisfied with the EPAD feedback process.	○	○	○	○	○
You have a choice over who evaluates you.	○	○	○	○	○

Your peers' judgments of your performance impact your evaluation.	○	○	○	○	○
Your superior's opinion is the only influence on your EPAD.	○	○	○	○	○
Peer's input is used only to help you improve your performance.	○	○	○	○	○

Fink and Kosecoff (1998) add that relatively easy-to-answer questions should be placed at the end of the survey. When surveys are long or difficult, participants may get tired and answer the last questions carelessly or not at all. A researcher can place demographic questions (age, income, gender, and other background characteristics) at the end because these questions can be answered quickly (Fink and Kosecoff 1998).

Please indicate your highest level of academic achievement.

- ○ Attended high school (did not graduate)
- ○ Graduated from high school (or GED)
- ○ Attended college or technical school
- ○ Graduated from college
- ○ Attended graduate school
- ○ Received graduate degree

Please indicate if you are a supervisor or higher.	Yes	No
	○	○

NES	ES
○	○

Please indicate your age.

18-29	33-39	40-49	50-59	60+
○	○	○	○	○

Please indicate your gender	male	female
	○	○

Please indicate how many years of experience you have on this job.

1-5	6-10	11-20	21-30	31+
○	○	○	○	○

Administration

To administer a questionnaire, much is required in preparation and monitoring to get a reasonable response rate (Fink and Kosecoff 1998). Because the questionnaire is presented directly to the participants to complete, very little assistance is available from the researcher in case a participant does not understand a question. Advance preparation, in the form of careful editing, will unquestionably help produce a clear, readable questionnaire. In Table 5.5, Fink and Kosecoff (1998) provide a checklist for administering a questionnaire.

Checklist for using Self-administered Questionnaires
✔ Send respondents a pre-letter telling them the purpose of your survey questionnaire. This should warn people that the survey is coming, explain why the respondents should answer the questions, and tell them about who is being surveyed.
✔ Prepare a short, formal letter to accompany the questionnaire forms. If you have already send a pre-letter, this one should be very concise. It should again describe the survey aims and participants.
✔ Offer to send respondents a summary of the findings so they can see just how that data are used.
✔ If you ask questions that may be construed as personal—such as gender, age, or income—explain why the questions are necessary.
✔ Keep the questionnaire procedure simple. Provide stamped, self-addressed envelopes. Keep page folding to a minimum so respondents do not feel they are involved in a complicated activity.
✔ Keep questionnaires as short as you can. Ask only questions you are sure you need and do not crowd them together. Give respondents enough room to write and be sure each question is set apart form the next.
✔ Consider incentives. This may encourage people to respond. Incentive may range from money and stamps to pens and food.
✔ Be prepared to follow up or send reminders. These should be brief and to the point. It often helps to send another copy of the questionnaire. Do not forget to budget money and time for these additional mailings.

Table 5.5 Source: Fink and Kosecoff (1998)

Flaws, Limitations, and Assumptions of Using Surveys

Some assumptions must be made when conducting a survey. First, cause and effect or why an action occurred cannot always be determined when using a survey. One way cause and effect can be determined is by doing an experiment using a control group and an experimental group with dependent and independent variables (Yin 1994, and Myers

1996). The information needed for this study concerns the backgrounds and experiences of employees in the Test Department at LMA; therefore, a survey was deemed sufficient. Second, the researcher assumes that the employees participating in the study will provide truthful answers. Third, the random return of the survey may be problematic due to the environment of the study. Some participants will receive the survey via e-mail and return it using e-mail. For these participants, contributing to the study is a very easy process. On the other hand, some participants may be missed because not all of the employees in the Test Department at LMA have access to e-mail. In fact, a larger number of salaried employees have e-mail access than non-salaried employee. For these employees who do not have access to e-mail, surveys will be mailed to them via inter departmental mail.

This study does not compare effects of salaried employees to non-salaried employees, but it compares the effects of supervisors to non-supervisor. Therefore the e-mail or the departmental affect will not affect the survey's results. By definition, a random sample is where everyone in the population that is being studied has an equal chance of being selected (Aczel 1996). Therefore, through e-mail and departmental mail, the survey will be made available to all employees within the Test Department at Lockheed Martin Astronautics.

Methodology

How the feedback loop affects technical employees is the basis for this study. Indeed, current evidence is not sufficient to answer the above proposition, as there has not been a direct comparison of employee and supervisor perception in this matter in technical organizations. Investigating this question is important, given that researchers have

identified several factors that may make multi-source appraisals inappropriate or misguided in organizations (Pearce and Porter 1986, and Bowman 1994).

Several studies indirectly support the use of multi-source appraisals in some technical organizations (Deleon and Even 1997, Funderburg and Levy 1997, Mikkelsen, Ogaard, and Lovrich 1997, Antonioni 1996, Church 1994, and Yukl and Lepsinger 1995). However, the findings of Kanouse (1998), Deming (1989), Love (1981) and Mayfield (1970) would suggest otherwise, although Deleon and Even (1997) found that individuals preferred multi-source appraisals in organizations over-all. However, the results of the above studies should be interpreted with caution as they were performed in areas outside of the technical environment; therefore, a study should be performed in a technical organization which answers the following questions:

Question 1: Is there a statistically significant difference in employees' perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Question 2: Is there a statistically significant difference in supervisors' perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Question 3: Is there a statistically significant difference between employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Inasmuch as procedural justice theory suggests that individuals derive satisfaction through the inherent fairness of social structures and procedures, and this theory has been supported empirically (Lind and Tyler 1988), preferences for these procedures will be

assessed in terms of perceived fairness. In addition, Leventhal (1980) states that representation (i.e, giving an opportunity to control the decision making process) is one means of enhancing satisfaction and fairness perceptions.

The hypothesis emanates from Leventhal's (1980) criteria for fair procedures (that accurate information be used to make the decision, and that the decision-maker not be biased) and from the three proposed research questions and the aforementioned theoretical underpinnings (Expectancy Theory, Equity Theory and Goal Theory).

H_0 = There is no difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

Research Design

In order to investigate the research questions and hypotheses, and to provide meaning for conclusions, a statistical model will be used to assist in analysis. The history of statistical testing can be traced back to the 1700s when Dr. John Arbutnott, Physician in Ordinary to Her Majesty, published an article in the *Philosophical Transactions of the Royal Society of London* (Aczel 1996). The article attempted to prove the existence of God by using a non-parametric test, the sign test (Aczel 1996). The sign test presented in Dr. Arbutnott's article is believed to be the oldest known documented statistical test (Aczel 1996).

A statistical test is a procedure for deciding whether an assertion (e.g. a hypothesis) about a quantitative feature of the population is true or false (Hines and Montgomery 1980). One tests a hypothesis of this sort by drawing a random sample from the population in question and calculating an appropriate statistic on its items. If, in doing so, one obtains

a value of the statistic that would occur rarely when the hypothesis is true, one would have reason to reject the hypothesis (Hines and Montgomery 1980).

With this procedure it is customary to reject the hypothesis when the statistic has a value that is among those that, theoretically, would be expected to occur no more than 5 out of every 100 times that a random sample (of the same size) is drawn from the population in question when the hypothesis is, in fact, true (Hines and Montgomery 1980). Much of this and the next chapter are devoted to explanations of exactly how this kind of theoretical expectation is developed for this dissertation.

Finally, it is noteworthy that the appropriate conduct of any statistical test invariably requires many thoughtful decisions. It is, for example, always necessary to decide what statistic to use, what sample size to employ and what criteria to establish for rejection of the hypothesis tested (Hines and Montgomery 1980, and Aczel 1996).

The Case Study

The goal or task of the statistical analysis in this dissertation is to determine if there is a statistical difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction. The data will be collected by the use of a survey.

Selection of the Parametric or Non-parametric Measurement

In the early phase of this research effort several statistical applications were reviewed and analyzed. Considerable time and effort went into understanding both parametric and non-parametric methods and their significance to this research. As the development of this dissertation became focused so did the type of statistical application that would be required. If a parametric method would be selected, an assumption must be

made that the population used in the study is at least approximately normally distributed (Aczel 1996). If a non-parametric method would be selected at least one of the following criteria must be met:

1. The method must deal with enumerated (nominal level of measurement) data.
2. The method does not make assumptions about the underlying distribution of the data.
3. The method does not deal with specific population parameters (Aczel 1996).

When the researcher has a choice, he or she should select parametric statistics because they have greater statistical power than the corresponding non-parametric tests (Aczel 1996). That is, parametric statistics are more likely to correctly reject H_0 than non-parametric statistics (Aczel 1996).

There were two major criteria used in determining which test statistics to select. First, the selected test statistics was to be a simple test that could be understood and easily applied by individuals outside the educational environment. Second, the type of data was going to be compared to determine whether the information was qualitative or quantitative in nature. While developing the survey for this dissertation, it became clear that the data that was going to be collected and analyzed would not necessarily be distributed as a parametric statistic would require. As a result, it became readily apparent that a non-parametric statistic needed to be the method of choice.

During preliminary research on this subject, several non-parametric tests were identified but not necessarily applicable to the desired outcome of this research study. After comparing the various kinds of non-parametric methods one was found to be the most applicable. The Chi-Squared Test was found to be more in line with what was being considered here in this study.

The Chi-Squared Test

Karl Pearson first proposed the chi-square statistic in 1900 (Hogg and Tanis 1983). The data used in these tests are enumerative: the data are counts, or frequencies. The actual observations of the data may be on a nominal scale of measurement (Aczel 1996). There are many real world situations in business and other areas that allow for the collection of count data, (for example, the number of people who fall into different categories of age, sex, income, and job classification); therefore, the chi-square statistic is very common and useful (Aczel 1996). This test is a very adaptable test statistic, easy to carry out and versatile, and can be employed in a wide variety of situations (Hogg and Tanis 1983).

Aczel (1996) identifies two types of tests possible under the chi-square statistic:

1. Goodness of fit – it determines how well an observed set of frequencies fits or matches a theoretical set of frequencies.
2. Tests for independence – it determines if two criteria are related, basically dependent or independent.

There is a common principle in all chi-square tests (Aczel 1996). This principle is summarized in the following steps:

1. The hypothesis is about a population by stating the null and alternative hypothesis.
2. One completes the frequencies of occurrence of certain events that one expects under the null hypothesis.
3. Observed counts of data points fall in different cells.
4. The difference between the observed and the expected is computed.

5. The value of the statistic is compared with critical points of the chi-square distribution and a decision is made.

In this study, a statistical test will be developed to determine whether or not two classification criteria, such as employees and supervisors, are independent of each other. Thus, the test for independence will be the selected test for this dissertation. The chi-square test for independence employs the use of contingency tables: tables with cells corresponding to cross-classifications of attributes or events C. The basis for the study's analysis will be the property of independent events.

Second Classification Category	First Classification Category						
	1	2	3	4	5	6	Total
1	O11	O12	O13	O14	O15	O16	R1
2	O21	O22	O23	O24	O25	O26	R2
3	O31	O32	O33	O34	O35	O36	R3
4	O41	O42	O43	O44	O45	O46	R4
5	O51	O43	O53	O54	O55	O56	R5
Total	C1	C2	C3	C4	C5	C6	N

Figure 5.1 Source: Aczel 1996

As Aczel (1996) points out, the contingency table can have several rows and several columns. The rows correspond to the levels of one classification category, and the

columns correspond to another. In the above table, the number of rows are denoted by r, and the number of columns are denoted by c. The total sample size is n. The count of the elements in cell (i,j), that is the cell in row i and column j (where i = 1,2,3, …. r and j = 1,2,3. …, c) is denoted by Oij. The total count for row i is Ri, and the total count for column j is Cj. The general form of a contingency table is shown in Figure 5.1. The table is demonstrated for r = 5 and c = 6. Note that n is also the sum of all r row totals and the sum of all c column totals.

