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THE IMPACT OF EDUCATIONAL INTERVENTIONS ON
ORGANIZATIONAL CULTURE
AT AN URBAN FEDERAL AGENCY

by

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ABSTRACT

Organizational culture in traditional terms, encompasses the beliefs, mores, customs, behavioral norms and ways of doing business. The theoretical research and studies conducted by practitioners and scholars such as Max Weber, Mary Parker Follett, Frederick Taylor, Chester Barnard, Elton Mayo, Rensis Likert and Edgar Schein contribute much to the intellectual framework for studying today's complex and ever changing organizations.

This study on the "Impact of Educational Interventions on Organizational Culture" is an evaluation of a major educational initiative undertaken by an urban federal agency, namely the National Aeronautics and Space Administration's Langley Research Center (NASA-LARC). The design of this educational evaluation captures the essence of NASA-LARC's efforts to continue its distinguished and international stature in the aeronautical research community following the Challenger tragedy. More specifically, this study is an evaluation of the educational initiative designed to ameliorate organizational culture via educational interventions, with

emphasis on communications, rewards and recognition, and career development.

After completing a review of the related literature, chronicling the educational initiative, interviewing senior managers and employees, and critically examining thousands of free responses on employee perceptions of organizational culture, this researcher finds that previous definitions of organizational culture are more accurately classified as manifestations of organizational culture. Based on the research conducted during this study, this researcher has endeavored to redefine "organizational culture" by offering a more accurate and diagnostic perspective.

At the conclusion of this evaluation of the educational initiative undertaken by NASA-LARC, several findings are significant. First among these findings is that employees in this highly complex and internationally competitive organization have the potential for continued and greater levels of productivity provided management remains vigilant in its efforts to depart from traditional top-down relationships, reduce and/or eliminate undesirable working

conditions, and stimulate a culture which is responsive to the higher order needs of employees.

Second, management's capacity to move the organization into the 21st century is in large part, a function of the extent to which organizational culture can be positively influenced via the effective implementation of educational interventions.

Finally, the results of this study are significant in that they contribute to the dialog and broaden the scope of knowledge related to the impact of educational interventions on organizational culture, particularly within urban federal agencies.

DEDICATION

Honor thy mother and thy father, is the first commandment with promise. As this phase of my academic and professional journey concludes, emotions are divided between the toil of the journey and the joy of the future. But neither the strength and endurance for the journey, nor the ecstasy of its completion would be possible without the life long involvement of my loving parents, Lois and William Myrick.

Words are indescribable and the number of pages are insufficiently long for me to express my gratitude and love for these two very special people. From the beginning, their gifts have been abundant. First, they introduced me to the knowledge, love, and comfort of Jesus Christ. Second, they shared with me the values of family, education and friendship. Finally, they instilled in me compassion, hope, and determination to achieve. For these and other unselfish gifts of love, it is most befitting that I dedicate this work to my parents.

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As a child reared in rural Virginia, educated in segregated schools, and shaped by many who cared for me when I was unable to care for myself, I am truly humbled by this occasion. Perhaps it is the realization that it is actually each of you who deserves the credit for this achievement that requires me to be the most humble. I dare not attempt to list those of you who shared your dreams, knowledge, and concerns, for surely I would fail. Rather, to each of you who touched me, I thank you.

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CHAPTER I

Introduction

Background of the Study

In an era of global markets, sweeping technological change, and workforce downsizing, both theorists and practitioners are seeking ways to ensure organizational excellence, increase productivity, and enhance work performance (Meussling, 1987; Peters, 1987; Boone and Kurtz, 1990). Management plays a crucial role in the search for excellence by planning, directing, and controlling activity in the workplace. As recorded by Juran (1964), management has the threefold responsibility of informing employees of what they are to do, advising them of their performance, and institutionalizing those strategies that enable employees to continue to perform at or above the desired level.

At the same time, there has been much discussion pertaining to the tasks that management undertakes in achieving the resultant effects on employees. In the article "Humanistic Conceptions of Work," Benhong Tsai (1992) argues that organizational achievement

is fundamentally linked to the performance of individuals and groups. According to Tsai, organizations maximize their potential to meet or exceed organizational goals when they provide individuals with challenging environments for continued growth. Such challenging environments are enhanced by management's willingness to provide a broad range of educational activities or interventions. The promotion of a humanistically-oriented organizational culture through such strategies ultimately leads to improved performance.

In the United States, a number of variables have been identified as performance enhancers. For an example, technology and automation, research and development, management development programs, and human resource development programs have all been classified as performance enhancers. Such variables represent the resources through which managers accomplish the mission of the organization; each variable offers its own unique, singular contribution. However, the spirit, drive, and success of an organization exert more influence on organizational productivity than do factors such as economic resources, structure, and innovation. In fact, Tsai concluded that the effect of economic, structural, and

innovative resources is transcended by the culture of the organization which includes the shared attitudes, objectives, and practices that permeate the organization.

The influence of organizational culture on employee performance can be viewed from a two-level perspective. At the micro level, organizational culture positively affects performance by integrating activities, providing achievement pathways, and supplying essential social support. At the macro level, organizational culture provides the vision to formulate unique strategies (Byles, 1991). Although numerous scholars have conducted research to examine the nature of organizational culture (Likert, 1967; Katz and Kahn, 1978; Martin and Powers, 1983; Schein, 1985), little progress has been made in operationalizing the concept of organizational culture. Fewer efforts have been made to investigate how organizational culture intervenes in the relationship between structures and outcomes (Dastmalchian, 1989). Definitions of culture have ranged from the simplistic to the complex; but regardless of the scope and breadth of a selected definition of organizational culture, contemporary research has confirmed what Mayo (1933) concluded decades ago: The interaction of individuals within the organization is

crucial to their individual happiness, intergroup harmony, organizational performance, and productivity enhancement (French, 1990).

Thus, the way employees perceive, think, and feel appears to be an integral part of an organization's ability to meet or exceed its mission. Mission accomplishment is therefore, a function of organizational culture; and inasmuch as organizational culture is influenced by educational interventions, educational interventions appear to be key elements in the achievement of an organization's goals and purpose (Harvey and Brown, 1988).

This present study is an investigation of the impact of educational interventions on the organizational culture of an urban federal agency and the ultimate effect on performance within that agency. The National Aeronautics and Space Administration's Langley Research Center (NASA-LARC) is the urban federal agency that serves as the focus of this study.

Created in 1958, the National Aeronautics and Space Administration (NASA) emerged as part of the scientific reform movement in education that began after the Union of Soviet Socialist Republics launched the first Sputnik in 1957. Since its inception,

NASA's successes have been documented extensively and its classification as a world class research agency is undisputed (Goldin, 1992). However, on January 28, 1986, the nation was shocked and horrified by the explosion of the space shuttle Challenger. Afterwhich, NASA found itself under scrutiny as never before.

Subsequent to the accident, the NASA-LARC conducted a Culture Survey for the express purpose of understanding the forces within its organizational culture that had the potential of either promoting or inhibiting the agency's performance (W. Warner Burke Associates, 1989). That study revealed that: (a) employees believed that top management at NASA-LARC placed the most emphasis on mission accomplishment and give least attention to managing people; and (b) a significant difference existed between the manner in which management and employees perceive organizational culture. Studies of this nature are especially critical to a federal agency such as NASA, which is currently operating in an austere economic environment and finds it essential to delineate problems and identify innovative strategies so as to improve the productivity of human resources (Golden, 1994).

Statement of the Problem

Top management at an urban federal agency, namely the National Aeronautics and Space Administration's Langley Research Center (NASA-LARC), requires specific data on the impact of educational interventions on organizational culture. However, there is a lack of information on the impact of educational interventions on organizational culture within the public sector as opposed to the private sector. Whereas hundreds of surveys have been conducted within the private sector (Walker and Gutteridge, 1979; Griffith, 1980; Russell, 1991), the literature on organizational culture reveals that few empirical studies of organizational culture exist within the public sector (Cleveland, 1982; Daneke, 1990; Wholey, 1992). Additional research, especially on the impact of educational interventions on organizational culture, is essential if public agencies are to produce meaningful outcomes, remain functional as responsible deliverers of service, and remain accountable for those outcomes and services.

Research Design

This study of the impact of educational interventions on

organizational culture at an urban federal agency is more appropriately characterized as an educational evaluation. An educational evaluation is a formal appraisal of the quality of educational phenomena (Popham, 1988). During the evaluative process, this researcher will: (1) complete a comprehensive examination of the quantitative results of the 1989 Culture Survey conducted at NASA-LARC; (2) interview senior management officials at NASA-LARC; (3) chronicle the conception, development and design of the educational initiative; (4) interview a purposive sample of employees, including supervisors; (5) analyze free responses to three open-ended questions contained in the 1993 Quality Climate Survey conducted at NASA-LARC; and (6) complete a thorough review of quantitative results of the 1993 Quality Climate Survey. These investigatory efforts are undertaken to determine the extent to which educational interventions influenced organizational culture at NASA-LARC.

Specific Evaluation Questions

The critical objective for NASA-LARC's overall educational initiative is to reduce differences in the perception of organizational

culture as perceived by managers and employees. Secondary issues focus on contemporary employee views of organizational culture at the Langley Research Center. Specifically, the objective was to determine the extent to which educational interventions contributed to the change, if at all, in the difference of perceptions held by managers and employees. Accordingly, this research addresses three fundamental evaluation questions: (1) Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?; (2) What are the prevalent views held by employees concerning organizational culture at the Langley Research Center?; and, (3) To what extent do employees perceive that organizational culture at the NASA-Langley Research Center has been influenced by NASA-LARC's educational initiative? This study seeks to assess the impact of educational interventions on organizational culture and respond to the three evaluation questions stated above.

Justification for the Study

Senior management at NASA-LARC shares the need to determine whether educational interventions have an impact on

organizational culture, and ultimately, performance. It is anticipated that the results of this evaluation will enable top management to formulate policy which results in improved organizational productivity.

Findings of the 1989 Culture Survey and results of previous studies failed to reveal significant changes in either organizational culture or employees' quality of life. From this stance, top management at NASA-LARC recognized the urgent need to launch a strategic effort to implement an educational initiative designed to enhance organizational culture (P. F. Holloway, personal communication, 1991). The specific interventions of this educational initiative are categorically identified as: (1) communications; (2) rewards and recognition; and, (3) career development.

This study is a timely undertaking. Four years have passed since the culture survey was conducted and two years since the educational initiative was implemented. Therefore, a unique and timely opportunity exists for analyzing and evaluating pertinent and current data related to NASA-LARC's organizational culture. NASA-LARC is currently faced with reductions in federal appropriations and with the concomitant task of planning for reduced operating

resources; and such reductions are likely to result in major reorganizations, reduced budgets, and fewer people. This study has the potential of aiding top management in the process of planning and implementing a major reorganization that will sacrifice neither effectiveness or efficiency, but will enhance performance and productivity.

Definition of Terms

For the purpose of this study, definitions are stated for the following terms: educational initiative, educational intervention, organizational culture, top management, and urban federal agency are defined as follows.

An educational initiative is a planned management effort that includes the conception, design, and implementation of educational interventions to enhance organizational culture at the NASA-Langley Research Center.

An educational intervention is an organized, systematically planned, and sustained efforts which focus explicitly on advancing organizational culture, structures, and procedures. The implementation of such interventions involves employees in efforts

to assess, diagnose, and positively transform the organization to result in improved productivity.

Organizational culture is a set of mores, rituals, value systems, and behavioral norms that determine employees' perceptions, thoughts, and feelings about the employees with whom they interact and the organization within which they work.