Hypothesis test for independence:

H_0: The two classification variables are independent of each other

H_1: The two classification variables are not independent of each other

Figure 5.2 Source: Aczel 1996

Chi-square test statistic for independence:

$X^2 = \Sigma\Sigma\ (Oij - Eij)^2/Eij$ for i = 1 to r and j = 1 to c. The double summation means summation over all rows and all columns.

Figure 5.3 Source: Aczel 1996

The degrees of freedom of the chi-square statistic are

df = (r-1)(c-1)

Figure 5.4 Source: Aczel 1996

The next step in this process is to find the expected cell counts. Eij. Here is where the assumption is used that the two classification variables are independent. It is important to note that the philosophy of hypothesis testing is to assume that H_0 is true and to use this assumption in determining the distribution of the test statistic (Aczel 1996).

The expected count in cell (I,j);

Eij = RiCj/n

Figure 5.5 Source: Aczel 1996

The above equation allows for computing the expected cell counts (Aczel 1996). These, along with the observed cell counts, are used in computing the value of the chi-square statistic, which will assist one in making a decision about the null hypothesis of independence (Aczel 1996).

Limitations and Methodological Flaws

The external validity of this research is questionable given that only one organization participated in this study, and this organization was not selected randomly. The opportunity to randomly select organizations would have doubtless enhanced the external validity of the study. However, inasmuch as researchers cannot force any organization or individual to participate in a research study, random selection of research sites is often not feasible. Also, finding organizations which uses multi-source appraisals proved to be difficult. The reason for this difficulty is unknown, although one possibility is that HR departments in organizations may not have current knowledge about this type of performance management tool because of its relative newness to HR professionals and the HR industry in general.

Indeed, this lack of knowledge about multi-source appraisals has been a critical factor in deciding to proceed with this study and previous research (i.e., Barclay and Harland 1995), despite a limited pool of organizations from which to draw. Perhaps research and dissemination of findings will stimulate greater use of such systems by

offering practical ideas for enhancing acceptance and by questioning some of the commonly held negative beliefs regarding multi-source appraisals. As the prevalence of these systems increases, opportunities for further research will hopefully increase.

In considering the applicability of these findings to other technical organizations, it is important to be mindful of the fact that the subjects in this study have experienced at least one multi-source appraisal. Additionally, they are members of a technical organization which has adopted multi-source appraisals for all of their employees, and this organization has implemented this performance management tool for at least four years. Such experience was critical for the validity of this study; however, other technical organizations cannot assume that their employees would feel similarly if they have never experienced such appraisals.

Another set of problems is related to the organization's limitations with regard to participation. Specifically, allowing some of the employees to participate in pre-testing would have been helpful and may have prevented the possible ineffectiveness of some survey results. Finally, it cannot be ascertained, beyond the assurances of the human resource directors, that subjects did not confer, that most of those eligible participated, and that instrument distribution was such that subject assignment to conditions approximated randomness.

In summary, this chapter presents the critical pieces that make up the statistical model to be used in this research endeavor. The major components that are profiled in this chapter provide support for the research that follows in this dissertation. The survey results demonstrate that the component of the developed model applies to more than the collected

data or the research that was used to develop it. In addition, the selection of the non-parametric statistical application link and validate the components specified in this chapter.

In the next chapter, the results from the survey are presented and discussed. These results form the theoretical basis and identify the information that must be used in order to move the decision process to its conclusion.

CHAPTER VI

RESULTS

Introduction

The purpose of this chapter is to discuss the results obtained through research and survey administration and to put these results into their proper context. All the details from previous chapters are fully and complete described. The similarities and differences with previous results are highlighted and linked to the research literature and the collected data.

The results of research and the application of the appraisal model provides a great deal of information. This information must be considered in the context of the entire process. To isolate any one element of information would generally skew the capability of the test statistic and the developed model as the decision process moves to its conclusion. However, the non-parametric statistical measurement is the key component of this chapter because this component can be considered as the evaluation phase of the overall process. In this case, it will be used as an assessment measure.

The importance of the non-parametric statistical measurement is that it identifies whether or not the hypotheses will be accepted or rejected. On the other hand, the appraisal model is strictly used to explain result outcomes. The combination of these two strategies enhances the information contained in this chapter which, in turn, leads to a clearer understanding of conclusions and the recommendations that follow.

Research Site Selection

The research site was selected on the basis of two criteria. First, the test department at Lockheed Martin Astronautics, composed of over 490 employees, provided an ample sample size necessary to perform the analyses. Second, to ensure that subjects would possess the experience necessary to evaluate multi-source appraisal procedures, the test department at LMA was chosen because it has been using multi-source appraisals for at least four years. This criterion made the selection of other research sites difficult, as the use of multi-source appraisals is not widespread in technical organizations.

Subjects

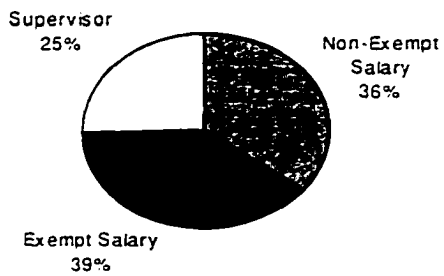
The total number of subjects in this study was 59. The test department uses multi-source appraisals across the organization for performance management functions such as to set up a set of objectives with subordinates, measure their performance, offer regular feedback, find out where problems lie, coach subordinates when they need help, and offer rewards. The 59 participants from the test department are from a technical organization and have at least experienced one multi-source appraisal. The total number eligible to participate in this organization is 490; the response rate was 12%. The subjects' years of experience in this organization ranged from one to 30 years, with average of 11-20 years. See Table 6.1 for a summary of response rates and Graphs 6.1- 6.5 for a summary of the demographic characteristics of the sample.

Summary of Response Rates of the test department			
	Eligible	Participated	Response Rate
Employees	490	59	12%

Table 6.1

Graph 6.1 depicts the percentages of employees in each salary level that participated in the study. The test department at LMA has a ratio of one supervisor for every 15 employees. The reason why so many supervisors participated as compared to

Graph 6.1: Participants



non-supervisors is unknown. However, supervisors have a greater opportunity to participate in this study because they use their e-mail more often than non-supervisors, and they are more involved with the employee evaluation process in general. Hence, supervisors may believe that they have more at stake in this process than do their subordinates. On the other hand, non-supervisors may not be motivated to participate in a study that will not affect or improve their EPAD process. To conduct the survey, a disclaimer had to be written that explicitly stated that the results of this study would have no influence on the EPAD process at LMA, but would be used solely for academic purposes. In addition, participants were instructed to complete the survey on their own time, i.e., not during their normal work hours. The management in the test department, while very interested in the results of this research endeavor, could not provide a written endorsement because of their perceived reasons.

Hence, soliciting participation in a survey can be very problematic in today's corporate environment because technical employees are very concerned with issues ranging from confidentiality to ethics. A researcher can only assure that all participation will be kept in strict confidence, and he or she can provide avenues to facilitate this process. In the end, it is strictly up to the participant to provide his or her input to the research endeavor.

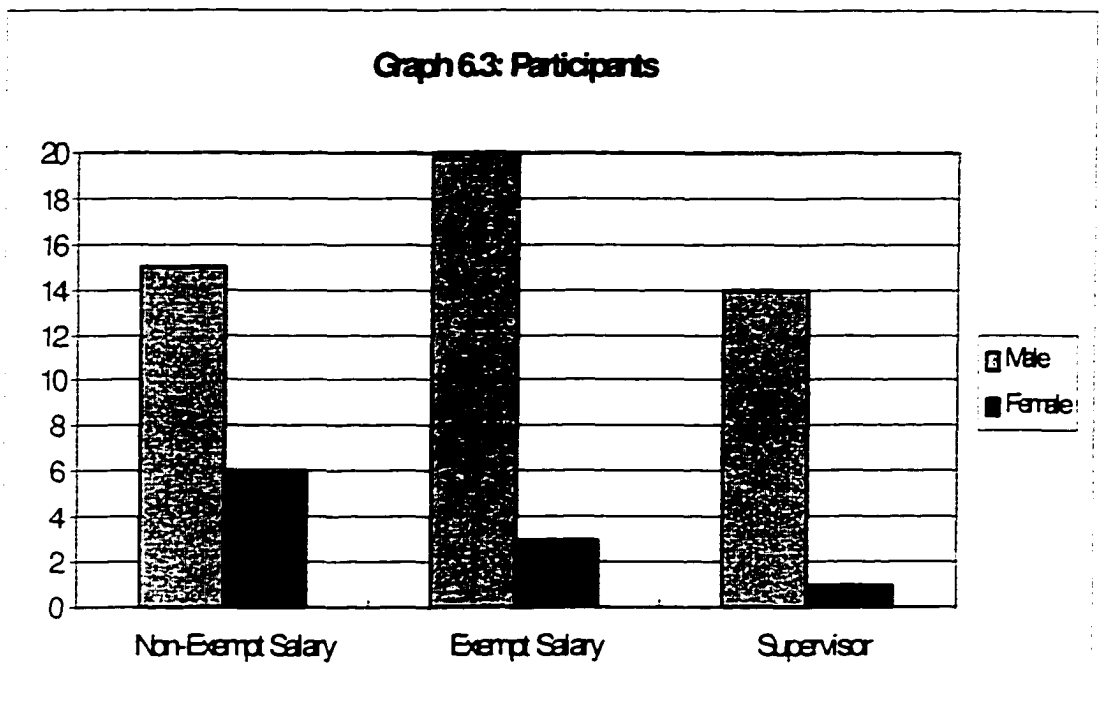
Graph 6.2: Participants

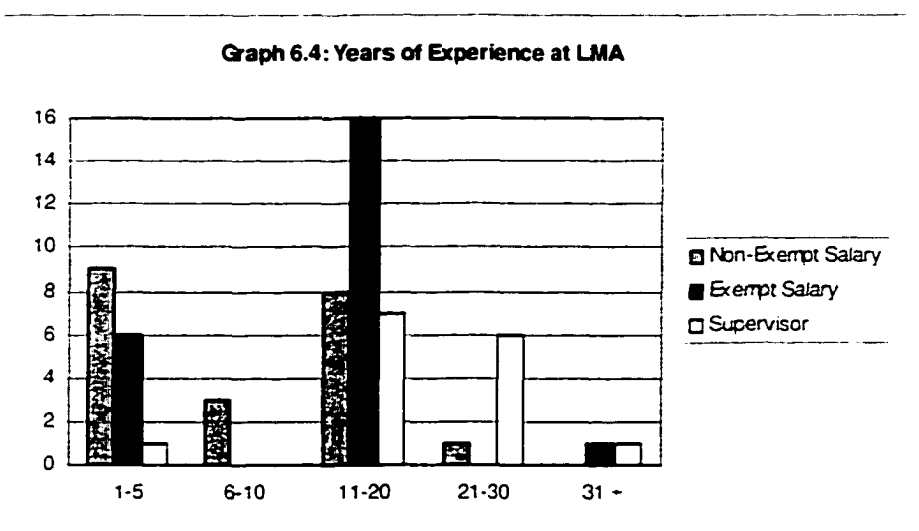
Graph 2 points out that the average age of employees who participated in this study is between 30-49. This result is expected given a technical organization in the aerospace industry.

Graph 6.3 shows that men predominate the salary levels in the test department at Lockheed Martin Astronautics. Most aerospace companies and technical organizations in general employ a disproportion amount of men as compared to women. The above graph

clearly shows that Lockheed Martin Astronautics is in line with other technical entities as to the percentage of employed men to women.

Graph 6.4 is directly linked to Graph 6.2 in that employees' age corresponds to their years of experience. The average years of experience of employees in the test department at Lockheed Martin Astronautics is between 11-20.

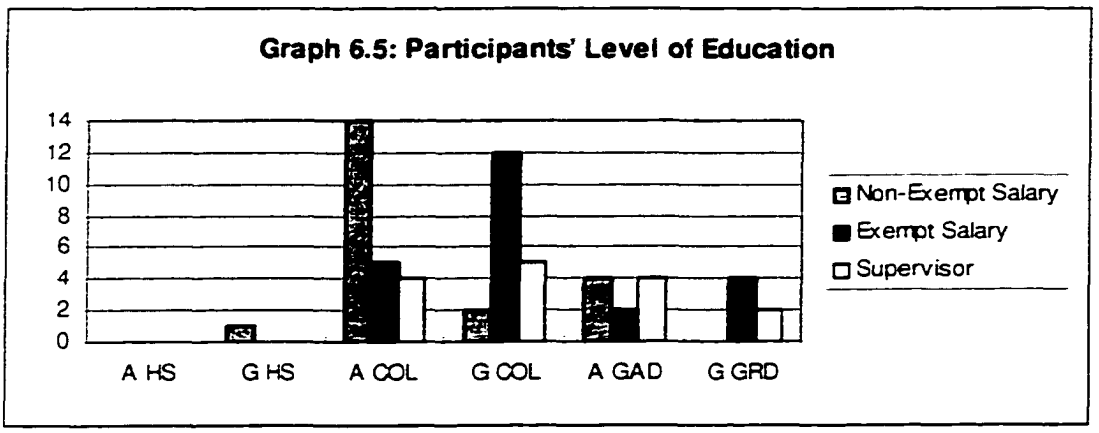




Graph 5 depicts a technical organization with highly trained employees. Most employees in the test department at LMA have experienced some formal technical training before they were hired.

Survey Results

The data from the survey were analyzed by testing to determine whether or not two classification criteria, employees and supervisors, are independent of each other via



the chi-square test for independence. This study utilized responses categorized into five categories: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. A contingency table was used with cells corresponding to cross-classifications of attributes (employees and supervisors) (Table 6.2). The contingency table for this research effort will be an 2 X 3. The reason that a 2 X 5 contingency table was not utilized is that the researcher wanted to increase the expected frequencies by combining adjacent categories. As Aczel (1996) points out, combining adjacent groups may be used as a strategy to increase expected frequencies when increasing sample size may not be possible. In this research effort, soliciting more participation to increase sample size was not allowed.

The discussion below (Tables 6.2 - 6.4) details the chi-square calculation of the test statistic. However, the actual calculations were accomplished using a Microsoft Excel

spreadsheet. In the below table, the number of rows are denoted by R (2 rows), and the number of columns are denoted by C (5 columns). The total sample size is N. The count of the elements in cell (i,j), that is the cell in row i and column j (where i = 1,2, and j = 1,2,3,4,5) is denoted by O_{ij}. The total count for row i is R_i, and the total count for column j is C_j. The table is demonstrated for r = 2 and c = 5. Note that n is also the sum of all r row totals and the sum of all c column totals.

	Question Template					
	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	Total
Employees	O_{11}	O_{12}	O_{13}	O_{14}	O_{15}	R_1
Supervisors	O_{21}	O_{22}	O_{23}	O_{24}	O_{25}	R_2
Totals	C_1	C_2	C_3	C_4	C_5	N

Table 6.2 Source: Aczel 1996

Expected Value (EV) was calculated as follows:
$EV_{11} = R_1 * C_1/N$, $EV_{12} = R_1 * C_2/N$, $EV_{13} = R_1 * C_3/N$, $EV_{14} = R_1 * C_4/N$, $EV_{15} = R_1 * C_5/N$, $EV_{21} = R_2 * C_1/N$, $EV_{22} = R_2 * C_2/N$, $EV_{23} = R_2 * C_3/N$, $EV_{24} = R_2 * C_4/N$, $EV_{25} = R_2 * C_5/N$

Table 6.3 Source: Aczel 1996

Chi-square test statistic for independence: $X^2 = \Sigma\Sigma (Oij - Eij)^2/Eij$ for i = 1 to r and j = 1 to c. The double summation means summation over all rows and all columns.
$X^2 = (O_{11} - EV_{11})^2/ EV_{11} + (O_{12} - EV_{12})^2/ EV_{12} + (O_{13} - EV_{13})^2/ EV_{13} + (O_{14} - EV_{14})^2/ EV_{14} + (O_{15} - EV_{15})^2/ EV_{15} + (O_{21} - EV_{21})^2/ EV_{21} + (O_{22} - EV_{22})^2/ EV_{22} + (O_{23} - EV_{23})^2/ EV_{23} + (O_{24} - EV_{24})^2/ EV_{24} + (O_{25} - EV_{25})^2/ EV_{25}$ Degrees of Freedom: (R-1)(C-1) = (2-1)(5-1) = 4 degrees of freedom

Table 6.4 Source: Aczel 1996

Question 1: You understand the EPAD feedback process.

This question answers if there is a statistical difference in employee and supervisors' perception in the test department at Lockheed Martin Astronautics that employee and supervisors understand the EPAD feedback process. For an evaluation process to be implemented correctly, every employee in the organization must clearly understand the process. If the outcome of the data supports the belief that employees do not fully understand the appraisal process, the test department's management may need to institute additional EPAD training for its supervisors. The appraisal model suggests under equity theory that the first step in integrating a successful appraisal process includes the preliminary activities that are directed toward having the employees and supervisors understand the process in general. The employees and supervisors in this process have some expected outcomes from the evaluation procedure. The employees and supervisors expect the process to be equitable, and they want to participate in the development of the process (Hellriegel, Slocum, and Woodman 1998).

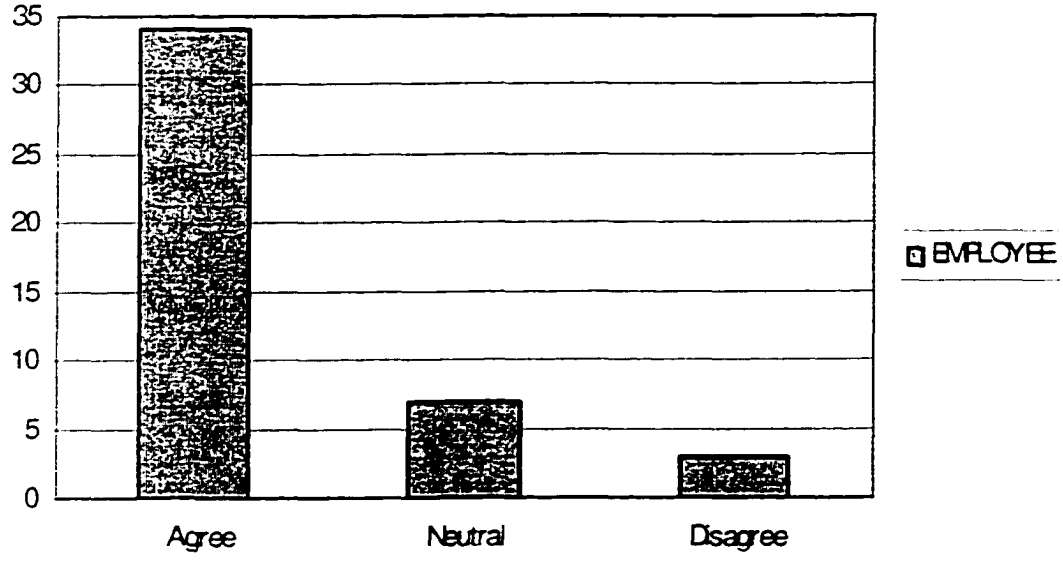
QUESTION 1: You understand the EPAD feedback process.

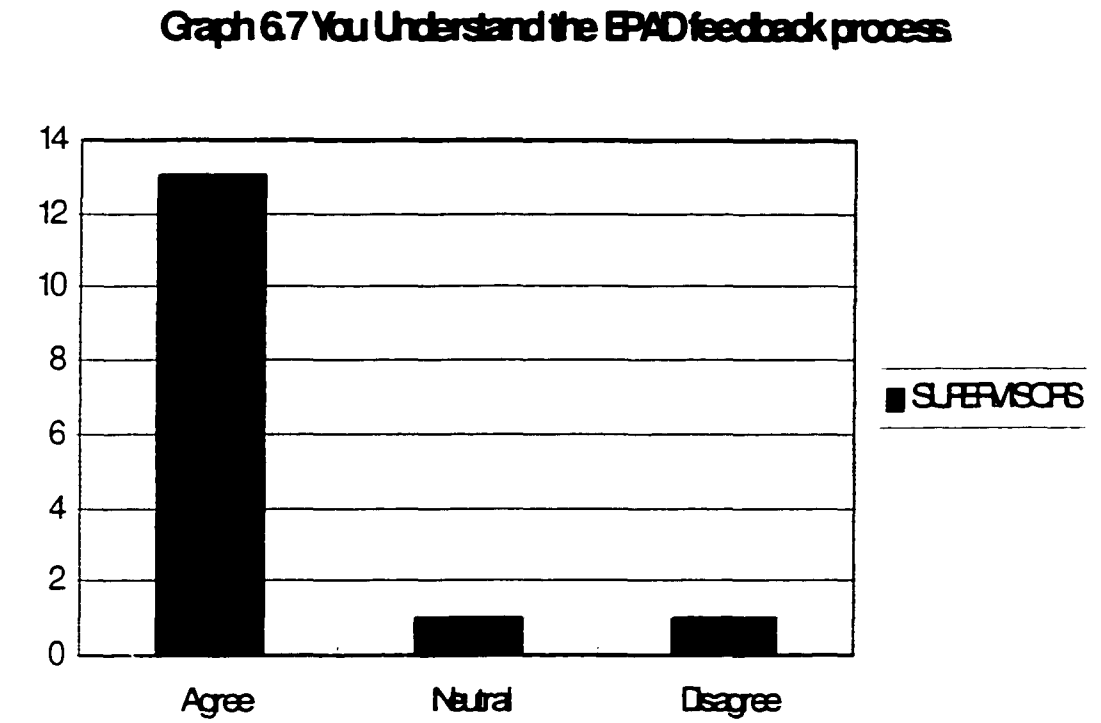
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**34**	**7**	**3**	**44**
SUPERVISORS	**13**	**1**	**1**	**15**
Totals	**47**	**8**	**4**	**59**
Expected Values =	35.05084746	5.96610169	2.983051	
	11.94915254	2.03389831	1.016949	
p-value =	0.660659406			
Chi-square Value =	0.829033648			
Critical point =	5.99147			

Table 6.5

The data (Table 6.5) indicates that there is no statistically significant difference between employees and supervisors' perception in the test department at Lockheed Martin as to how employee and supervisors understand the EPAD feedback process. Since the above data shows that there is a calculated expected value less than two, caution should be implemented in interpreting the results from this question. In fact, further research should be conducted by LMA concerning the outcome from this question. However, Wayne's (1978) research indicates the Chi-square test can be used when expected values are less than two. Nevertheless, the data (Graphs 6.6 and 6.7) points out that a clear majority of the employees in the test department understand the appraisal process. As result, management should feel confident that their employee evaluation procedure is correctly understood by their subordinates and supervisors.

Graph 6.6: You understand the EPAD feedback process.