Top Management is a group of NASA-LARC employees who are members of the Senior Executive Service and specifically classified as Director, Deputy Director, Associate Director, Assistant Director, and Program Director. As a group, these top management members are routinely referred to as the "senior staff."

An urban federal agency is an entity that is established and funded by the Congress of the United States, which is located in an area having a population of at least 100,000, and serves the function of producing goods and services in a culturally diverse environment (Thomlinson, 1969). The federal agency in this study is located in Hampton, Virginia, was established with the signing of the National Space Act of 1958. Within the surrounding Hampton Roads community, NASA-LARC is situated adjacent to Newport News, Poquoson, York County and Norfolk, Virginia. The population of the

region is approximately 1.5 million and 26% culturally diverse. Residents of this geographical area rely primarily on military, civil service, and government contractors whose missions are related to the defense and security of the nation.

Limitations of the Study

Campbell and Stanley (1963) indicate that there are four factors that affect the generalizability of research findings. Collectively these factors are referred to as the study's external validity.

External validity is the extent to which the results of a study can be applied to other conditions, settings, and circumstances. This study focuses on the educational initiative undertaken at the NASA-Langley Research Center, an agency chartered to conduct aeronautical and space related research. Interpretations of the research findings then, should generally be limited to the NASA-LARC.

A potential limitation is the use of two different survey instruments when conducting the 1989 Culture and 1993 Quality Climate Surveys. This limitation was minimized by extracting specific data elements from the two surveys which were directly

related to each other. Additionally, interviews were made of members of top management, middle managers, and a purposive sample of employees for the purpose of establishing objective linkages between the data derived from the two surveys. These two measures enhance the usefulness of findings resulting from this study.

Summary

This chapter introduces the topic being evaluated and identifies the parameters of the study. Contained herein are: (1) information pertinent to the relative silence of the literature on the effect of educational interventions on organizational culture, (2) the lack of available information relative to the impact of educational interventions on organizational culture in the public sector as opposed to the private sector, and (3) the timeliness of this educational evaluation of an educational initiative undertaken at NASA-LARC. In addition, the specific evaluation questions associated with this study have been stated, operational terms have been defined, and the limitations of this study have been described.

Succeeding chapters for this study include Chapter II, Review of the Related Literature; Chapter III, Methodology; Chapter IV, Data Analysis and Results; and Chapter V, Conclusions, Recommendations, and Future Implications.

CHAPTER II

Review of the Related Literature

Overview and Introduction

The purpose of this review of the related literature is to examine the knowledge base related to the study of the impact of educational interventions on organizational culture in an urban federal agency. More specifically, this review encompasses an overview of selected writings pertaining to the impact of educational interventions identified for this study as communications, rewards and recognition, and career development on organizational culture. Finally, the review of the related literature is intended to establish a theoretical framework pertinent to the primary factors addressed in this study: contemporary management, organizational culture and educational interventions.

Contemporary Management Theory

General Management

Historically, organizations have sought to discover strategies which will enable them to increase their levels of productivity

(Mescon, Albert, & Khedouri, 1988). In an effort to identify productivity enhancers, entrepreneurs, researchers, and others have focused attention on those resources which are controlled by organizations. Peters (1987) suggests that resources believed to enhance effective and efficient performance and ultimately lead to increased productivity have changed in response to the particular economic, social and political climate of the time. In this era of global markets and sweeping technological change, the need to excel in performance is more acute than ever. In light of this suggestion, if organizations are to excel in performance, the major impetus must, at least in part, originate with the leadership of the organization.

The question of how to excel in performance has confounded theorists and practitioners; each has provided unique perspectives and solutions. For an example, Gibson (1980) asserts that management, as it is known today, is the organization's response to increasing demands for supplies and services.

Such growing demands have been coupled with an increase in hierarchial levels in the organization, accompanied by a host of formal rules, policies and procedures governing work behavior commonly known as characteristics of a 'bureaucracy.' Max Weber

originally described the characteristics of a bureaucracy in detail, which have been paraphrased for the contemporary reader as follows:

- A. There is the principle of fixed and official jurisdictional area, which are generally ordered by rules, laws or administrative regulations.
- B. The principles of office hierarchy and of levels of graded authority imply the existence of firmly ordered systems of superior and subordination in which there is a supervision of lower offices by higher ones.
- C. The management of the modern office is based upon written documents ("the files"), which are preserved in their original or taught form.
- D. Office management, at least all specialized office management, usually presupposes thorough and expert training.
- E. When the office is fully developed, official activity demands the full working capacity of the official, irrespective of the fact that his obligatory time in the bureau may be firmly limited.
- F. The management of the office follows general rules, which are more or less stable, more or less exhaustive, and which can be learned (Gerth and Mills, 1958, p. 196-198).

Weber's classic description of the 'bureaucracy' resulted in the formation of a sociological caricature of structure within the

organization. For example, in his attempt to 'dehumanize' organizations, he writes that:

... Bureaucracy, which is welcomed by capitalism, develops more perfectly, the more the bureaucracy is 'dehumanized', the more completely it succeeds in eliminating from official business love, hatred, and all purely personal, irrational, and emotional elements which escape calculation (Weber, 1947, p. 215-216).

Weber's clinical dissection of organizational structure precedes Frederick Taylor's (1911) efforts to improve organizational efficiency via an incremental analysis of work. Taylor's philosophy is that the planning of work is a specialization in itself and should be studied to ensure that management determines the one best way of accomplishing certain tasks.

Taylor's scientific approach to management concentrated on observing, recording and classifying tasks as they are ordinarily performed in conjunction with a particular assignment. Consistent with this approach, Taylor conducted research, formulated hypotheses, tested those hypotheses using research techniques, and advocated theories for the purpose of increasing organizational productivity. As a result, Taylor not only identified the critical elements of work, but also recognized the need for and proposed the

implementation of specialized training to replace the practice of employees selecting individual work procedures and habits (French, 1990).

Building upon and subsequently expanding Taylor's work were Frank and Lillian Gilbreth in Spriegel (1953). Together, the Gilbreths collaborated to develop time and motion studies for the purpose of eliminating counter productive activities and maximizing efforts directed toward tasks. Such goals include the identification and analysis of even the minute to assess its contribution to the task. The use of these data by the organization, according to the Gilbreths, lead to strategies for achieving the least waste; and providing for the greatest prosperity for both the worker and the employer (p. 295). The combined results of their research contributes much to the understanding of how work should to be performed and managed within organizations in order to reach higher levels of productivity.

Weber (1947), Taylor (1911), and the Gilbreths (Spriegel, 1953) have focused on the organization and how to best perform the work of the organization. Just as it was important to decipher how work is best performed, it is equally logical that consideration be given to the management or leadership of the work of the organization.

Studies of management and leadership have produced numerous theories and concepts, therefore, consideration will be given to selected theories and concepts; and the contribution these theories and concepts have made to the existing body of knowledge.

For the purpose of this study, consideration begins with a definition of the phenomena known as management. After identifying the major functions associated with management, Luther Gulick and Lyndall Urwick (1937) determined that planning, organizing, staffing, directing, coordinating, reporting and budgeting are those tasks integral to the management of the organization. Collectively, these functions of management form the acronym POSDCORB, for which Gulick and Urwick are credited.

Chester Barnard (1938) identified what he perceived to be the major functions of the executive. Contained in The Functions of the Executive are what some believe to be the classical concepts of management, even though the term management is not specifically used. He writes that the function of the executive is to develop and maintain a system of communication. In this capacity, the executive establishes procedures, develops strategies, and designs techniques of motivation. The effect of such actions is to create an environment

whose purpose is to facilitate the accomplishment of organizational objectives. The executive is also tasked with the responsibility of attracting, recruiting and hiring individuals into the organization; and once brought together, eliciting that level of effort necessary for goal accomplishment. Finally, the executive's role is to formulate and define the purpose, objectives, and mission of the organization. In Barnard's words, "the critical aspect of this function is the assignment of responsibility - the delegation of objective authority" (p. 231). In defining this third role of the executive, Barnard departs from the traditional "top-down" management and observes that:

"[W]ithout that up-and-down-the-line coordination of purposeful decisions, general decisions and general purposes are mere intellectual processes in an organization vacuum, insulated from realities by layers of misunderstanding. The function of formulating grand purposes and providing for their redefinition is one which needs sensitive systems of communication, experience in interpretation, imagination, and delegation of responsibility (p. 233)."

This traditional, hierarchial, "top-down" philosophy toward managing organizations from which Barnard departs, is criticized for its inadequacy in dealing with the broad spectrum of challenges facing the organization.

Another theory of leadership is based on the linking of individual traits and leadership ability. The underlying principle of the trait theory is that if effective traits of leadership can be isolated, then organizations can either employ or develop individuals who possess these traits for leadership positions. Charles Bird (1940) researched a wide range of traits normally associated with leaders. His review of leader traits includes twenty lists of traits used in a variety of surveys. His most startling revelation is that none of the traits appeared on all of the lists, enabling him to cast doubt on the credibility of the trait theory of leadership.

William Jenkins (1947) concludes that no particular trait or group of traits have been isolated which distinguishes the leader from the members of the group.

Despite Jenkins' assertion, the research on leadership has continued. Edwin Ghiselli (1971) studied over 300 managers and administrators in an attempt to identify the traits of an effective leader. Ghiselli's methodology included administering a self-description inventory whereby individuals indicated the degree to which a given trait is characteristic of the individual. Ghiselli then correlates the trait to the level of leadership effectiveness. He

concludes that there are five characteristics of an effective leader, i.e., supervisory ability, intelligence, achievement, self-actualization, and decisiveness. After completing an analysis of the work of Ghiselli and others, Gary Dessler (1991) writes that "a leader may be effective although he or she does not exhibit one or more of these traits and may be ineffective while exhibiting all of them" (p. 54). Dessler qualifies his conclusions by noting that "generally speaking, it would seem that a person's chances to be an effective leader would be enhanced if he or she exhibits more than average levels of most of these traits" (p. 54).

Drawing upon his engineering background to study management, Fayol (1949) worked to assemble a group of "principles" by which an organization could govern its operations. He recognizes that the higher the manager in the organization, the less reliance must be placed on technical skill and more reliance placed on a knowledge of administration. Fayol describes these functions of an administrator as that of "planning, organizing, commanding, coordinating, and controlling." To only credit Fayol with describing the functions of administration, would be to significantly undermine an even more important contribution of developing the "Principles of

Management." Among the principles of management articulated by Fayol are centralization, division of work, subordination of individual interest, levels of management for decision making, remuneration and esprit de corps.

The foregoing writers have concentrated primarily on describing the functions of management, but they did not "define" management. Efforts to remedy this limitation and advance the literature on management was, in part, eliminated by Peter Drucker (1954) who posits that a view of management which restricts the task to overseeing the bureaucracy and generating policy is myopic. Drucker imposes a higher standard of performance on management. He holds management accountable for the lifting of a worker's vision to higher sights, raising a worker's performance to higher standards, and building a worker's personality beyond its normal limitations (p. 159-160). According to Drucker (1966) the effective executive focuses on contribution, organizational goals, and the overall performance and productivity of the organization. The executive's focus on contribution redirects attention from his or her own specialty, narrow skills, and department toward the productivity of

the whole. As such, the leader is an agent for social change and an example of a major social innovation.

Later, Drucker (1974) would elaborate on the management process as consisting of setting the objectives, organizing the work, motivating and communicating, measuring achievement, and developing people (p. 400).