Question 2: The EPAD feedback process is fair.

The answer to this question determines whether there is a statistical difference in employee and supervisors' perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback process is fair. If supervisors and employees view the process differently, the test department's management might need to conduct a further investigation of their appraisal process to understand why employees and supervisors view this process differently. In addition, if employees and supervisors view the process as unfair, management in collaboration with the human resource management will need to address this situation. The developed appraisal model points out through procedural justice theory that employee performance can be adversely affected if the process used to evaluated employee performance is not fair.

The data (Table 6.6) clearly indicates that there is no statistically significant difference between employees and supervisors' perception in the test department at Lockheed Martin as to how employees and supervisors view the EPAD feedback process as being fair. However, the majority of employees who participated in the survey do not believe that the evaluation process is fair (Graphs 6.8 and 6.9). The appraisal model through procedural justice theory clearly indicates that when employees' perceptions about the appraisal process is negative, perceptions can impact a considerable number of attitudes and behaviors which can lead to lower outcomes in the future (Thibaut and Walker 1975).

QUESTION 2: The EPAD feedback process is fair.

	Agree	Neutral	Disagree	Totals
EMPLOYEE	**7**	**10**	**27**	**44**
SUPERVISORS	**3**	**5**	**7**	**15**
Totals	**10**	**15**	**34**	**59**

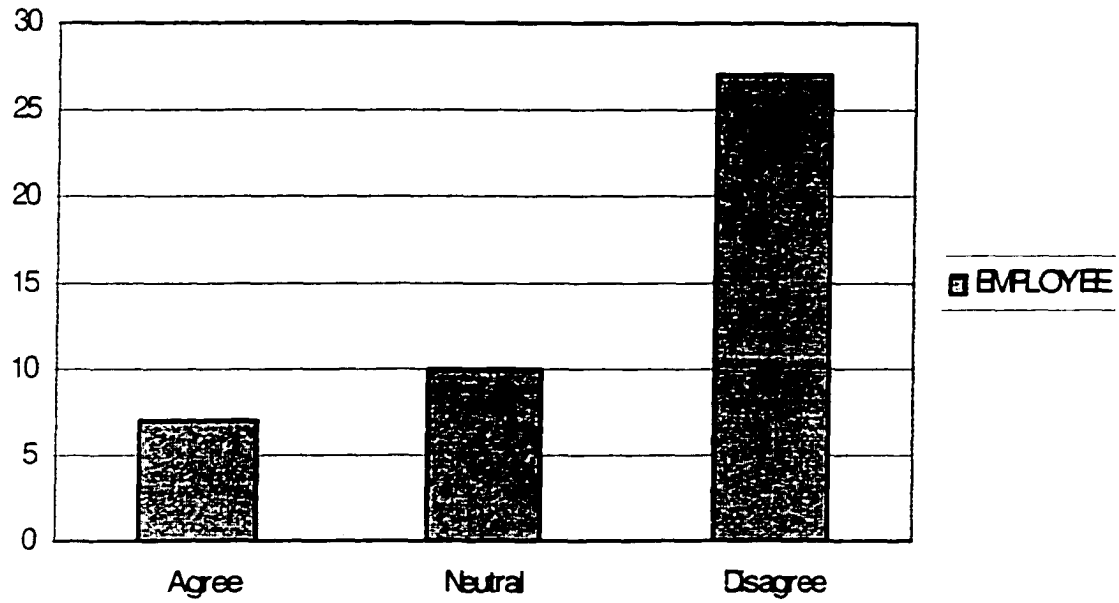
Expected Values =	7.457627119	11.18644	25.35593
	2.542372881	3.813559	8.644068

p-value =	0.599086093
Chi-square Value =	1.024699764
Critical point =	5.99147

Table 6.6

Employees desire fair procedural characteristics because they have the potential to lead to high outcomes (Thibaut and Walker 1975). Therefore, the test department's management should put forth an effort to understand why its employees believe the their performance evaluation process is unfair.

Graph 6.8: The EPAD feedback process is fair

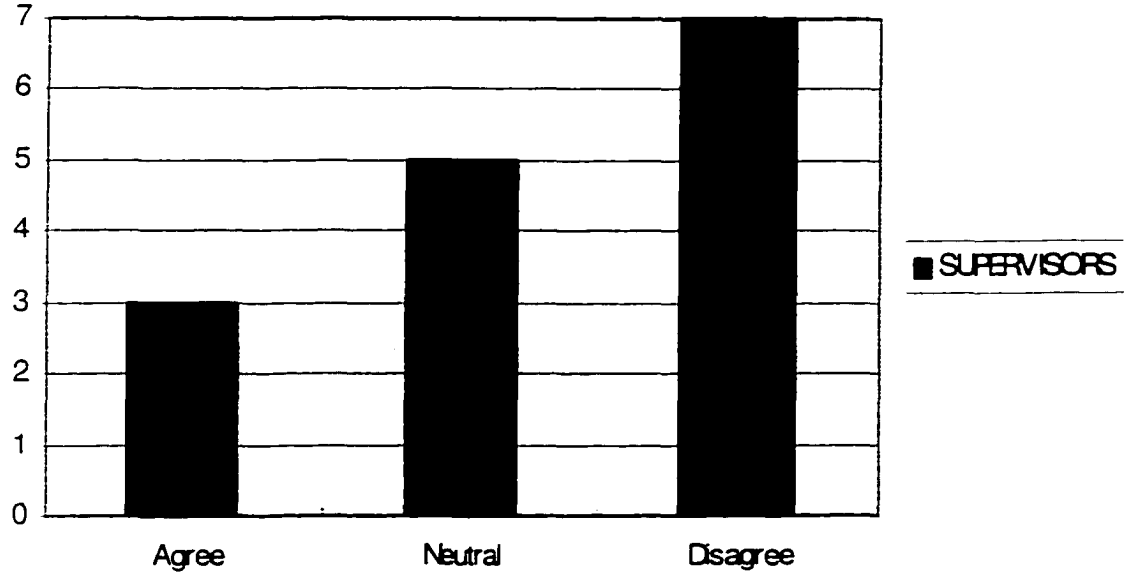


Question 3: You are satisfied with the EPAD feedback process.

This question answers whether there is a statistical difference in employee and supervisors' perception of satisfaction with the EPAD feedback process in the test department at Lockheed Martin Astronautics. Question 3 is very important in providing the statistical evidence for this research effort. It is this question that will answer the third proposed research question:

Question 3: Is there a statistically significant difference between employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee performance appraisal feedback affects employee satisfaction?

Graph 6.9: The EPAD feedback process is fair.



The data (Table 6.7) clearly indicates that there is no statistically significant difference between employees and supervisors' perception of satisfaction with the EPAD process in the test department at Lockheed Martin Astronautics. Yet, most employees and supervisors are not satisfied with the EPAD feedback process (Graphs 6.10 and 6.11). Indeed, these findings support the analysis that was offer in Chapter IV of this research concerning supervisors' opportunity to correctly implement the EPAD process as designed. As mentioned in Chapter IV, supervisors in the dynamic business of aerospace are often under pressure to meet competitive schedules. As a result, they often do not have the time to provide the proper guidance to subordinates in implementing the EPAD process. The appraisal model through expectancy theory emphasizes that supervisors who properly implement the EPAD process will achieve perceived probabilties leading to highly probable and valued rewards, which, in turn, leads to job satisfaction and motivation of

their subordinates if the rewards are deemed fair (Hellriegel, Slocum, and Woodman 1995, and Boone and Kurt 1987). On the other hand, the appraisal models clearly state that employees' performance can be adversely affected if the appraisal process is not perceived as being satisfying to the employees who are affected by the process.

QUESTION 3: You are satisfied with the EPAD feedback process.

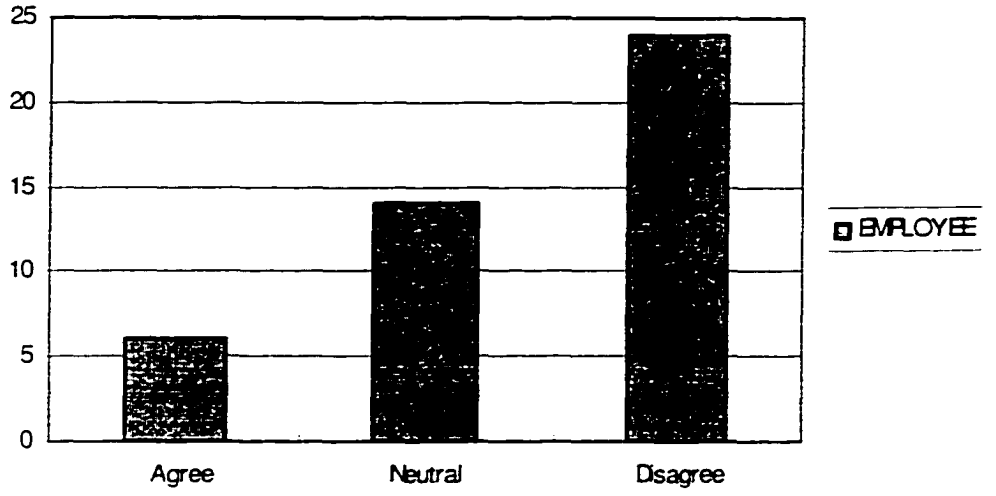
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**6**	**14**	**24**	**44**
SUPERVISORS	**2**	**2**	**11**	**15**
Totals	**8**	**16**	**35**	**59**
Expected Values =	5.966101695	11.9322	26.10169	
	2.033898305	4.067797	8.898305	

p-value = 0.35418798
Chi-square Value = 2.075854613
Critical point = 5.99147

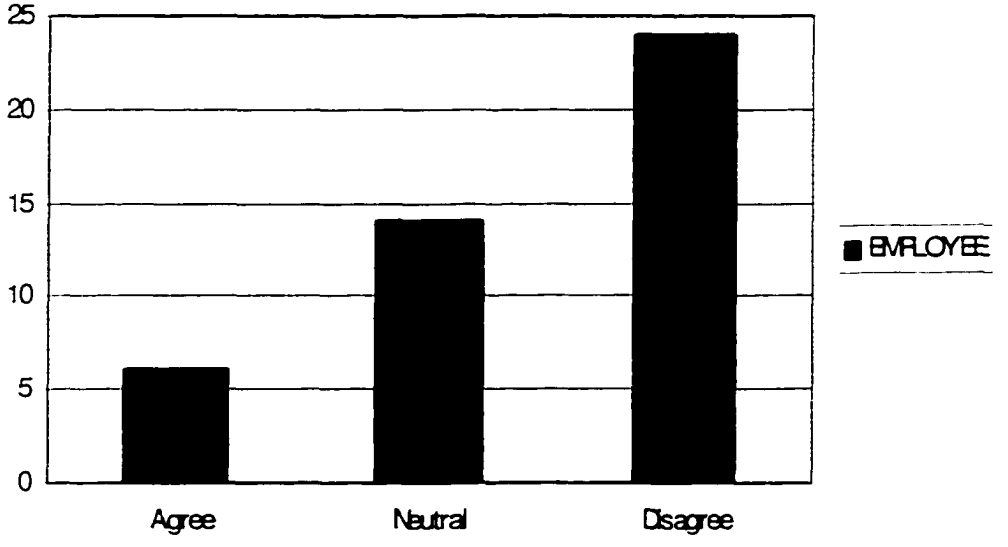
Table 6.7

In addition, the appraisal model through goal theory emphasizes that employees need clear and challenging goals to lead to higher performance. Hence, when supervisors and employees are not satisfied with the appraisal process, management should be motivated to alter the process in an effort to reduce the potential for adverse outcomes.

Graph 6.10: You are satisfied with the EPAD feedback process.



Graph 6.11: You are satisfied with the EPAD feedback process



Question 4: You have a choice over who evaluates you.

This question measures the degree to which the subjects understand the EPAD process by answering the question of whether there exists a statistical difference in employee and supervisor's perception over who is allowed to input on the EPAD. Supervisors are formally trained on how to implement the EPAD process. On the other hand, non-supervisors learn about the EPAD process through their supervisors. Hence, this inquiry will address the question of the effectiveness of supervisors' training. At the very basic level, every employee in the test department should understand that they have the procedural right to participate in the process of selecting the employees/stakeholders who input on their evaluations.

QUESTION 4: You have a choice over who evaluates you.

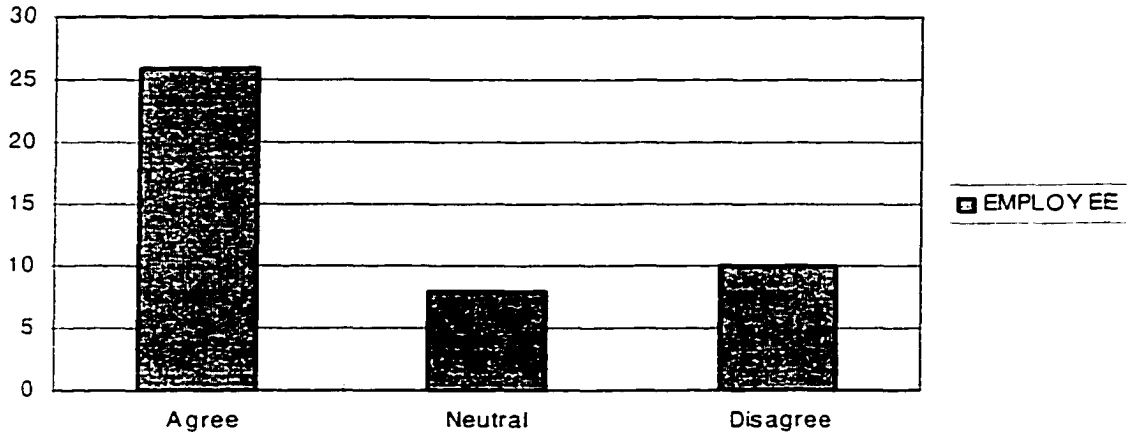
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**26**	**8**	**10**	**44**
SUPERVISORS	**9**	**2**	**4**	**15**
Totals	**35**	**10**	**14**	**59**
Expected Values =	26.10169492	7.457627	10.44068	
	8.898305085	2.542373	3.559322	

p-value = 0.891424027
Chi-square Value = 0.229869639
Critical point = 5.99147

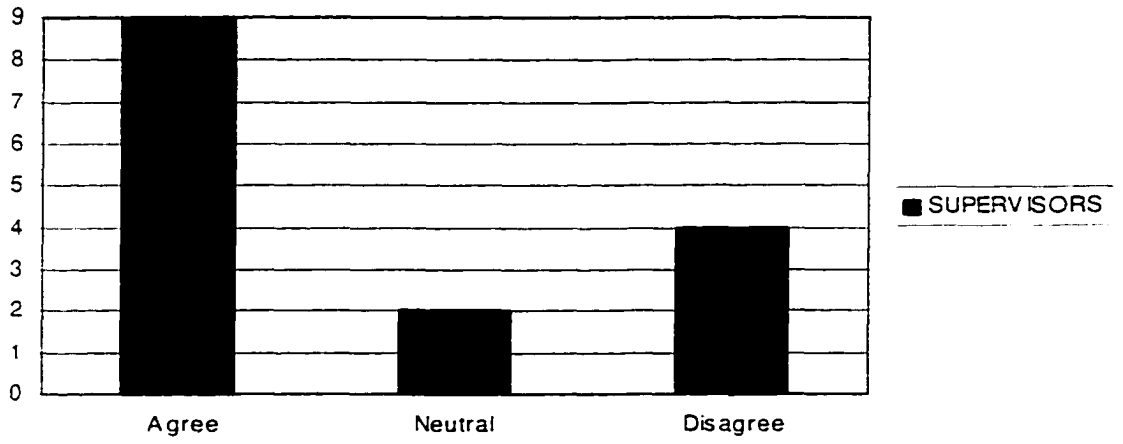
Table 6.8

The data (Table 6.8) clearly indicates that there is no statistically significant difference between employees and supervisors' perception over having a choice over who is included in the evaluation process. In addition, the data indicates that the majority of employees understand the basis concerning the correct procedural operation of the EPAD process (Graphs 6.12 and 6.13).

Graph 6.12: You have a choice over who evaluates you.



Graph 6.13: You have a choice over who evaluates you.



At this point, the data has indicated that the majority of the test department's employees have a thorough understanding of the EPAD process. However, they are not very satisfied with the system. Goal theory as it is implemented into the appraisal model states that clear and objective goals lead to employees being satisfied with the appraisal process. The data here points to the notation that goals are not being defined for the employees or the process is not being implemented ethically which supports the views stated in Chapter IV.

Question 5: Your peers' judgment of your performance impacts your evaluation.

This question along with Question 4 measures the degree to which the subjects understand the EPAD process by answering the question of whether there exists a statistical difference in employee and supervisors' perception on peers' judgment of their performance. Again, employees in the test department should understand that their peers' judgment impacts their performance evaluation.

The data (Table 6.9) clearly indicates that there is no statistically significant difference between employees and supervisors' perception over having peers' judgment included in the evaluation process. In addition, the data indicates that the majority of employees understand the basis concerning the correct procedural operation of the EPAD process. However, the data shows that some employees believe that their peers' judgment of their performance does not get included into the evaluation process (Graphs 6.14 and 6.15).

QUESTION 5: Your peers' judgments of your performance impact your evaluation.

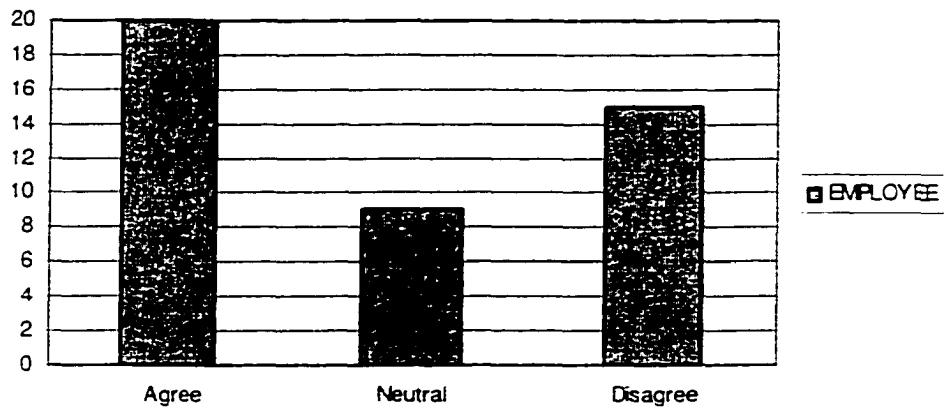
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**20**	**9**	**15**	**44**
SUPERVISORS	**5**	**2**	**8**	**15**
Totals	**25**	**11**	**23**	**59**

Expected Values = 18.6440678 8.20339 17.15254
6.355932203 2.79661 5.847458

p-value = 0.415890777
Chi-square Value = 1.754666428
Critical point = 5.99147

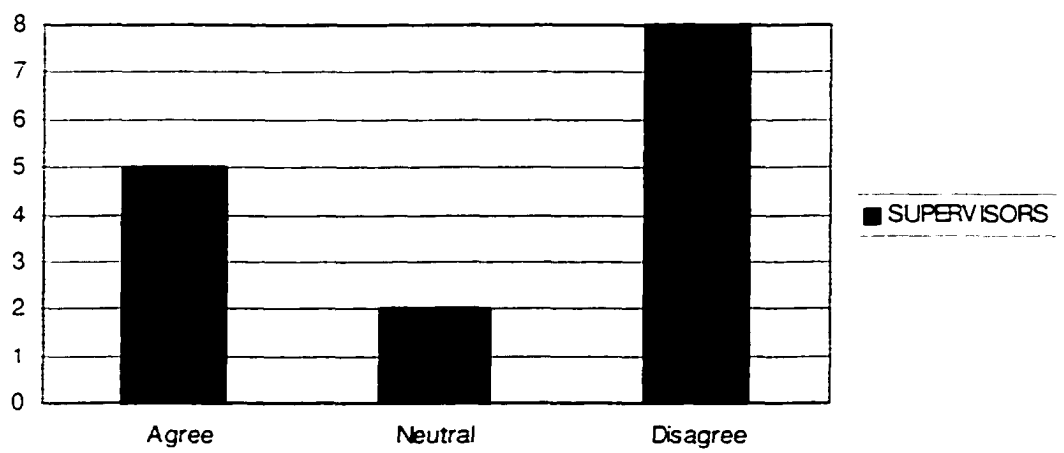
Table 6.9

Graph 6.14: Your peers' judgments of your performance impact you evaluation.



This data may indicate employee mistrust of management. Equity theory as it is linked to the appraisal model emphasizes that employees are motivated to escape inequitable

Graph 6.15: Your peers' judgments of your performance impact your evaluation.



situations and seek equitable situations by modifying their behavior. As a probable outcome of the EPAD process, employees may be indicating to management that a problem may exist with their EPAD process by losing trust in management.

Question 6: Your superior's opinion is the only influence on your EPAD.

This question also measures the degree to which the subjects understand the EPAD process by answering the question if there is a statistical difference in employee and supervisors' perception of a superior's opinion being the only influence on the employees' EPAD.

The data (Table 6.10) indicates that there is no statistically significant difference between employees and supervisors' perception of superior's opinion being the only influence on the their EPAD. The data indicates that some employees and supervisors perceive having more stakeholders inputting on their evaluations than just their superiors (Graphs 6.16 and 6.17). However, some supervisors believe that their superior's opinion is used too heavily in the evaluation process (Graph 6.17). An explanation of this outcome could be that supervisors have fewer stakeholders who can directly input on their performance than their employees.

QUESTION 6: Your superior's opinion is the only influence on your EPAD.