Human Relations

According to her writings around the turn of the century, which have been edited by H. C. Metcalf and L. Urwick (1941), Mary Parker Follett was the first to define management as "getting work done through others." Embedded in this philosophy is the foundation of a partnership of individuals who collectively are tasked with accomplishing the organization's mission. The basis for this partnership, unlike the formal relationships articulated by scientific and classical researchers, concerns itself with the growth and development of individuals to their highest levels of competency, creativity and fulfillment. So important is this partnership, that researchers have determined that it [the partnership] helps employees become better, more responsible persons, and then

creates a culture in which each contributes to the limits of their improved abilities (Miles, 1965).

When asked what makes employees more responsible or productive, it was originally thought that the real motivators of performance were financial or economic incentives. A comprehensive set of experiments conducted at the Hawthorne Plant of the Western Electric Company in Cicero, Illinois began in 1927. The study was originally intended to investigate the effect of fatigue on productivity. Management instituted financial incentives based on each individual group's productivity. In addition, working conditions were modified, incentives were increased, changes were made in workdays, and rest periods were provided. Whatever the change, the level of productivity continued to rise. Even when some incentives were decreased and conditions returned (deteriorated) to pre-intervention levels, productivity continued to rise.

Based on his examination of the results of the Hawthorne studies, Mayo (1933) concludes that employees will be both happier and productive if they belong to a cohesive group. Further, he reaffirms that the norms of informal work groups are capable of positively or negatively impacting the accomplishment of

organizational goals. Mayo's primary contribution to the Hawthorne experiments was to publicize them. More importantly, Mayo stimulated management's attention toward the importance of human interaction in organizations (Dale, 1965; Mescon, et. al., 1988; Boone & Kurtz, 1990).

In their comprehensive chronicle of the research of the Hawthorne experiments, Roethlisberger and Dickson (1939) document the effects of rest periods, fatigue, and wage incentives, among others, on productivity. They conclude that the function of leadership is that of "maintaining the social system of the industrial plant in a state of equilibrium such that the purpose of the enterprise is realized (p. 569)." Moreover, Roethlisberger and Dickson find that leadership alone is incapable of maximizing organizational performance. In order for organizations to perform at maximum efficiency, management must "maintain the equilibrium of the 'social' organization. Individuals, by contributing their services to this common purpose, can obtain personal satisfaction that make them willing to co-operate" (p. 569). Roethlisberger and Dickson write that:

There is the need for the explicit recognition and systematic application of a specialty which is addressing itself to the adequate diagnosis and understanding of the actual human situations-both individual and group-within the factory (p. 591).

The discovery of the influence of group behavior on performance is equaled by the finding that as a source of motivation, it exceeds that produced by financial incentives. This revelation leads to the work of theorists such as Maslow (1943), Herzberg (1959), McGregor (1960) and House and Mitchell (1974).

Abraham Maslow was one of the first behavioral scientists to articulate the complexity of human needs and their effect on motivation. Maslow (1943) describes these needs in the following manner:

Psychological needs are those which are essential to survival, i.e., food, water, shelter, etc.

Safety and security needs refer to factors related to protection from physical or emotional harm.

Social needs reflect that human desire for interaction, a sense of belonging, and acceptance by others.

Esteem needs encompass self-respect, achievement, and recognition of self and other.

Self-Actualization represents the individual's need for self-fulfillment.

In detailing his theory on the needs of individuals, Maslow notes that it is not necessary for an individual to completely satisfy, in order, the lower level need prior to progressing to the next level.

Davis and Newstrom (1985) reviewed Maslow's "philosophical framework" (p. 73) and concluded that Maslow's work is a limited description of the attitudes of American workers. In their critique of Maslow's theory, Porter, Lawler, and Hackman (1975) argue that:

There is strong evidence to support the view that unless the existence needs are satisfied none of the higher-order needs will come into play. There is also some evidence that unless security needs are satisfied, people will not be concerned with higher-order needs. There is, however, little evidence to support the view that a hierarchy exists once one moves above the security level (p. 43).

For purposes of this research, it is significant to note that Maslow identifies "social" needs as primary motivators of productivity. In the 1950's, Frederick Herzberg introduced a two-factor model of motivation based on research of conditions that make people "feel good or bad." His conclusion is that the feeling of achievement contributes to positive feelings. The lack of achievement is not however, credited with "bad" feelings. Rather, other organizational policies/practices are cited as the basis for "bad"

feelings. Herzberg's finding is that the absence of "hygiene or maintenance" factors prove to be dissatisfiers, but their presence are not sources of motivation.

"Motivators or satisfiers" as viewed by Herzberg are either intrinsic or extrinsic in effect. Intrinsic motivators stimulate internal feelings of gratification derived from performing a given job. Extrinsic motivators are factors which are not part of the performance of work, but related to work.

While Herzberg's theory has its critics, there is consensus that the model is useful in that it distinguishes between those factors which motivate and those that merely maintain a working environment until motivators become operational (Evans, 1970; Bockman, 1971; Lock & Whiting, 1974).

In an analysis of leaders and their effect on organizational productivity, Douglas McGregor (1960) concludes that leadership is a function of the manner in which individuals are viewed. He labels these leadership views as Theory X and Theory Y.

McGregor's description of these two leadership views identify managers as being on opposite ends of a leadership continuum ranging from autocratic to laissez-faire. In describing these

contrasting leadership styles, McGregor identifies autocratic leaders as "Theory X" leaders. The views of a Theory X leader are these:

Employees are inherently lazy, dislike work and will to the extent possible, avoid work.

Employees possess little or no ambition and have a preference for control.

Employees must be coerced and controlled in order to be productive (p. 46-47).

Laissez-faire leaders, McGregor named "Theory Y" leaders.

Theory Y leaders, like their Theory X counterparts, have basic assumptions about the individuals within their organizations.

Theory Y leaders believe that:

Employees perceive work as natural and will seek responsibility.

Employees support organizational goals and objectives and will be self-motivated toward those goals and objectives.

Employees are committed to the organization, but that commitment is linked closely to the rewards associated with the accomplishment of those goals and objectives.

Employees at all levels of the organization are endowed with creative abilities and the capacity to solve problems (p. 47-48).

In reviewing McGregor's theory, Schein (1992) notes that the assumptions of the leader in many cases become self-fulfilling

prophecies. Accordingly, the assumptions of leaders are reflected in organizational practices and policies; and ultimately become part of the culture which is learned and shared among members.

Recognizing the tandem relationship between leaders and employees, Robert House and Terrence Mitchell (1974) developed a theory known as the "Path-Goal Approach." This theory is based on the assumption that by providing incentives (rewards and satisfiers), employees are guided toward demonstrating the desired levels of performance. In order for the path-goal model of leadership to be effective, the leader must:

Communicate performance expectations;

Support employee efforts by being a coach and eliminating, to the extent possible, barriers to effective performance;

Direct employees toward desired performance levels;

Stimulate those employee needs over which the leader has some control and capacity to satisfy; and

Reward the attainment of desired performance (p. 120).

The underlying premise in studying theories on general management and human relations rests in the belief that if given the appropriate structure and leadership, the individual employee's

propensity toward increased productivity will be enhanced (McGregor, 1960; Likert, 1961; Gibson, 1976). Moreover, organizational structure and design, such as that described by Weber, is imperfect and incomplete (Katz & Kahn, 1986). The fact that leaders must not only work through employees, but also form a partnership with them, is the basis for broadening this review of the literature to include 'organizational culture.'

Organizational Culture

In the early 1960's Rensis Likert (1961) writes that managers and supervisors in American industry and government are achieving the highest levels of productivity at the lowest costs, with the least turnover, and at the highest levels of employee motivation. While earlier researchers had concentrated on the development of management as a science, Likert focused on the relationships of people in organizations. He conducted an analysis of productivity in several organizations and deduced that a correlation exists between the productivity of workers and their attitudes toward all aspects of the work, including supervision.

Likert concluded that management will have an opportunity to make full use of the potential capacities of its human resources, and employees will rise to their fullest potential only when each person in an organization is a member of one or more well-knit, effectively functioning work groups that have high skills of interaction and high performance goals.

Likert was not the first to deal with the issue of employee attitudes, their relationship to, and influence upon productivity. G. B. Watson's (1928-1929) research was a comparative analysis of group performance and individual performance. His studies of intellectual efficiency were intended to test whether or not the thought processes of an individual alone were superior to those of a group consisting of those same individuals. Watson concluded that the intellectual efficiency of group thinking is distinctly superior to that of the average person in the group and even to that of the best member, sometimes further above the best than the best is above the average.

Theorists such as Lewin, Lippitt, and White (1939), Homans (1950), Lewin (1952), Blake and Mouton (1964), Katz and Kahn (1966), and Schein (1985, 1990, 1992) have given considerable

attention to organizational activity related to the formation and development of relationships between leaders and followers. They examined factors such as personality types, individual attitudes, and group behaviors.

Lewin, Lippitt and White (1939) studied the behaviors of two groups of children. One group was permitted to materially participate in the accomplishment of work and the selection of partners, while the other group was basically told what, when and where to work. The finding was that children involved in decisions regarding work had significantly lower levels of hostility and higher levels of productivity.

In a separate study, two groups of boys were studied. One group worked under democratic leadership and the other under authoritative leadership. Those working under democratic leadership demonstrated initiative and worked without supervision, while those working under authoritative leadership lacked initiative, rebelled against authority and when supervision was absent, did not work. Such findings stimulated thoughts and studies regarding variables such as orders, norms, and rules.

When writing about group behavior, Homans (1950) used the terms "orders, norms and moving equilibrium (p. 415)." Orders, while seemingly strong in language, are no more than communication from the leader which govern the behavior of members. Norms on the other hand, emerge from interaction between members of the organization. Moving equilibrium refers to the day to day dynamics for which the manager is responsible in moving toward organizational objectives. In describing this moving equilibrium, Homans (1950) offers the "rules of leadership."

Collectively, these rules recognize the leader's position of authority and responsibility for achievement. Equally important, they require that the leader set the example of sanctioned behavior, and create an environment conducive to achievement through effective systems of communications and recognition (p. 425-440). Therefore, Homans' premise is that responsibility for the creation and sustenance of 'culture' lies with management.

Since no organizational activity remains the same, the phenomena which intrigued Lewin (1952) was organizational change. He observed that organizations normally operate in a 'frozen' state. Due to changing environmental conditions (internal or external), the

organization "unfreezes, moves, and refreezes." Unfreezing refers to the acknowledgement that existing policies, practices, behaviors, norms, etc. are inadequate to accomplish organizational objectives. Moving is the phase in which interventions are imposed for the purpose of modifying or recreating those policies, practices, behaviors, norms, etc. which will have a positive contribution toward the accomplishment of objectives. Refreezing signifies that the newly formed policies, practices, behaviors, norms, etc. have become institutionalized.

Robert R. Blake and Jane S. Mouton (1964) describe management styles that relate to the accomplishment of work through others. In the opening chapter of The New Managerial Grid, they make the argument that "open and candid communication is the link between people that permits sound problem solving and decision making" (p. 1). The 'grid' portrays the various orientations of managers, i. e., people, task, or some combination of the two. Using a 9 x 9 matrix, five grid points are highlighted, i.e., 1,9; 9,9; 5,5; 1,1; and 9,1.

The '1,9' manager is the country club leader who concentrates on human relations at the expense of the task. The '9,9' manager

exhibits high levels of concentration on people and task. The '5,5' manager pays an adequate level of attention to people and task, excelling in neither. The '1,1' manager performs the minimum necessary to maintain employment. The '9,1' manager is most interested in accomplishing the task and exhibits little regard for people.