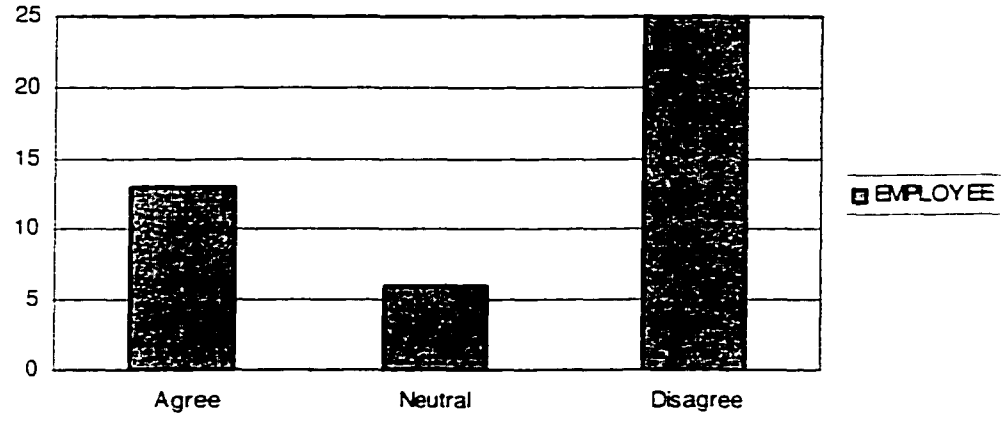
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**13**	**6**	**25**	**44**
SUPERVISORS	**7**	**2**	**6**	**15**
Totals	**20**	**8**	**31**	**59**

Expected Values =	14.91525424	5.966102	23.11864
	5.084745763	2.033898	7.881356

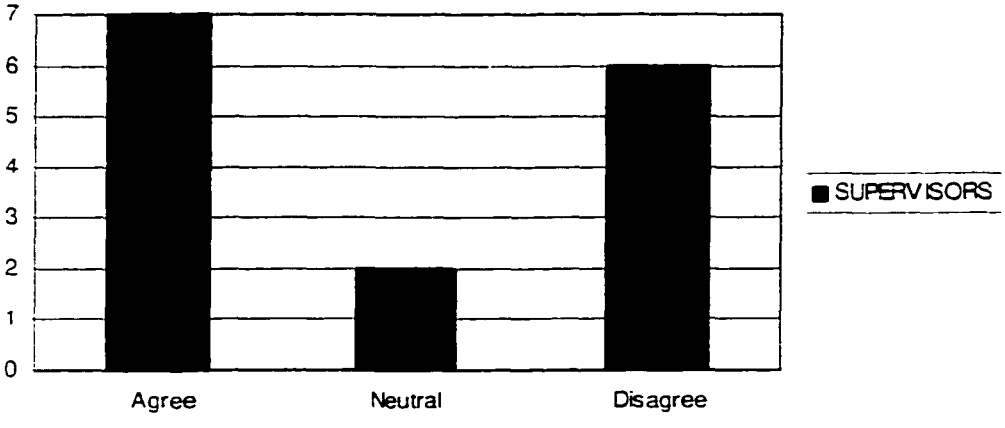
p-value = 0.456050053
Chi-square Value = 1.570304324
Critical point = 5.99147

Table 6.10

Graph 6.16: Your superior's opinion is the only influence on your EPAD.



Graph 6.17: Your superior's opinion is the only influence on your EPAD.



Question 7: Peers' input is used only to help you improve your performance.

This question measures the degree to which the subjects perceive that their stakeholders' ratings would be used for developmental purposes by answering the questions if there is a statistical difference in employee and supervisors' perception on this subject. The EPAD process includes a component for assisting supervisors in developing their subordinates through feedback from the many stakeholders who provide constructive

input. Employees should understand this very important component of their evaluation process.

The data (6.11) indicates that there is no statistically significant difference between employees and supervisors' perception of having stakeholders input on their performance evaluations. Again, since the above data shows that there is a calculated expected value less than two, caution must should be implemented in interpreting the results from this question even though Wayne's (1978) research indicates the Chi-square test can be used when expected values are less than two. Hence, further research should be conducted concerning the outcome from this question. However, the data supports the notion that some employees do not believe that stakeholders' input is being correctly communicated back to them (Graphs 6.18 and 6.19). This result is unclear because most employees understand the EPAD process (Graphs 6.6 and 6.7), and this process embodies providing feedback to employees. But, the data collected by Question 6 showed that some supervisors questioned how the EPAD process was being used at their level.

QUESTION 7: Peer's input is used only to help you improve your performance.

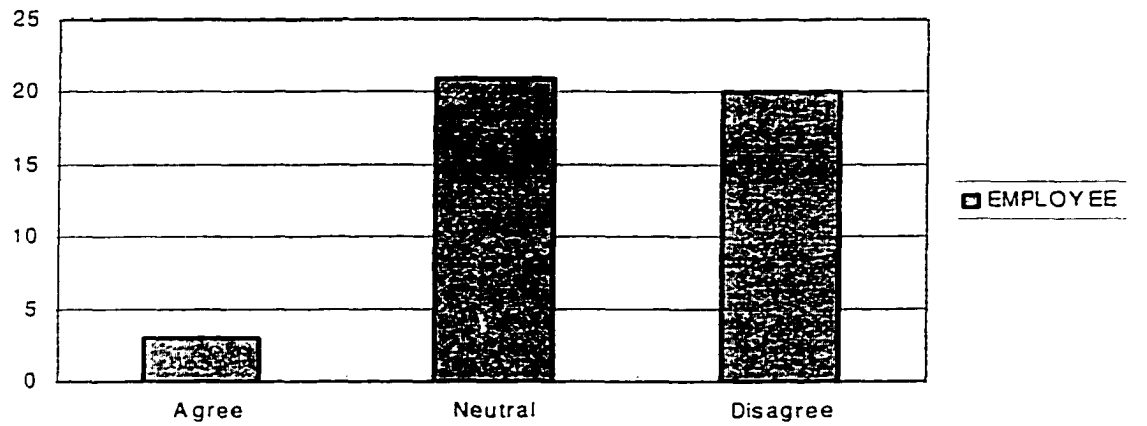
	Agree	Neutral	Disagree	Totals
EMPLOYEE	**3**	**21**	**20**	**44**
SUPERVISORS	**3**	**4**	**8**	**15**
Totals	**6**	**25**	**28**	**59**
Expected Values =	4.474576271	18.64407	20.88136	
	1.525423729	6.355932	7.118644	

p-value = 0.199024601
Chi-square Value = 3.228655269
Critical point = 5.99147

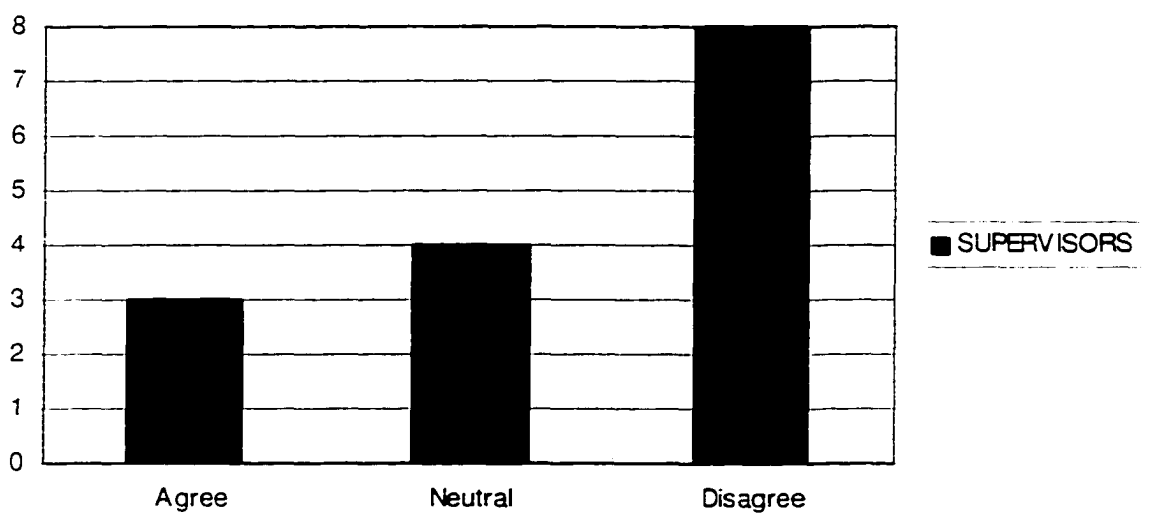
Table 6.11

This data may suggest that the employees in the test department do not concur with the practice of fitting their performance to a predetermined curve that was discussed in Chapter IV.

Graph 6.18: Peer's Input for Performance



Graph 6.19: Peer's Input for Performance



Summary

This chapter presents and discusses the results of the collected data using the components of the appraisal model. Based on the collected data, there exists no statistical evidence that employees and supervisors in the test department perceive the EPAD feedback process differently. As a result of the above findings, the null hypotheses was accepted:

> H_0 = There is no difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

Hence, the alternative hypothesis was not accepted:

> H_1 = There is a difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

However, employees and supervisors may have the same perception of the feedback process, but having the same perception does not mean that the employees in the test department are satisfied with their appraisal process. In fact, some of the data would support the notion that the employee evaluation process in the test department is in need of repair.

The results of this research effort can be considered concluded in that all the critical pieces of the research literature and quantitative pieces of data collected have been measured and analyzed to provide answers to the research questions posed above and support the null hypothesis (and reject the alternative hypothesis) stated above. The appraisal model developed here served as an aid in understanding collected results. The chi-square non-parametric test statistic was used to quantitatively validate all results.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this chapter is to summarize and discuss recommendations encompassing the collected research and data of this dissertation. The chapter starts with a summary of this research endeavor followed by an identification of the hypothesis being tested. Next, a discussion of the analysis and synthesis portions of the study will be completed followed by highlighting the statistical validation method employed. From this validation methodology, the specific results that were obtained in Chapter VI are used to develop recommendations based on the findings presented. To that end, a discussion of possible future logical extensions of this endeavor completes the chapter.

Summary of this Study

The purpose of this research endeavor is to understand if Lockheed Martin Astronautics' employee evaluation system provides appropriate feedback to subordinates in order to increase their work performance in the test department. Performance excellence begins with recruiting and hiring qualified employees. Determining correct job responsibilities and classification is the first step, followed by a well-planned and organized evaluation process. The evaluation process continues as a collaborative and interactive one between employees, bosses, colleagues, team members, internal and external customers, and suppliers, during which specific expectations are delimited and evaluated. It is management's responsibility to ensure that employees understand the

organization's mission and goals with respect to protecting the public's health and the environment, as well as to instill confidence and demonstrate high expectations of employees. A successful evaluation system is augmented by creativity, trust, and good morale: it motivates employees to improve their own performance, promotes self-motivation and strengthens relationships through open communication between all stakeholders within the company.

While employees' evaluation processes have been studied extensively by management theorists and practicing managers, multi-source evaluation processes in technical organizations have not been scrutinized in the same way. Frequently, appraisal process studies are conducted by management theorists on non-technical entities to determine whether the process will provide the business entities with expected results. The non-technical organizational studies can be linked to technical organizations because employees generally desire the same outcomes.

In formulating this research study, the goal was to go beyond what is currently available to technical companies regarding employee evaluation processes. The developed appraisal model in this study is based on expectancy theory, equity theory, goal theory, and procedural justice theory. These well-established theories allowed the model to be developed on sound theoretical bases.

A desired subsequent outcome of this research endeavor is the use of the appraisal model by various technical organizations as they develop their own multi-source appraisal systems. The goal of this research was to formulate a appraisal model that enables a researcher to assess performance appraisal outcomes.

Tested Hypothesis

The null hypothesis being tested is:

> H_0 = There is no difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

And conversely, the alternate hypothesis is:

> H_1 = There is a difference in employee and supervisor's perception in the test department at Lockheed Martin Astronautics that employee multi-source performance appraisal feedback affects employee satisfaction.

The results of this research endeavor supports the null hypothesis and therefore rejects the alternate hypothesis.

Analysis Summary

An extensive literature search on the topic of motivation, motivation theories, motivation theories in organizations, performance appraisals, management by objectives, peer performance appraisals, advantages and disadvantages of performance appraisals, multi-source performance appraisals in organizations, advantages and disadvantages of multi-source performance appraisals, and procedural justice were completed to extract and apply the relevant information in the formulation of the appraisal model. Many refereed sources were analyzed and reviewed. Works by scholars such as Frederick Herzberg, Victor Vroom, W. E. Deming, Peter Drucker, and so many other noted and authoritative management theorists were cited in this research endeavor (Table 7.1).