Additional research is directed to the study of norms and attitudes that transcend individuals and work units. The concepts developed by Katz and Kahn (1966) broaden the body of knowledge related to organizational norms and attitudes. In 1978, Katz and Kahn published The Social Psychology of Organizations, using the terms "roles, norms and values," but not 'organizational culture', per se. Their research contributes significantly to later studies by Martin and Powers (1983), Martin and Siehl (1983), Wilkins and Ouchi (1983), and Schein (1985), who do refer to organizational culture in their writings.

The work of Likert and others within the theoretical framework previously described led to the concept now referred to as "organizational culture." However, the capacity of researchers to describe the concept and define the term has proven to be

fragmented and diverse. The difficulty in defining organizational culture is highly correlated to the ambiguity of the concept of "organization" itself (Schein, 1990). Definitions have ranged from the less simplistic to the more complex. Numerous definitions have included a holistic view that encompasses beliefs, mores, customs, rites, rituals, value systems, behavioral norms; others have delineated ways of conducting business (Tunstall 1983; Trice & Beyer 1985).

Authorities who have attempted to define organizational culture have tended to view culture from differing perspectives and thus developed the following definitions of culture:

A pattern of basic assumptions that a given group invented, discovered or developed to cope with its problems (Schein, 1990).

Observed norms, customs and traditions that develop over time (Goffman 1959; Trice & Beyer, 1984).

A variable, or set of variables, that characterize the norms, feelings, and attitudes existing within the workplace (Payne & Pugh, 1976).

Habits of thinking, shared paradigms of reference by group members which are taught to future generations of members (Douglas 1986; Hofstede, 1980).

Variables that represent the norms, feelings, and attitudes existing within the workplace (Dastmalchian, Blyton & Adamson, 1989).

A feeling or climate that an organization exhibits by virtue of its physical layout and the manner in which members of the organization relate to one another (Tagiuri & Litwin 1968)

Rules of the game that older members subscribe to and new members must learn in order to be accepted into full membership (Ritti & Funkhouser 1982).
Values espoused by the organization (Deal & Kennedy 1982).

Norms that create working groups (Roethlisberger & Dickson, 1938; Homans, 1950).

That which makes life worth living (Eliot, 1949)

Shein (1985) argues that these descriptions "reflect culture" (p. 6), but do not articulate the essence of culture. Culture then, according to Shein, "is a learned product of group experience and is, therefore, to be found only where there is a definable group with a significant history (p. 6- 7). After years of additional research, Shein (1992) further defined culture as:

"a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (p. 12).

Regardless of the scope and breadth of a selected definition or description of the essence of culture, research has substantiated that culture is a real phenomena (Shein, 1985) and that this phenomena determines the extent to which the organization accomplishes its mission (Brandt, 1981; Deal & Kennedy, 1982; Peters & Waterman, 1982; Wilkins & Ouchi, 1983). Contemporary research confirms what Mayo concluded decades ago, that the interaction of individuals within the organization is crucial to their individual happiness, and intergroup harmony (French, 1990). Given the complexity of the subject matter and its documented impact on productivity, the subject of organizational culture merits further research.

To date, research has made little progress in operationalizing the concept of organizational culture or suggesting how it may intervene in the relationship between structures and outcomes (Dastmalchian, 1989). Shein's (1985) research concludes that organizational culture is a pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid. The significance of culture then, is that it should be taught to new

members as the correct way to perceive, think, and feel. Schein also notes that many of the methods employed by culture analysts (Peters, 1980; Schwartz & Davis, 1981; Tichy, 1983; Kilmann, 1984) suggest that if the researcher is sufficiently talented to correctly identify the issues to be studied, asks the central question(s), and selects an appropriate research design, the nature of what culture is can be decoded.

Numerous studies suggest that the study of culture is necessary because the key to survival and/or growth is a function of the degree to which the organization can balance its core competencies with the needs of society (Donaldson & Lorsch, 1983; and Kotter & Heskett, 1992). Schein (1992) offers the following succinct, but comprehensive rationale.

Organizational development is increasingly oriented around the notions of learning, innovation, adaptation, and perpetual change in response to the ever increasing rates of technological, social, economic, and political change. As a stabilizing force in human systems, culture is one of the most difficult aspects to manage in a climate of perpetual change. The challenge lies in conceptualizing a culture of innovation in which learning, adaptation, innovation, and perpetual change are the stable elements (p. xiv).

Shein (1992) then recommends that the study of culture must be continued for the purpose of placing the nature of organizational culture on a solid conceptual foundation. Shein (1992) describes the linkage between leadership and culture in the following manner:

[C]ulture and leadership are two sides of the same coin in that leaders first create cultures when they create groups and organizations. Once cultures exist, they determine the criteria for leadership and thus determine who will or will not be a leader. But if cultures become dysfunctional, it is the unique function of leadership to perceive the functional and dysfunctional elements of the existing culture and to manage cultural evolution and change in such a way that the group can survive in a changing environment (p. 15).

This study is an additional effort to place the concept of culture within the context of contemporary management theory and examine organizational culture's effect on productivity by means of educational interventions.

Educational Interventions

The intent of this research is to expand the analysis of organizational culture by studying the impact of educational interventions on organizational culture. Consequently, it is appropriate that this review of the literature incorporate a discussion of theoretical concepts related to the field of education.

Extensive writings on the subject of education present a difficult starting point. Some of the writings address the theory of education and others offer insight into the practice of education. In Curriculum Development Theory and Practice, Hilda Taba (1962) discusses the theory of education. Taba offers the premise that education is a preserver and transmitter of cultural heritage, an instrument for change, and a process of individual growth and development (p. 18). Taba further notes that since all cultural traditions have roots, cultural continuity is possible only if education preserves this heritage by passing on the truths worked out in the past to the new generation, thus developing common cultural background and loyalties.

Change is inevitable and society, as it becomes known to each generation, is a function of the passing on of truths as they were understood and the values placed upon these truths by the preceding generation. Therefore, it is through this educative process that change impacts the individual and the individual impacts the base of knowledge that is transmitted to the next generation. More importantly, by becoming an active participant in transmitting and

contributing to the body of knowledge, the individual becomes the end product of education.

J. Galen Saylor (1981) sees education as a continuing process and speaks to the subject in terms of the purpose and practice of education. According to Saylor, education is that process which prepares individuals to be productive members of society and enables the individual to develop to his or her optimal potential. Such individual growth takes into account both the knowledge to be acquired and the traits to be developed. Interestingly, Saylor gives equal weight to those human characteristics known as morals, attitudes, appreciation and values; and those behaviors related to intellectual ability. Thus education shapes and enhances both knowledge and human values.

Saylor's views are not however new. In Democracy and Education, John Dewey (1916) went beyond the aforementioned concepts by noting that education first and foremost is a necessity of life. Education is a social function, a direction, and a growth process. Decades later, Taba (1962) and Saylor (1981) reaffirm Dewey's contention that education is continuous. In its broadest sense, education is the medium of continuity that makes possible social

systems of life. Continuity however, is not necessarily growth and development. Too often, there is the tendency to assume that all experiences are educational. Contrary to this notion, Dewey carefully emphasizes that experience and education cannot be directly equated to each other because some experiences are "mis-educative." Dewey defines "mis-educative experience" as one that arrests or distorts further growth and development. Dewey further observes that within the concept of the experimental continuum, a distinction must be drawn between efficiency and education (p. 109-110). The volume and/or variety of an individual's experiences may result in increased efficiency, but the quintessence of growth lies in the capacity of those experiences to positively stimulate curiosity, strengthen resolve, and become self-perpetuating.

Dewey (1916), Taba (1962) and Saylor (1981) agree that participation in the educative process is a positive modifier to the life of the participant. Based on the contributions of these scholars, it can be concluded that education is fundamental to life, a preserver and transmitter of cultural heritage, positively stimulating, continuous and self-perpetuating. But what then, does education seek to accomplish? Dewey offers the answer to this question when

he advocates that education is the scientific method by means of which man studies the world; and acquires cumulative knowledge of meanings and values. Much of Dewey's work focuses on values and the concept that the process of education is incomplete without the attainment of a complementary value system.

Allan Ornstein (1982) traces the chronology of educational innovation and change over decades. As a result he recognizes and documents the complementary attributes of education and values. The technological advances in communication systems and the increasingly complex process of learning necessitate changes in educational goals and objectives. Even though equally significant, these factors require different approaches if quality education is to be achieved. Ornstein warns against the subordination of human values to technological advances.

In the three quarters of a century between Dewey and Ornstein, theorists have sought to broaden the body of knowledge pertaining to education. Coupled with this process is the continuity of the social order which hinges on the ability of education to remain both sensitive and responsive to its role in instilling a positive value system.

In reviewing the works of education scholars, Malcolm Knowles (1970) notes that because a great deal of scholarly writings have been dedicated to the education of children in a school setting, the impression is often left that education is limited to the instruction of children. In contrast, Ingalls and Arceri (1972) Kidd (1973), McKenzie (1977), Knowles (1980) and Jackson and DuVall (1989) argue that adult education or andragogy is a specialty in itself with its own body of knowledge and implementing strategies. Knowles even attempts to make a distinction between the principles of education associated with adults versus those associated with children.

As a discipline however, andragogy has its critics. Among the critics are Houle (1972), London (1973), Elias (1979), and Davenport and Davenport (1985), who question the value of such a distinction in education and raise doubts regarding the existence of a theoretical base. While this research is not intended to join the debate on whether or not empirical research supports a fully developed theory known as andragogy, it must be recognized that scholars have begun to research education from a perspective that differs from the more

common literary forms associated with the education of children and youth.

Adult education carries a variety of labels which include, but are not limited to staff development, manpower development, training, continuing education, lifelong learning, career development, and human resource development. The purpose of this research is to investigate the impact of educational interventions on organizational culture at an urban federal agency. Consequently, it is appropriate that this review of the literature be sufficiently broad to include information relative to research on the education of adults, i.e., 'people who work'; as well as educational policies and practices at the federal level.

Regardless of the label placed on the activity implemented, education is the process of increasing the learning levels of employees, individually and collectively, for the purpose of optimizing individual and organizational growth and effectiveness (Chalofsky, 1992). Education has also been interpreted as the strategic effort designed to move the organization toward excellence in accomplishing its stated mission. Beckhard (1969) identifies five characteristics of efforts to enhance productivity through education.

Such efforts must be: (1) planned, (2) organization wide, (3) managed from the top, (4) targeted toward effectiveness and efficiency, and (5) planned interventions within the organization using behavioral science knowledge.

The body of knowledge which comprises the theories of contemporary management, human motivation and behavior, as well as, organizational culture and education has been expanding for several decades. By the 1970's, these seemingly separate disciplines are now collectively contributing to what has become the field of organizational development (Foulkes, 1975; Hall, 1986). Much of the credit for the growth of studies in the area of organizational development begins with the work of Maslow (1943) and Kurt Lewin (1959). Other contributors include McGregor (1960), Likert (1961) and Blake and Mouton (1964). In their own way, each has attempted to analyze organizational dynamics for the purpose of resolving problems and increasing organizational productivity. Hall (1971) notes that research on careers and education was all but absent from the literature. Later writings, (Schein, 1978; Greenhaus, 1987; Feldman, 1988; Brown, Brooks, and Associates, 1990) signal

the beginning of an intensive investigation into the relationship between individual employees and the organization.

Brown et. al., observe that significant distinctions exist in the growth and development of human resource issues in the 1970's and 1980's. They observe that the traditional, hierarchial organizational structures with the more rigid employer-employee relationships of the 70's are diminishing. New technologies, international competition, and drastically changing employee values are invading the American workplace of the 80's. Gutteridge (1986) and Pazy (1987) report that social changes, laws, and a variety of employees' needs encourage even the most reluctant of employers to begin educational programs intended to meet the needs of employees and the organization. Even employers who are not convinced that educational initiatives are important to meet the needs of individual employees are persuaded that such initiatives have the potential of increasing productivity (Leibowitz & Schlossberg, 1981). It is precisely this linkage between education and productivity that sparked this researcher's interest in investigating the impact of educational interventions on organizational culture. Particularly the lack of information on the impact of educational interventions on

organizational culture within the public sector as opposed to the private sector needs to be studied.

The private sector has taken a lead in research efforts to investigate, establish and advance its respective organizational culture through educational interventions. Walker and Gutteridge (1979) surveyed 225 companies, of which more than a third were involved in educational programs designed to enhance worker productivity. Griffith (1980) reported on the educational practices of 118 Fortune 500 companies who, in varying degrees, were actively involved in educational programs designed to enhance either individual or organizational productivity. Joyce Russell (1991) describes a number of large private sector organizations, including Xerox and Disneyland, who have taken steps toward the implementation of educational programs.

Within the public sector, the U. S. Department of Energy has conducted at least eight studies on organizational culture, but have not created a link to educational interventions affecting the productivity of the organization. Also, the Naval Petroleum Reserve has conducted a study on organizational culture. Results of the NASA wide culture survey have been examined within the context of

standard theories on human needs and motivation. The data were then analyzed as they relate to the project management effort.

Notwithstanding these endeavors, public organizations in general have not achieved the same level of progress with regard to studying organizational culture peculiar to the public sector (Cleveland, 1982, Daneke, 1990, Wholey & Hatry, 1992).

Additional research, especially on educational interventions and their impact on organizational culture, is essential if public agencies are to produce meaningful outcomes, remain responsible deliverers of service, and be accountable for those outcomes and services.

Past and contemporary research on culture reveals that while dynamic in nature, changes in culture can also be strategically planned within the organization (Lewin, 1958; Lippitt, Watson, & Westley, 1958; Burke, 1982; Harvey & Brown, 1988). While the decision to initiate a cultural change through educational interventions usually follows a major problem or malfunction within the organization, it is the thesis of this study that educational interventions must be in place in order to effect a cultural change (Lippitt et. al., 1958).

For example, a major malfunction and subsequent strategically planned cultural change occurred at the National Aeronautics and Space Administration (NASA), following the 1986 Challenger accident. Given the technical problem associated with the now famous "O" ring (the seal between the fuel tank and the shuttle), it would have been tempting to simply attribute the accident to "mechanical" failure. After closer scrutiny and numerous investigations, it was concluded that the disaster had a human origin (Vaughan, 1990). Vaughan says that organizational culture had become so flawed that it became an obstacle to safety (p. 226). Without minimizing the impact of either technical or mechanical failures, Vaughan concludes that "closer attention to organizational relations should provide valuable insights into the assessment, distribution and acceptability of risk" (p. 254).

Michael Collins (1988), author and one of the first three men on the moon describes the culture within NASA as follows.

NASA was badly shaken by Challenger, and jarred out of any such feeling of complacency, but in the absence of a compelling goal such as the moon--how do you find and keep the best people, and keep them in a high state of dedication and concentration forever? I suppose organizations are only as good as their people, and NASA still has many of the finest, but organizations also

assume a character of their own. To me, walking the halls of a NASA installation was always different. NASA was new, and people scurried about with zest, with a youthful spring in their step. Now NASA seems pretty much like other old-timers, a mature bureaucracy, a bit set in its ways, shuffling, not dancing, through austere times. Its arteries are hardening a bit (p. 239).

Collins (1988) and the Presidential Commission on the Space Shuttle Challenger Accident (1986), both of whom investigated the Challenger accident, continue to view NASA as a national resource, a symbol of national pride and technological leadership, capable of meeting the challenges of the 21st century. To remain viable however, a change in culture needed to be strategically initiated.

The steps toward cultural change are a combination of external adaptation and internal integration and therefore must be planned (Parsons, 1951; Merton, 1957). According to Shein (1992) the fundamental assumptions regarding cultural change are the result of the work earlier described by Lewin (1958) as a process of unfreezing the current behavior, movement in the organization by planned interventions, and refreezing the newly formed culture.

The unfreezing process involves the identification of a major problem as the basis for change; the realization that the existing cause of the problem is inconsistent with the goals of the

organization; and, there exists the possibility that the problem can be resolved without the loss of integrity to the organization (Bass 1981; Kotter 1988; Shein, 1992). Data reflecting the nature of problems to be addressed are likely to be derived from feedback or survey data (Bowers 1973; Nadler 1977).

Movement describes organizational change resulting from the implementation of a planned intervention. Interventions are restructuring initiatives which the organization believes will result in the desired level of cultural change.

Refreezing the newly formed culture refers to the process of instilling new norms, interpersonal relationships and management styles, as well as the design of reinforcement strategies that will perpetuate the new culture (Tannenbaum & Davis, 1969; Seashore & Bowers, 1970; Lawler, 1977).

The focus of this study is founded on the theoretical knowledge base established by Lewin. At the NASA-Langley Research Center (NASA-LARC), senior management conducted a survey of organizational culture in 1989, for the purpose of understanding the forces in the organization's culture that potentially promote or inhibit performance (W. Warner Burke Associates, 1989). The main

conclusion drawn from the results of the culture survey is that employees believe that top management at NASA-LARC focuses most attention on mission accomplishment and pays least attention to managing people. NASA-LARC's Director observes that previous studies have not resulted in significant changes in organizational culture or the quality of life for individuals (P. F. Holloway, personal communication, 1991).

Based on these findings, senior staff at NASA-LARC launched a strategic effort to implement an educational initiative designed to ameliorate organizational culture. The specific educational interventions of this initiative are categorically identified as: (1) communications; (2) rewards and recognition; and (3) career development. Four years after the first culture survey and two years since the phased implementation of educational interventions, top management has a unique opportunity to study pertinent and current data relative to NASA-LaRC's culture as influenced by educational interventions.

Communications

Various forms of communications are part of organizational

operations and studies have been conducted to determine the role and value of those communications. Attempts have been made to identify linkages between communications and organizational climate, job satisfaction, organizational culture, and organizational effectiveness (Sotirin, 1984; Petelle, Garthright, & Petelle, 1985; Handy & Barham, 1990). In general, research suggests that the construct of communications is multidimensional, dynamic, and inextricably linked to organizational culture and organizational effectiveness (Kortner, 1988; Zamanow & Glaser, 1989; Cude, 1991).

Rewards and Recognition

Reward and recognition systems are powerful mechanisms for enhancing employee satisfaction and organizational performance. Such rewards are delivered in a variety of forms, among which are pay, promotions, fringe benefits, developmental opportunities, gain sharing (Cummings & Huse, 1989; Shein, 1992). In A Great Place to Work, Robert Levering (1989) identifies rewards as one of the 'three R's' of employee motivation. A common area of emphasis with respect to rewards is that they be meaningful, linked to specific performance, timely, and presented in such a manner as to support

management's philosophy on rewards (Levering, 1989; Shein, 1992; Hajnal & Dibski, 1993).

Career Development

Career development efforts refer to those organizational practices that assist employees in improving current performance and preparing for future opportunities (Benhan, 1993).

Organizational efforts to provide such developmental experiences for their employees have been and will continue to be a critical issue for decades to come (Duffy, 1990; Mills & Friesen, 1992). In order to maximize the effects of employee development efforts, organizations should strive to create internal environments which are conducive to and supportive of employee growth and development efforts.

Education at the Federal Level

In that the interventions consisted of a variety of educational strategies undertaken at an urban federal agency, this section of the review of the related literature now concentrates on education at the federal level.

The federal government recognizes and promotes education as noted in Title V of the Code of Federal Regulations, specifically Chapter 410, titled "Training" (1992). Federal regulations on education recognize the linkage between education and productivity by requiring that at least annually, agencies conduct reviews of training needs so as to bring about more effective performance. Exercising its responsibility for promulgating federal regulations, the Office of Personnel Management mandates that federal agency heads take such administrative action as is necessary to assure that plans and programs are developed to meet short and long-range training needs; that employee self-development is fostered through a work environment in which self-development is encouraged; self-study materials are reasonably available; and that self-initiated improvement in performance is recognized. The combined effect of federal regulations on education is to first recognize the importance of education in meeting organizational goals; and promote a positive culture which encourages human resource development (5 CFR 410).

At the NASA headquarters level and at NASA-LARC, management shares in the philosophy of the linkage between productivity and education. In the Management Manual on

"Employee Development and Training", management commits to provide training and educational opportunities which stimulate growth and improvement in employee skills necessary for the effective and efficient conduct of NASA-LARC's mission.

In describing the function of education in government, as compared to that in universities or public schools, Knowles (1980) observes that:

"[A]t first, the educational function was merely a secondary aspect of the line operations, an extra duty of the master craftsmen, foremen, supervisors, department heads, and executives. Then as personnel management became differentiated as a function, responsibility for training tended to become subsumed under it. Later there was a tendency for departments of training, personnel development, or employees' education to become separated out as independent units responsible to top management" (p. 70).

Consistent with Knowles description of the positioning of the personnel function at NASA-LARC, the Office of Human Resources, now reports to the Associate Director.

NASA-LARC has also established a number of programs to meet the varying needs of employees who represent a range of occupations, levels of experience, and career goals. These programs include undergraduate to graduate, courses at and away from NASA-

LARC, seminars, conferences, educational resource lecturers, in-house training, correspondence training, and management and executive development programs.

Within this context, how can education be manifested in the form of an intervention? Lewin (1958) defined an intervention as a series of actions that will move the organization from its original level of productivity or behavior to a newer, presumably higher level. In addition to moving beyond Lewin's work, Lippitt, Watson and Westley (1958) sought to clarify that work by identifying three stages of the intervention process. They note that careful data analysis of the organization is necessary if the problem area is to be accurately assessed. Second, alternative courses of action should be weighed against one another in light of predetermined objectives and the support for change. The third stage is that of transforming theoretical interventions into meaningful agents of change.

Argyris (1970) identified three kinds of interventions. The first category of interventions refer to those that have been used repeatedly and are recognized for their ability to address particular kinds of problems. The second kind of intervention is that specifically tailored to be responsive to a given problem area. The

design of this intervention is well grounded in the research, but subject to modification during implementation. The third kind of intervention is state of the art in the sense that its design and implementation are new and serve to advance the related knowledge.

Organizational interventions are those actions intended to aid the organization in improving its effectiveness in the areas of both quality of work life and productivity (Cummings & Huse, 1989). Cummings and Huse add that interventions are to be derived from "careful diagnosis" (p. 126) and are intended to resolve specific problems identified by the diagnosis. Cummings and Huse also define interventions related to "culture change" (p. 133) as those efforts aimed at helping organizations to develop values, beliefs, and norms that keep members pulling in the same direction.

When referring primarily to management development activities, Gray and Snell (1986) define educational interventions as efforts undertaken to enhance organizational effectiveness. Interventions must also be based on valid information reflecting organizational functioning, selected by organizational members who have a knowledge of the choices being made, and have the support

of concerned parties (Argyris, 1970).

For purposes of this study, educational interventions are organized, systematically planned, and sustained efforts which when effectively implemented ameliorate structures, procedures and organizational culture. The implementation of such interventions involves employees who are actively engaged in efforts that assess, diagnose, and positively transform their organization.