Starting with Hellriegel, Slocum, and Woodman (1995), discussion of motivation as it represents the dynamics acting within an employee that causes the employee to behave in a specific, goal-directed manner. Following this identification of motivation, a discussion of the most noted motivation theorists was completed highlighting their

contributions to the discipline of employee motivation. From these motivation theorists came the theoretical underpinnings and the direction of this research. This foundation set the stage for the extensive investigation of the past and present employee appraisal processes. In this light, procedural justice theory became the next logical extension and the culmination of the background research. Having the theoretical underpinnings well established, the critical components necessary in developing the appraisal model were then extracted from the collected information.

SUMMARY THEORY MATRIX	
Theory	**Theorists**
Motivation Theory	Abraham Maslow, David C. McClelland, Frederick Herzberg, and B. F. Skinner
Locus of Control Theory	Julian B. Rotter
Field Theory	Kurt Lewin and Louis E.
The Group Value Theory	E.A. Lind and T.R. Tyler
Expectancy Theory	Victor Vroom
Equity Theory	J. Stacy Adams
Goal Theory	Edwin Locke
Procedural Justice Theory	J. Thibaut and L. Walker

Table 7.1

Synthesis Review

The formulated appraisal model linked theory to the various critical pieces of information collected from the literature search. **Expectancy theory** holds that a person's perception of achieving a prized reward or goal via effective job performance will motivate the individual (Vroom 1964). **Equity theory** suggests that the human tendency is to balance work efforts or inputs with the rewards received (Adams 1965). Specifically, employees create a ratio of their own inputs to rewards received and then evaluate that ratio against a referent's ratio. The referent can be another employee, or self-standard. If an employee perceives his or her efforts to be different than the

referent's, he or she will resolve the inequity by altering inputs or outputs, by cognitively distorting inputs of outputs, by leaving the field, by taking action to change the input or output of the referent, or by changing referents. **Goal theory** recommends that effective employee motivation is dependent on clearly defining the paths of goal achievement and the degree to which management is able to improve subordinates' attainment of their goals (Locke and Latham 1990). **Procedural justice theory** requires the capacity of procedures to be congruent with norms regarding fair processes and or the degree to which processes lead to outcomes that conform to normative standards of justice (Thibaut and Walker 1975). Once the four theories were developed and related to the research (Table 7.2), an appraisal model was developed to aid in understanding collected information and data.

APPRAISAL MODEL SUMMARY	
Influencers	**Outcome**
Expectancy Theory	Employees evaluate rewards before they perform their Jobs.
Equity Theory	Employees make judgments about the value of rewards.
Goal Theory	Employees need clear goals to perform at higher levels.
Procedural Justice Theory	Employees are motivated to perform at higher levels when they perceive procedures as fair.

Table 7.2

Validation Review

The non-parametric instrument used to validate collected results was the chi-square tests for independence. Many statistical methods were reviewed in an effort to find the most applicable method of statistically measuring the survey output. The results of this effort lead to the selection the chi-square test. While non-parametric tests tend to

be less powerful than parametric tests, the desired application was achieved and the type of information that resulted was appropriate in meeting the objectives of this study.

The survey data compared supervisors' perceptions of the EPAD feedback process to the employees' perceptions of the EPAD feedback process. The chi-square test for independence was well-suited to accomplish this goal. The outputted data represents the results of the statistical measurement. This information is assessed against the various precepts of the test statistic.

Interpretation of Results

The results of this research study indicate that supervisors and employees' perceptions of the EPAD feedback process is the same. The results of supervisors and employees inputs are significant but collectively can be considered more important to Lockheed Martin Astronautics as it evaluates its EPAD process. Statistically the findings show that employees and supervisors view the EPAD process similarly. However, the data also supports the notation that EPAD process has some problems, and these problems are noticed by the employees and their supervision. The quantitative results of this study will allow Lockheed Martin Astronautics to look at particular outcomes more than it has been able to previously. Each question from the survey has an important role in Lockheed Martin Astronautics' ability to evaluate its EPAD process. Using the collected data to understand how effectively the EPAD process is being implemented will be aid for Lockheed Martin Astronautics and other technical organization who use multi-source appraisal processes in the future. The table that follows list some recommendations that the test department at Lockheed Martin Astronautics might used in a effort to improve their employee evaluation process.

Questions	Recommendations
You understand the EPAD feedback process.	Based on the collected data, the majority of the employees in test department understand the EPAD process.
The EPAD feedback process is fair.	The test department might need to conduct further investigation into their appraisal process to understand why employees and supervisors view the EPAD process as unfair. The test department's management in collaboration with human resources management need to address this outcome.
You are satisfied with the EPAD feedback process.	Many employees and supervisors are not satisfied with the EPAD feedback process. Hence, the test department's management should be motivated to change or alter the process in an effort to reduce the potential for adverse outcomes.
You have a choice over who evaluates you.	The data indicated that the majority of the employees in test department understand the EPAD process.
Your peers' judgments of your performance impact your evaluation.	Again, the majority of the employees in test department completely understand the EPAD process.
Your superior's opinion is the only influence on your EPAD.	Based on the collected data, the majority of the employees in test department understand the EPAD process. However, the data also indicates that some supervisors may believe that their superior's opinion impacts their evaluation to heavily.
Peers' input is used only to help you improve your performance.	In light of the fact that many employees may believe that their stakeholders input is not being correctly communicated back to them during the appraisal process, the test department may need to retrain their supervisors on how to correctly implement the EPAD process.

Table 7.3

Future Extension of Research

Studies similar to this one should be performed in technical organizations that use multi-source appraisal systems, as structural organizational characteristics may impact appraisal satisfaction. For example, multi-source appraisal systems may be less acceptable in more traditional technical organization in which management is more authoritarian than participative. Knowledge as to which organizational characteristics would be useful to organizations as they consider implementation of such systems in the

future. In addition to organizational characteristics, two factors which merit further investigation are the type of multi-source appraisal procedure (i.e. peer performance appraisals, 360° feedback systems) and the amount of employee experience with multi-source appraisal procedure. These procedures can vary on the method of data collection and how the final outcome is determined. Moreover, although the results of this research suggest that employees and supervisors may understand the appraisal process the same, it is important to note that the participants had experienced multi-source appraisals. It would be useful to know if they would view the appraisals process the same if they had more or less experience than the subjects in the test department at Lockheed Martin Astronautics.

Based on the collected results several recommendations can be provided to the test department at Lockheed Martin Astronautics. First, the test department must provide their employees with an equitable evaluation process. They can not afford to have their employees perceive their EPAD process as being unfair because of the negative potential consequences. Second, the test department must provide their supervisors with sufficient time to properly implement the EPAD system, and supervisors must take the time to sit down with their subordinates to assure correct implementation. All employees should understand the EPAD process thoroughly. Third, the test department's management must justify the practice of fitting employee performance to a predetermine curve by citing some refereed source that any employee can substantiate. If the systems is not credible, the employees will continue to be unsatisfied. Lastly, the test department's management must believe in the system. That is, when supervisors rate their employees' performance to meet the predetermine curve, management can not use its power/influence

to change the process down stream to meet their personal outcomes. The total organization is responsible for conducting equitable evaluation process not just the supervisors.

Finally, the possible lack of effectiveness of multi-source appraisal systems feedback should be a subject of further inquiry for both practical and theoretical reasons. Studying direct, as opposed to indirect experiences, would be a means of determining if the lack of feedback satisfaction with an appraisal process was due to the method of inquiry. If feedback is ineffective in technical organizations, it should be determined if this ineffectiveness varies with organizational characteristics, and/or the type of appraisal apparatus.

Conclusion

The ultimate purpose of this study was to provide Lockheed Martin Astronautics with an instrument to compare and statistically measure their EPAD feedback process between supervisors and employees. Because the EPAD process has been in effect for only four years, the test department's management at Lockheed Martin Astronautics is very interested in their employees' perception of this process. Lockheed Martin Astronautics understands that their greatest resource is their people. This understanding adds credence to their belief in mission success which they embrace through their people.

In the competitive market of aerospace, companies are tasked with providing a work environment that ensures that their talented employees are satisfied with how they are treated and evaluated. Aerospace companies spend a great deal of money training employees to meet the demands of this competitive marketplace. Hence, these companies want to realize a return on their investment. When trained employees leave because the

appraisal process inhibits their professional growth, proactive companies will address their performance management system. The test department at Lockheed Martin Astronautics has attempted to be proactive by granting this research. Lockheed Martin Astronautics hopes to be able to modify the evaluation process to meet the needs of their employees through the data obtained in the research endeavor.

From the beginning of this dissertation to the end, a great amount of information has been collected and conveyed. Chapter I outlines the research endeavor and the means by which this study could be achieved. The background, the purpose, the significance, the limitations, the hypothesis, the methodology are each highlighted.

Chapter II provides a search of the literature for a detailed analysis of competing ideas, concepts and theories as they relate to employee appraisal systems. As a part of this discussion, this chapter describes the level of knowledge pertaining to employee appraisal systems, and addresses as well the issues of employee motivation, performance appraisals and procedural justice, noting the relevance of each of these topics by reviewing and relating them to the appraisal process. Each area links and developes the theoretical underpinning of the appraisal model that is developed in Chapter IV.

Chapter III identifies the individual components that directly relate to the general information presented in the literature search. Building upon the literature search, then, the chapter introduces pertinent individual components and describes how these components tie to and apply to this research endeavor. The specific concepts that are succinctly developed in Chapter III are the development of a Motivation Model; the development of an Appraisal Model (Vroom's Expectancy Theory, Adams' Equity Theory, and Goal Theory, and Procedural Justice Theory).

The aim of Chapter IV is to introduce the performance management environment that exists in the test department at Lockheed Martin Astronautics and to formulate an appraisal model that combines the relevant and critical elements identified in the previous analysis chapter. The theoretical underpinnings of this developed model consists of motivation theory, process theory (expectancy theory, equity theory, and goal theory), and procedural justice theory. The discussion concerning these components consists of a detained explanation about how these components are interrelated and linked. The discussion also points out the limitations and methodological flaws of the developed model. The end result of this chapter is a formulated model that provides the necessary framework for putting collected results of this research in their proper context.

The purpose of Chapter V is to validate the elements contained in the appraisal model that is developed in Chapter IV through the use of a statistical analysis via a survey. The survey demonstrates that the component of the developed model applies to more than the collected data or the research that was used to develop it. The methodology of the survey is discussed in detail while the selection of the non-parametric statistical application to link and validate the components is also specified in this chapter.

The purpose of Chapter VI is to discuss the results obtained through research and survey administration and to put these results into their proper context. All the details from previous chapters are fully and complete described. The similarities and differences with previous results are highlighted and linked to the research literature and the collected data.

And finally, in Chapter VII, the conclusion and recommendations are presented. In addition, and overview of the study is presented. While the end product of this study is

useful for the test department at Lockheed Martin Astronautics, only through additional research projects in technical organizations will the merits of the developed appraisal model be evident. The development of the appraisal model to understand employees appraisal outcomes is a very complex endeavor. Every technical organization is not structured like Lockheed Martin Astronautics. Despite this limitation of the appraisal model, it is hoped that the work accomplished in this study will be useful for management theorists and practicing managers in general.

APPENDIX A

COVER LETTER

Colorado Technical University-Denver
5775 DTC Boulevard, Suite 100
Greenwood Village, Colorado 80111

September 14, 1998

Dear Colleague:

RE: An Invitation to Participate in Research

I am performing an independent survey associated with my dissertation toward my doctoral program. This study is on how the EPAD is perceived by those people affected by it. You are invited to participate as a volunteer by filling out the attached questionnaire. You were selected to participate because you have experienced the EPAD process first-hand, and, therefore, your opinion is valuable to my research. The following information is provided to help you make an informed decision about your participation. If you have questions, please do not hesitate to ask.

Participation will require about ten minutes of your time. Please complete the questionnaire on your own time away from your normal work hours. After you have completed this questionnaire, you can fax it to 303-680-9291 or e-mail it to jeriod.d.patterson@lmco.com.

Your response will be handled with absolute confidentiality since the response itself will be anonymous. Further, the results of this study will have no influence on the EPAD process at Lockheed Martin Astronautics, but will be used solely for my academic purposes at Colorado Technical University.

Again, your participation in this study is totally voluntary. Hence, I hope that you will choose to participate in the research. If you do, and then decide you would rather not, you are free to withdraw at any time without adversely affecting your relationship with either the researcher or your organization.

Please contact either myself at 303-680-9291 or Robert Stein, Ph.D., at 303-694-6600 with your questions.

Thank you! I look forward to hearing from you.

Jeriod Patterson, M.A.

APPENDIX B

SAMPLE INSTRUMENT

EPAD Study

The purpose of this questionnaire is to learn how people view the EPAD procedures. Your opinion is valuable and appreciated. Your participation is voluntary. If you decide to participate, please DO NOT put your name on this questionnaire.

The EPAD system works with a performance assessment and development discussion that occurs at least annually for each employee between the employee and the next appropriate level of supervision. The contributors to the EPAD may include the immediate supervisor, manager, or lead, the employee, the functional supervisor, an internal customer, knowledgeable peers, or subordinates.

Management has a responsibility to work with employees to develop their skills and provide assistance with their development needs. Identifying and planning activities in these areas is a part of the EPAD process. Communication on a regular basis between both the supervisor and employee is essential to effective individual performance and positive growth of the organization. Management and employees are jointly responsible for initiating and maintaining positive performance communication.

INSTRUCTIONS: The above paragraph describes a summary of the EPAD process. Please read it carefully and then answer the questions below. You may wish to refer back to the paragraph as you consider each question.

1- Strongly Agree 2- Agree 3- Neutral 4- Disagree 5- Strongly Disagree

	1	2	3	4	5
You understand the EPAD feedback process.	○	○	○	○	○
The EPAD feedback process is fair.	○	○	○	○	○
You are satisfied with the EPAD feedback process.	○	○	○	○	○
You have a choice over who evaluates you.	○	○	○	○	○
Your peers' judgments of your performance impact your evaluation.	○	○	○	○	○
Your superior's opinion is the only influence on your EPAD.	○	○	○	○	○
Peer's input is used only to help you improve your performance.	○	○	○	○	○

Please indicate your highest level of academic achievement.

- ○ Attended high school (did not graduate)
- ○ Graduated from high school (or GED)
- ○ Attended college or technical school
- ○ Graduated from college
- ○ Attended graduate school
- ○ Received graduate degree

Please indicate if you have received EPAD training for supervisors.	Yes	No
	○	○

NES	ES
○	○

Please indicate your age.

18-29	30-39	40-49	50-59	60+
○	○	○	○	○

Please indicate your gender	male	female
	○	○

Please indicate how many years of experience you have with Lockheed Martin Astronautics-Denver.

1-5	6-10	11-20	21-30	31+
○	○	○	○	○

Thank you for participating in this study.

Jeriod Patterson (303) 680-9291
Colorado Technical University
5775 Denver Tech Center Boulevard
Greenwood Village, Colorado 80111

Please fax questionnaire to 303-680-9291.

APPENDIX C

EPADS

Lockheed Martin Astronautics

EMPLOYEE PERFORMANCE ASSESSMENT AND DEVELOPMENT SYSTEM

CHECK ONE: Input Form ☐ Final Evaluation ☐

Employee Name_____ Position Title_____SG_____

SSN_____ Badge_____ Product/Project_____

Functional Dept Name/No._____ Period of Performance: From _____to_____

Relationship to Employee

Self☐ Supervisor ☐ Internal Customer☐ Peer☐ Subordinate to Supervisory Employee ☐ Proposal Effort ☐

Input Contributor Signature Date Return to Mail Stop

I. Objectives

ASSIGNMENTS

ACCOMPLISHMENTS

II. Performance Rating Standards Check box that applies in each category and provide comments. (Inputters are required to provide comments; numerical ratings are optional.)

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Job Knowledge (Competence, Versatility, Innovation)	Consistently demonstrates expert knowledge and complete familiarity with recent developments in own discipline. Expands knowledge beyond boundaries of assignments, including related disciplines. Creative approaches are the norm. Recognized expert in one or more disciplines.	Regularly demonstrates in-depth knowledge in own discipline and in some areas of related disciplines. Recognized as a highly knowledgeable subject matter practitioner.	Demonstrates thorough knowledge in own discipline and has sufficient working knowledge of other related disciplines.	Demonstrates adequate knowledge in most areas of own discipline. Has some weak areas of know-how in own discipline and in related disciplines.	Does not demonstrate sufficient knowledge in own discipline or related disciplines.
COMMENTS					

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Performance (Quality, Schedule, Cost Consciousness, Continuous Improvement)	Clearly recognized as a top producer. Consistently betters schedules and cost targets and is influential in developing and implementing improved practices.	Work output consistently exceeds expectations, as well as often taking on extra tasks and assignments on own volition.	Handles normal workload skillfully. Willingly performs extra assigned tasks with moderate supervision. Performs tasks in the same routine manner.	Schedule and cost are generally met, with some minor irregularities. Performs extra tasks with effective supervision.	Waits to be assigned tasks and then performs them in an unsatisfactory manner. Work output frequently requires rework and cannot be utilized by others.
COMMENTS					

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Work Practices (Problem Solving, Integrity, Teamwork, Initiative, Interpersonal Relations)	Develops unique, effective solutions to problems; can anticipate and therefore avoid many problems. Is sought out by others to work with in a collaborative manner. Decisions and recommendations are consistently sound in high risk and all other areas. Displays the highest standards of personal integrity at all times.	Develops effective solutions to problems, can anticipate and avoid some problems. Is a very effective team member and can be relied upon to assist in enhancing effective relationships with others. Decisions and recommendations are usually sound in moderate high risk and all other areas. Displays effective personal integrity.	Develops solutions to problems. Decisions and recommendations are usually sound in all structured areas of job. Can work well as a team member. Generally displays effective personal integrity.	Can develop solutions with effective guidance. Decisions and recommendations are generally sound, but must be reviewed prior to implementation. Can work as a team member in a structured environment.	Cannot develop solutions or make appropriate decisions or recommendations. Sometimes gives appearance of question- able integrity.
COMMENTS					

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Leadership (Personal Leadership, Coaching/Mentoring)	Seen as a leader role model by all. Constantly inspires others at all levels to improve. Clearly communicates the organization's goals and values. Enthusiastically coaches/mentors others in a variety of areas and encourages others to do so.	Provides very effective leadership to the organization. Encourages others to improve. Understands and communicates the organization's goals and values. Often serves as a coach/mentor to others.	Provides leadership to others when requested. Assists others in their efforts to improve. Understands and can effectively articulate the organization's goals and values. Sometimes serves as a coach/mentor.	Can provide limited leadership, when requested and with proper direction. Has difficulty effectively articulating the organization's goals and values. Has very limited coaching/ mentoring skills.	Does not display leadership or coaching/mentoring skills. Is not clear on the organization's goals and values.
COMMENTS					

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Communication (Oral, Written, Presentation (If Appropriate), Listening, Communicativeness)	Is a superb writer and presenter. Regularly communicates extremely well in a wide variety of circumstances and on very complex issues. Knows exactly when and how to alert the appropriate individuals to concerns and issues. Is often called upon by others to assist in communication efforts. Often represents superiors to others. Actively listens to everyone.	Is an accomplished writer and presenter. Communicates well in a variety of settings and on a variety of different issues. Knows when to surface concerns and issues. An active listener.	Can effectively write and present. Demonstrates good communication skills. Generally surfaces concerns and issues appropriately. Listens appropriately.	Can write and present items of a routine nature when provided with clear direction. May not always surface concerns and issues in a timely manner. May not always listen to others.	Cannot effectively communicate with others. Often confuses others and relays information incorrectly. May hear things differently than others do.
COMMENTS					

PERFORMANCE CRITERIA	1-OUTSTANDING ☐	2-EXCELLENT ☐	3-FULLY SUCCESSFUL ☐	4-ACCEPTABLE ☐	5-UNSATISFACTORY ☐
Supervision (Accountability, Workforce Diversity, Enabling, Environmental Safety and Health, Develops Others)	Always finds the right balance between empowerment and appropriate boundaries for subordinates. Effectively breaks down barriers to performance improvement, including correcting counterproductive behaviors. Provides clear and honest feedback regularly as well as in the appraisal process.	Works to balance empowerment and boundaries for subordinates. Generally successful at breaking down barriers to performance improvement. Provides appropriate feedback on a regular basis as well as in the appraisal process. Generally well respected as a supervisor.	Generally effectively works to balance empowerment and boundaries for subordinates. Breaks down some barriers to performance improvement. Gives feedback as necessary during the appraisal process.	Has some difficulty supervising others. May need assistance to determine the appropriate balance between empowerment and boundaries for subordinates. Can break down some barriers to performance improvement when given clear direction. May struggle with providing feedback during the appraisal process.	Very ineffective at supervising others. Cannot determine the appropriate balance between empowerment and boundaries for subordinates. Fails to recognize or acknowledge barriers to performance improvement. Does not provide feedback.
COMMENTS					

III. Development (To be completed jointly by supervisor and employee during final EPADS evaluation meeting.)

A. TECHNICAL/SUPERVISORY STRENGTHS	B. PERFORMANCE FACTORS REQUIRING IMPROVEMENT	C. OBJECTIVES FOR NEXT RATING PERIOD AND FUTURE DEVELOPMENT PLAN

IV. Overall Rating – Final rating to be completed by immediate [badged or assigned] supervisor after coordinating ratings of individual and work group with functional discipline management, and then communicating rating to employee. Rating should account for the individual's contribution and performance expectations for the salary grade, experience factors, and reflect the best management judgment of the employee's overall performance.

1. ☐ **Outstanding** Performance that consistently exceeds the expectations for the salary grade. Achievements have substantial impact outside the scope of what was tasked. Accomplishments are recognized as superior by multiple independent sources.

2. ☐ **Excellent** Performance that meets all expectations of the salary grade with noteworthy strength in multiple evaluation criteria. Exceeds expectations in multiple areas of performance.

3. ☐ **Fully Successful** Performance that meets all expectations of the salary grade, with no major discrepancies against the criteria categories. Minor discrepancies that do exist have insignificant performance impact.

4. ☐ **Acceptable** Performance that generally meets the expectations of the salary grade. May have one or more discrepancies against evaluation criteria impacting overall performance.

5. ☐ **Unsatisfactory** Performance that generally does not meet expectations for the salary grade. Multiple deficiencies in evaluation criteria have major adverse impact on job performance. Formal corrective action is necessary.

IV. Overall Rating (cont.)

Employee Comments

_____

_____

_____

Code of Ethics and Standards of Conduct: During the preparation of this performance assessment, the Code of Ethics and Standards of Conduct was reviewed. This employee accepts the commitment and responsibility to perform all duties in compliance with the Lockheed Martin Code of Ethics and Standards of Conduct.

No provision of this procedure will be construed as an employment agreement. Employment with Lockheed Martin can be terminated at any time with or without cause either by the employee
or by Lockheed Martin.

Employee's signature indicates that EPADS discussion has occurred.

_____ _____

Employee Signature (Type and Sign) Date Badged Supervisor Signature (Type and Sign) Date

_____

Assigned Supervisor Signature (Type and Sign) Date

(Distribution: Signed Original to Personnel File Copies to Employee, Assigned and Badged Supervisors)

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