This review of the related literature has examined pertinent and selected research related to contemporary management theory, organizational culture, and educational interventions. The following chapters present the methodology, data analysis, results, summary, conclusions, recommendations, and future implications relative to the impact of educational interventions on organizational culture at an urban federal agency.

CHAPTER III

Methodology

This study seeks to examine the impact of educational interventions on organizational culture at an urban federal agency. Specifically, the purpose of the study is to evaluate the impact of an educational initiative on organizational culture at the NASA-Langley Research Center (NASA-LARC).

Research Design

Educational evaluation or impact research is the systematic application of social research procedures for assessing the conceptualization, design, implementation, and/or utility of social intervention programs (Rossi and Freeman, 1989). More simply stated, educational evaluation is the formal appraisal of the quality of educational phenomena (Popham, 1988).

Recognition of the value and potential contribution of educational evaluation or impact research as a research design can be traced to Ralph W. Tyler (Stanley & Hopkins, 1972; Popham,

1988). In constructing a paradigm for educational evaluation, Tyler (1942) began with the premise that such evaluations must be oriented toward determining the extent to which a given educational program achieved its intended goals. Although Tyler's comments were primarily targeted toward the education of youth in a classroom setting, his paradigm regarding the formation of identifiable goals, definition of measurable objectives, and conclusive assessment of the educational program supports the research design of this study.

Cronbach (1963), Scriven (1967), Stake (1967), Rossi and Freeman (1989) presented recommendations for the improvement of evaluations. Lee J. Cronbach's research on educational evaluation advocates that maximum effectiveness in education can be achieved provided that the evaluation focuses less on the comparison of different programs and more on determining whether or not a specified program achieves its desired results.

Michael Scriven (1967) adds to the literature on evaluations by drawing a distinction between formative and summative evaluations. Formative evaluations are those assessments designed to improve programs while it is still possible to modify that program.

Summative evaluations are appraisals or judgements of completed programs.

Robert Stake (1967) presents a model for evaluating educational programs by distinguishing between descriptive and judgmental assessments by the evaluator. Descriptive assessments are those actions taken to fully state that which is intended by the program and that which results from the program. Judgmental assessments by the evaluator refer to efforts to make comparisons about an educational program or between programs.

In discussions of impact evaluation designs, Rossi and Freeman (1989) observe that scholars, theorists, administrators and others are making progress in designing impact assessments of "full coverage programs", (p. 348) which are characterized as being those for which there are few, if any, non-participating targets. In such cases, the more frequently used design is that of comparing pre-program and post-program outcome measurements (p. 374).

Despite numerous similarities between educational evaluation and educational research, significant differences do exist between the two processes (Stanley & Hopkins, 1972; Bailey, 1982; Popham, 1988). Popham points to these similarities and offers a set of criteria

by which to distinguish between the two. The two are similar in that they both engage in 'disciplined inquiry', use "measurement devices", analyze data, and publish their findings in formal reports (p. 10-11).

There are however, meaningful differences. Among the differences cited by Popham are: (1) focus of the inquiry; (2) generalizability of the findings; (3) the role of "value" in the inquiry; and (4) data analysis.

With respect to the focus of the inquiry, the researcher's orientation is focused on understanding phenomena and drawing conclusions. The evaluator's focus is on decision making and the collection of data which will enable policy makers to formulate better decisions.

The extent to which the results are generalizable represents a "pivotal" (p. 11) difference between research and evaluation. Researchers seek to discover the nature of relationships among relevant variables and reaching conclusions that are applicable to a variety of situations involving comparable variables. Evaluators on the other hand, focus on data related to a particular educational program and the decisions that may be predicated based on that data.

A third difference between research and evaluation is the role of valuing in the inquiry. The researchers goal is to discover "scientific truth" (p. 12), while the evaluator attempts to discern the value or "worthwhile" quality of a particular educational phenomenon, i.e., organizational culture.

A final dichotomy relates to differences in data analysis. The researcher seeks to prove or disprove using quantitative measures, while the evaluator uses data which describe, detail, or otherwise present an image or an account of the phenomena investigated.

Based on the postulates of Cronbach (1963), Scriven (1967), Stake (1967), Popham (1988) and Rossi and Freeman (1989), the attributes of this study of the impact of educational interventions on organizational culture at an urban federal agency are consistent with the literature relating to the definition, design, and analysis of educational evaluations.

There are several models by which the conduct of educational evaluations can be guided. Among the models are those by Cronbach (1963), Scriven (1967), Stake (1967), and Rossi and Freeman (1989). It is this latter model by Rossi and Freeman that most influences the research design for this study.

Two conditions must be met for the conduct of impact evaluations: (1) the objectives are sufficiently well articulated to make it possible to specify measures of goal achievement; and (2) the intervention is sufficiently implemented that there is no question that its critical elements have been delivered to the appropriate targets (Rossi and Freeman, 1989).

The first of these criteria, specificity and measurability, is documented in the "Process for the Strategic Culture Assessment for the 90's (SCAN)" (L. C. Hamilton, personal communication, Fall 1990). According to Hamilton, the critical objective of the educational initiative is to reduce the difference in perceptions of organizational culture by managers and employees. The difference, if any, can be measured by comparing the differences in managerial and employee perceptions of culture in 1989 with the differences in managerial and employee perceptions of culture in 1993.

The second criteria, delivery of interventions to the target population, is also verifiable. In the "Senior Staff Report to All Employees", NASA-LARC's Director reports on the process undertaken to formulate the educational initiative; identifies SCAN team members; lists each of the recommendations; sets forth a

rationale for the acceptance, modification or rejection of a particular recommendation; and provides a timetable for the implementation of each recommendation accepted for implementation. In so doing, NASA-LARC's Director establishes the parameters by which this study can objectively identify the specific and measurable educational interventions, and determines the extent to which these interventions were delivered to the appropriate target population.

Evaluation Questions

The critical objective for NASA-LARC's overall educational initiative is to reduce the difference in perception of organizational culture as perceived by managers and employees. Secondary issues focus on contemporary views of employees on organizational culture at NASA-LARC; and the extent to which educational interventions contribute to the change, if at all, in the differences of views held by managers and employees. Accordingly, the fundamental evaluation questions which this research will address are: (1) Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?; (2) What are the prevalent views held by employees concerning organizational culture

at NASA-LARC?; and (3) To what extent do employees perceive that organizational culture has been influenced by NASA-LARC's educational initiative?

Data Collection

The research suggests that organizational culture can be effectively studied through the use of interviews and survey instruments leading to Likert-type profiles (Likert, 1967; Hofstede, 1980; Martin and Meyerson, 1988; Schein, 1990). According to Schein (1990), the survey approach maximizes the combined benefits of insider knowledge and outsider questions.

Another commonly used research technique is the inclusion of open-ended questions in the survey, particularly when seeking information on complex issues such as organizational values (Schuman & Presser, 1979; Bailey, 1982). The robustness of this study is enhanced by the study of over 7,000 free responses from 1,906 employees to three open-ended questions contained in the 1993 Quality Climate Survey.

Interviews, according to Popham (1988), are roughly "akin" to the live administration of a questionnaire (p. 101). The advantages

are that the interviewer can put the interviewee at ease, secure more candid responses, and follow-up on those responses.

Interviews with management officials are conducted to determine their involvement in and intent with regard to the design and implementation of the educational initiative.

According to Rossi and Freeman (1989), the critical issue in impact evaluation is whether or not a program produces effects different from what would have occurred either without the intervention or with an alternative intervention. Therefore, a final and critical component of the data collection strategy is to establish a linkage between the educational initiative and the change, if at all, in organizational culture. This is to be accomplished by interviews of a select group of NASA-LARC employees, including supervisors whose knowledge permits them to offer pertinent insights.

The data collected during the conduct of this study is derived from the following six separate sources: (1) results of the 1989 Culture Survey; (2) interviews of top and middle management concerning perceptions and actions leading to the design and implementation of the educational initiative; (3) the educational interventions designed and implemented at NASA-LARC; (4)

interviews of employees, including managers and supervisors; (5) free responses to three open-ended questions contained in the 1993 Quality Climate Survey; and (6) quantitative results of the 1993 Quality Climate Survey. The methodology associated with the collection of data in each of the aforementioned categories follows.

1989 Culture Survey

The period March through June 1989, was dedicated to conducting a culture survey at NASA-LARC for the purpose of understanding the forces that potentially promote or inhibit organizational performance. The subjects for this study represent a stratified random sample of NASA-LARC's approximate 2,800 employees. A total of 937 employees, approximately one-third of the permanent civil service population, was selected by computer to be surveyed. On March 20, 1989, then NASA-LARC's Director, Richard H. Petersen, wrote a letter transmitting the questionnaires to employees. The Director's letter requested employee support in completing the questionnaire based on their perceptions of the NASA-Langley Research Center. The Director's letter included a questionnaire, a computerized answer sheet, and a pre-addressed,

postage paid envelope for returning the completed survey. A copy of the Director's letter, survey instrument, and computerized answer sheet are shown in Appendix A.

The survey instrument, "NASA Culture Questionnaire for Langley Research Center", requests information related to: (1) work satisfaction, (2) work unit climate, (3) NASA culture; (4) NASA-LARC culture, and (5) NASA-LARC specific items. In addition to the demographic data, the instrument contained a total of 180 statements requiring responses to a five level Likert-type scale ranging from "not descriptive" to "very descriptive." In addition to responding to issue related statements, employees also provided information related to their education, age, gender, race/ethnicity, years of NASA service, years at the current installation, grade (pay) level, occupation, supervisory or nonsupervisory status, participation in management development programs and the number of NASA Installations where those employees have worked. Without formal follow-up, 462 or 49.3% were determined to be usable returns.

The results of the 1989 Culture Survey were developed and reported using narrative summaries and descriptive statistics. The specific results documented differences in management and

employee perceptions of organizational culture.

Interviews of Top and Middle Management

After reviewing the results of the 1989 Culture Survey, the Associate Director (under the auspicious authority) of the senior staff at NASA-LARC, commissioned three task teams to conduct more in depth assessments of the major areas of concern, i.e., communications, rewards and recognition, and career development (L. C. Hamilton, personal communication, Fall 1990). The record is incomplete in that there is little written evidence relating to the: (1) formulation of the policy that led to the 1989 study of organizational culture at NASA-LARC; (2) dialogue that resulted in the commitment to implement the educational initiative; and (3) specific objective(s) top management sought to achieve as a result of the educational initiative.

The results of the interviews are detailed in narrative summary and reflect managerial perceptions of organizational culture in 1989, desired changes in culture, and the development of policy to effect those changes. Interview questions for members of top management are designed to elicit for the record, management's involvement in

the 1989 Culture Survey, and document their intent with regard to planned cultural changes at NASA-LARC. The specific questions asked during these interviews are found in Appendix B.

Educational Interventions

In February 1990, the Associate Director of NASA-LARC met with a select group of employees to discuss their role in NASA-LARC's response to the 1989 Culture Survey. According to Hamilton (personal communication, Fall 1990), the Associate Director requested that they address the three critical issues, i.e., communications, rewards and recognition, and career development. The instructions emphasized that the SCAN teams were to concentrate on "where we are and where we're going (p. 3)." The Associate Director stated during the meeting with the SCAN teams that there would be no "sacred cows", or internal road blocks to recommended changes. The teams were to proceed with their tasks in such a manner that they could make their final report to top management in July 1990.

The three team leaders were offered and accepted the services of a consultant from the Human Resources Management Division,

who was available for facilitation and consultation on technical matters. Team leaders and the consultant chose a name for the effort, "Strategic Culture Assessment for the Nineties (SCAN)." Team members were selected from lists of employees nominated by each of the seven directorates at NASA-LARC. Prospective team members were selected to represent a cross section of NASA-LARC's demographics and interviewed to ensure their interest in and commitment to the planned effort. The final roster of members represents each of the directorates and all of the occupational groupings, and all are nonsupervisory personnel.

The SCAN Teams developed the following approach to ensure that their efforts were focused and systematic:

1. Collect Data for Problem Definition/Identification
2. Analyze Data
3. Develop Findings and Recommendations
4. Identify Evaluation Methods
5. Present to Top Management
6. Establish Follow-up Mechanism

A critical area of inquiry for this research focuses on educational interventions adopted by the NASA-LARC. The

recommendations that were accepted for implementation combine to form the educational initiative. The educational interventions, by category, including those rejected, are found in Appendix C.

Interviews of Employees

The 1993 Quality Climate Survey, while extracting information regarding organizational culture at NASA-LARC, failed to establish a linkage between managerial and employee perceptions of organizational culture in 1993, and the educational interventions which formed the educational initiative. Therefore, the data collection was extended to include interviews of a purposive sample of employees. According to Bailey (1982) and Popham (1988), the researcher is permitted to establish criteria by which to select a purposive sample to be interviewed. In this case, interviews were made of 16 employees, including managers, whose employment at NASA-LARC pre-dates the 1989 Culture Survey and whose knowledge of the educational initiative permits them to objectively comment on the extent to which those educational interventions contributed to the change, if at all, in organizational culture. The "Organizational Culture Impact Matrix" found in Appendix D was

used to obtain information from employees.

1993 Quality Climate Survey

Free Responses from 1993 Quality Climate Survey.

The 1993 Quality Climate Survey was administered to all 2,881, permanent civil service employees at NASA-LARC. Employees were requested to respond to survey questions using the survey instrument found in Appendix E. Additionally, employees were provided the opportunity to respond to three open-ended questions. The questions are shown below:

1. Describe at least two areas where improvement could take place within your organization (Question 96).
2. List two or more things you like about this organization (Question 97).
3. Any further comments? Feel free to attach another page if needed (Question 98).

Responses to these questions were reviewed, tallied and recorded according to the organization to which the employee was assigned. The responses were analyzed to discern common themes regarding organizational culture. Profiles of these responses,

categorized by organization, supervisory or nonsupervisory status, occupation, and question were developed. The responses were analyzed to discern common themes regarding organizational culture.

1993 Quantitative Data From Quality Climate Survey.

In April 1993, a Quality Climate Survey was administered by forwarding the instrument directly to all 2,881, permanent civil service employees with instructions that the employee had one week to complete and return the survey. A total of 1,906 or 66% of surveyed employees returned the survey instruments without formal follow-up.

The survey instrument consists of 95 statements divided into eleven categories: organization, management, communication, work group, problem solving, customer orientation, measures, training, recognition and rewards, general, and comments. The survey instructs employees to fully answer each question by circling the number which best indicates the extent to which the employee agrees or disagrees with each questionnaire item. Employee responses using Likert-type scales of 1 through 5 and DK, with 1 representing strongly disagree, 2 representing disagree, 3

representing neither agreement or disagreement, 4 representing agree, 5 representing strongly agree, and DK representing "don't know" are analyzed as part of this study. A copy of the survey instrument is shown in Appendix E. The comments section consisted of three open-ended questions to which employees were invited to provide free responses. The nature of these questions were previously addressed.

A "Data Analysis Information" section at the end of this instrument permitted employees to provide data relative to length of service with NASA, occupation, gender, and organizational affiliation.

Data Analysis

This study sought to determine the impact of educational interventions on organizational culture at an urban federal agency. The principal evaluation questions are: (1) Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?; (2) What are the prevalent views held by employees concerning organizational culture at NASA-LARC?; and (3) To what extent do employees perceive that organizational culture has been influenced by NASA-LARC's educational initiative?

Of the three aforementioned research questions, the first is of major import. In order to determine whether or not the difference in management and employee perceptions of organizational culture changed from 1989 to 1993, data from both the 1989 and 1993 surveys were selected for comparative analysis.

Data from the 1989 Culture Survey included for analysis and presentation were mean scores related to organizational climate and work satisfaction. The data were aggregated by occupational grouping, organizational assignment, and grade level. Additionally, the 1989 Culture Survey contained data relative to NASA-LARC'S culture based on the employees' supervisory or nonsupervisory status.

The instrument used to conduct the 1993 Quality Climate Survey is not the same as that used in 1989, therefore, direct comparisons of responses are not possible. This limitation does not however, render the data developed in 1993, useless. The 1993 Quality Climate Survey gave respondents an opportunity to reply to statement numbered 41, "I am satisfied with the teamwork in my group." Since Tagiuri and Litwin (1968) and Schneider (1990) define organizational culture in the context of climate and the

manner in which employees interact with each other, a determination was made to analyze and present employee responses to statement number 41.

The data from both surveys were reviewed, presented, and analyzed individually and collectively for the purpose of drawing inferences relative to the extent to which the perceptions of organizational culture by managers and employees changed from 1989 to 1993.

The second question to which this study addresses itself is, "What are the prevalent views held by employees concerning organizational culture at NASA-LARC?" Two data collection efforts were undertaken in order to respond to this question. The first effort consisted of an analysis of responses derived from the 1993 Quality Climate Survey, and the second was an analysis of free responses to open-ended questions also contained in the 1993 survey. The educational initiative designed for NASA-LARC concentrated on the areas of communication, rewards and recognition, and career development. A review of the 1993 Quality Climate Survey instrument reveals that statements numbered 31, 76, and 82, are directly related to these issues. More specifically,

statements numbered 31 (I am satisfied with communications), 76 (I am satisfied with my training and development), and 82 (I am satisfied with how employees are recognized and rewarded for doing high quality work) provide contemporary responses to the question regarding prevalent employee perceptions on these factors.

Employee responses are aggregated to reflect the views, represented in mean scores, of employees by their supervisory or nonsupervisory status, occupation, organizational assignment, and years of service.

The second set of data collected consists of free responses to three open-ended questions regarding employees perceptions of organizational culture. Data associated with responses to questions/statements numbered 96 (Describe at least two areas where improvement could take place within your organization); 97 (List two more things you like about the organization); and 98 (Any further comments) were collected. This information was analyzed to discern common themes regarding organizational culture. The results are reported using frequency counts, percentages, and narrative summaries.

The third and final question pertinent to this study is: To what extent do employees perceive that organizational culture has been

influenced by NASA-LARC's educational initiative? Interviews of a purposive sample of employees, including supervisors, were conducted using the "Organizational Culture Impact Matrix." Data developed from the interviews are reported using narrative summaries.

Summary

The methodology for the conduct of this educational evaluation is designed to collect, present and analyze data relative to the impact of educational interventions on organizational culture at NASA-LARC. This researcher examined existing data and collected additional data through interviews. The details of the aforementioned research methodology have been presented for the purpose of describing operational procedures used throughout the conduct of this study. Specifically, this section of the study identifies pertinent evaluation questions, details the research design, outlines data collection procedures, cites target populations, introduces the various instruments used in data collection process, and describes the narrative and statistical procedures used to analyze and report the resulting data. The chapters which follow present the data analyses

and results, the summary, conclusions, recommendations, and future implications relative to the impact of educational interventions on organizational culture at an urban federal agency.

CHAPTER IV

Data Analysis and Results

Introduction

The purpose of this research is to examine the impact of educational interventions on organizational culture at an urban federal agency. The information collected represent both pre- and post intervention data derived from a variety of sources, including: results of the 1989 Culture Survey; interviews with top and middle management; interventions designed and implemented at NASA-LARC; interviews with employees, including supervisors; free responses to three open-ended questions contained in the 1993 Quality Climate Survey; and results of quantitative data from the 1993 Quality Climate Survey. These data were analyzed and are reported using narrative summaries and descriptive statistics such as mean scores and frequency counts. One recommended procedure for displaying data in a form readily interpretable to decision makers is to employ graphic presentation schemes (Popham, 1988).

Accordingly, these techniques or schema have been employed to describe the results of this study.

Interviews with Senior Management

A critical objective to this and any evaluation is determining the extent to which the program accomplishes the desired results. Therefore, the presentation of the data collected begins with the interview responses of top management. The purpose of these interviews was to identify the specific objectives management sought to accomplish through the educational initiative.

At the time the educational initiative was being conceived and plans were being formulated for implementation, senior management consisted of the Director, Deputy Director, Associate Director, and Program Directors for each of seven directorates. The managers selected for interview were the Associate Director, Assistant Director and five of seven program directors. An organizational chart is shown in Appendix F.

At the beginning of each interview, a brief history of the 1989 Culture Survey and the Strategic Cultural Assessment for the Nineties (SCAN) process was introduced so that respondents would

have a common frame of reference from which to shape their responses. The interviews lasted approximately one hour during which interviewees were given an opportunity to respond to four basic questions. The document, "Questions for Senior Management", shown in Appendix B includes the prepared statement read to each interviewee. Overall, when recalling the results of the 1989 Culture Survey, the managers interviewed reflected on their general disbelief in the differences in perceptions they held of organizational culture and beliefs in contrast to those reported by employees. Each of the managers agreed that the results of the 1989 Culture Survey clearly and unequivocally signaled that their perception of culture at NASA-LARC was inconsistent with the perceptions held by employees. Up to that point as noted by one manager, senior staff believed that communications with employees and their feelings of empowerment were much greater than that reported by employees. Another manager commented that senior management realized for the first time that with regard to manager-employee relations, they "talked-the-talk", but had not "walked-the-walk." The Associate Director recounted that acceptance of this reality was the "jump start" for the SCAN process.

Considerable information was developed during the interviews with senior management. While numerous references to the interviews, particularly the interview with the Associate Director, will be made throughout this discussion, a summary of the information gathered, by question, is presented.

What was management's intent when accepting the SCAN recommendations for implementation?

As the interviews progressed, each manager reported that after reviewing the results of the 1989 Culture Survey, change was needed. One manager responded that the need for change was essential to NASA-LARC's survival. Another said that the goal for change should be "significant and immediate." Equipped with the data from the 1989 Culture Survey, senior management developed a shared "sense of urgency" for action. Members of senior management were not however, certain as to what the nature of that change ought be. When all of the interviews were completed, not one manager could remember being able to describe the new culture they were attempting to create.

After reviewing the results of the 1989 Culture Survey, it was clear to senior management that three variables were problematic as evidenced by significant differences in perception by managers and employees. The three areas earmarked for intervention were communications, rewards and recognition, and career development. The Associate Director reported that based on a comprehensive review of the data, a decision was made to commission three SCAN teams to gather additional information directly from employees and make recommendations regarding the kinds of actions employees desired management to initiate. The Associate Director stated that senior management made a conscious decision to obtain information directly from employees. This decision was based on the rationale that if employee information was presented through middle management, a filtering of that information would likely dilute actual employee sentiments, values, beliefs, concerns, and other behavioral elements.

The Associate Director reported that by "empowering" SCAN teams to make almost unlimited inquiries, with the knowledge that there were "no sacred cows", senior management believed that SCAN

could obtain the kind and quality of information needed to make decisions critical to cultural change at NASA-LARC.

Interviews with program directors confirmed that senior management was surprised that the data being presented by SCAN team members on behalf of employees were well conceived, not self-serving, geared toward improving NASA-LARC operations, and most of all, reasonable. For an example, one program director stated that the substance and logic of the recommendations contributed to an orderly presentation by the SCAN teams at the 1990 Senior Staff Retreat. He added that for these and other reasons, a large number of the recommendations were adopted as presented at the Retreat.

The Associate Director was specifically asked if in the language of McGregor, NASA-LARC's employees were "Y" employees. His response was a definite "yes." Equally, if not more importantly, his response stressed the fact that senior management had trusted employees to provide honest answers to serious and sensitive questions. Even if the answers received were not favorable or were not what employees thought managers wanted to hear, their trust had been rewarded with the delivery of information this manager described as "honest, timely, and constructive."

Did management attach any names or labels to the culture it was trying to create ...?

Pertinent literature contains numerous definitions or descriptors of organizational culture. Based on senior management's review of the results of the 1989 Culture Survey and after having received the report of the SCAN teams, this researcher was curious as to whether or not senior management had tentatively described the culture they were attempting to create at NASA-LARC. During questioning, no one could recall any discussion to attach names or labels to the kind of organizational culture senior management was attempting to create. However, three managers did for example, emphasize their individual desire to improve communications with middle management and between middle management and employees.

As it relates to the SCAN effort, is there anything about which you are particularly proud?

When asked to identify specific educational interventions about which they were particularly proud, several interventions were identified by managers. The responses included: (1) regularly

scheduled employee forums; (2) changes in the promotion system; (3) new and modified awards; (4) career counseling and coaching training for managers and supervisors; (5) curriculum development for administrative assistants; and (6) variable day work schedules. Managers varied in their perceptions of the effectiveness of these specific interventions. The exception relates to the implementation of the variable day work schedule. Without exception, managers agreed that the implementation of the variable day work schedule has had a very positive effect on organizational culture at NASA-LARC.

The official policy on 'variable day' provides that NASA-LARC's work week is from Sunday to Saturday and the work day is 6:00 a.m. to 6:00 p.m. Employees must work 40 hours during these days and times. The core hours during which employees are required to work are 9:00 a.m. to 3:00 p.m., Monday through Friday. Employees have the flexibility of working the remaining hours at their discretion. Additionally, employees may earn "credit hours" by working more than eight hours per day or 40 hours during a given week. This time may be used at a later date, with the approval of the supervisor, to take leave or make up for hours not worked during the week.

During the interview, the Associate Director noted that the idea of an alternative work schedule had been discussed with middle management several times before, but that the idea had always been resisted because of middle management's contention that such scheduling "would not work." He added that the SCAN team resurfaced the issue and presented a plan that persuaded senior management that the intervention was worthy of further study. The account of the SCAN Teams' efforts regarding the recommendation and implementation of the variable day work schedule was offered by four other managers. The decision to have a variable day schedule policy is regarded as one respondent stated, "a step in the right direction."

When history is written, what will be SCAN's legacy to Langley?

When responding to this final question, answers varied only slightly. Two managers summarized the views of senior management when commenting that data from the 1989 Culture Survey was a "wake-up call" and a "culture shock." Senior staff was made aware of their isolation from employees. The interventions formulated by senior staff signaled their commitment to make

NASA-LARC a more desirable workplace through cultural change. Therefore, as viewed by the Associate Director and three other senior managers, SCAN's legacy is that employees are responsible partners whose contributions are responsive and valued.

A summary of the responses by senior managers reflects that the results of the 1989 Culture Survey proved to be the catalyst for the sense of urgency that positive change was needed. Senior management's intent was that the successful implementation of the educational initiative would result in a new culture where management and employee communications are improved, employees feel rewarded for their contributions, and employees have an opportunity to develop to their fullest potential.

Educational Evaluation Questions

As originally designed, this evaluation of the impact of educational interventions on organizational culture sought to determine the extent to which the educational initiative accomplished its intended objectives. In order to conduct a systematic inquiry, three evaluation questions were developed and serve to guide this study. The evaluation questions are: (1) Has the

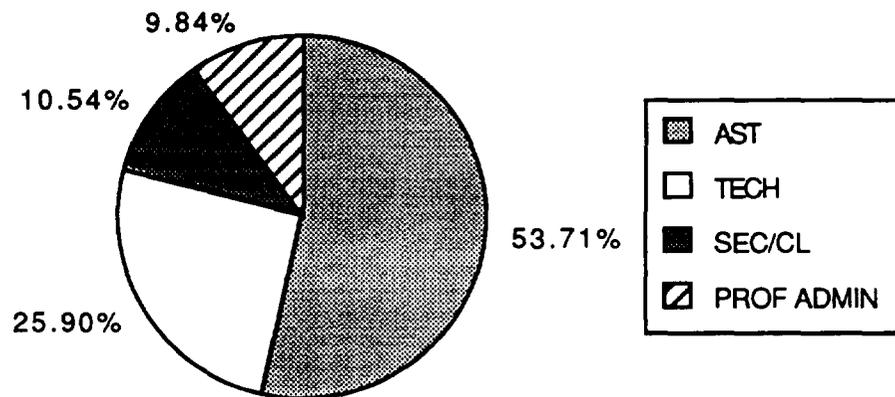
difference in management and employee perceptions of organizational culture changed from 1989 to 1993?; (2) What are the prevalent views held by employees concerning organizational culture at NASA-LARC?; and (3) To what extent do employees perceive that organizational culture at NASA-LARC has been influenced by the educational initiative?

NASA-LARC's Demographics.

The following demographic data are offered to provide a profile of NASA-LARC's workforce. NASA-LARC is the oldest of NASA Installations with a rich and distinguished reputation in the scientific and engineering research community. NASA-LARC was originally organized on the southeastern Virginia peninsula in 1917, as the National Advisory Committee on Aeronautics. When NASA was created by the National Space Act in 1958, NASA-LARC as we know it today was begun. The following data are highlighted to describe the permanent civil service workforce of 2,881 employees. Employees at NASA-LARC are classified into four major categories of occupations: AST's (scientists and engineers), administrative professionals, technicians (technical engineering support), and

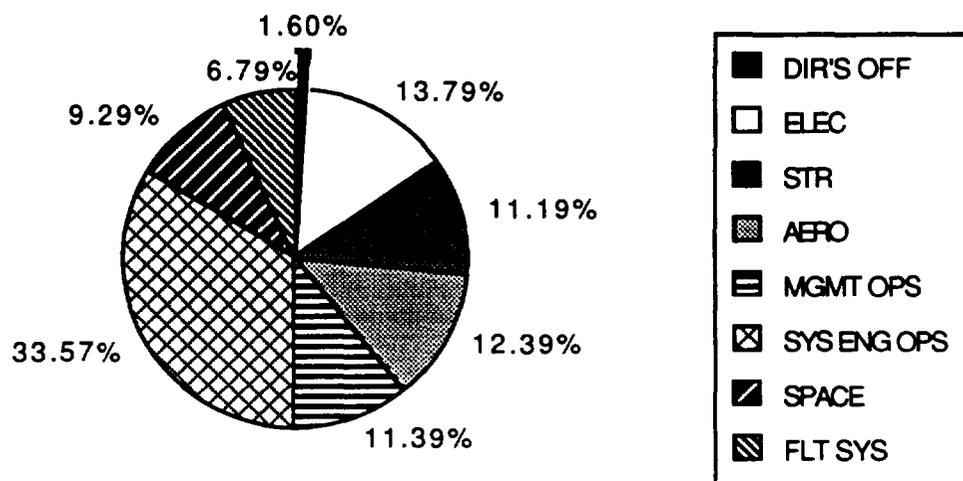
secretaries and clericals. Figure 1 describes the distribution of employees by occupation.

Figure 1. 1989 Distribution of employees by occupation



Employees are assigned to the Office of the Director or one of seven directorates whose function is to carry out or support NASA-LARC's aeronautical and space research mission. As indicated by their titles, directorates are responsible for conducting or supporting research in the areas of aeronautics, structures, electronics, space, flight systems, etc. Brief functional statements for each of the directorates are found in Appendix F. The directorates and their respective distribution of employees by organization are shown in Figure 2.

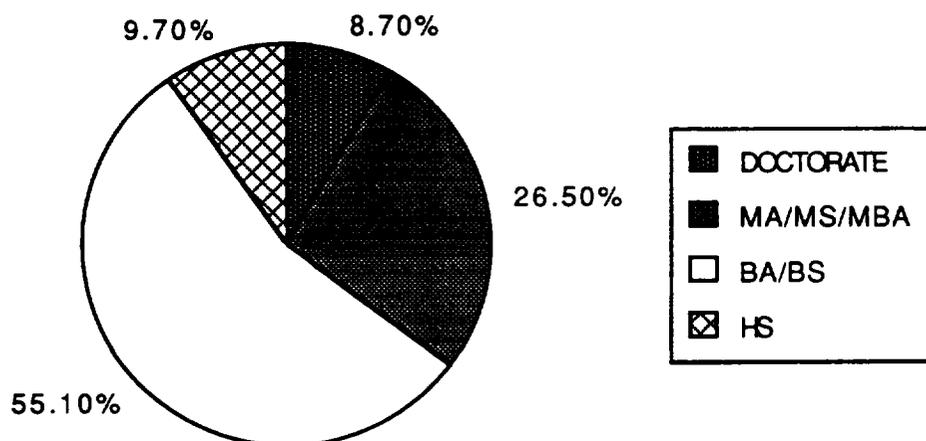
Figure 2. 1989 Distribution of employees by organization



Given NASA-LaRC's research mission, a large percentage of employees are required to have completed formal training beyond high school. According to applicable qualification standards developed by the Office of Personnel Management and NASA, positive education requirements, especially for employees occupying professional engineering positions, are required to ensure that employees are prepared to meet and/or exceed performance requirements. These requirements, coupled with NASA-LaRC's research mission, necessitate that employees possess academic credentials commensurate with their position and stay abreast of the latest information and technology associated with their chosen

profession. Figure 3 is a profile of employees by academic achievements.

Figure 3. 1989 Profile of employees by academic achievement



Other demographics of NASA-LARC employees include their gender (23.6% female), average age (43.7), average length of service (18 years), and cultural diversity (4.9% Black, 1.3% Hispanic, 2.7% Asian or Pacific Islander, and .4% Native American). This is the profile of employees who served as the focus of the 1989 Culture Survey.

The responses to the evaluation questions have been analyzed, categorized, and summarized as follows:

Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?

In order to determine if there have been changes in the differences in managerial and employee perceptions of organizational culture, it was first necessary that this researcher gather specific data that link statements and data pertaining to perceptions of organizational culture in 1989 to perceptions of organizational culture in 1993. This was accomplished by comparing the results of the 1989 Culture Survey with similar results of the 1993 Quality Climate Survey.

NASA-LARC conducted a culture survey in 1989. This survey was designed to take a comprehensive look at what employees value, believe and perceive so as to understand the forces in the NASA culture that potentially promote or inhibit the organization's performance. The survey instrument included the following cultural dimensions: organizational values, organizational effectiveness, loyalty, support, innovation, trust, adaptability, problem solving, communications, rewards, power sharing, career development, decision making, and senior management emphasis. Data extracted from the report titled "Culture Report - Langley

Research Center 1989", contained both narrative and statistical data pertaining to employee perceptions of organizational culture in 1989.

An analysis of narrative data pertaining to NASA-LARC's culture characterizes the workforce as highly innovative, loyal, supportive and trusting, adaptable, and problem solving. For example, the data support the conclusion that employees perceive that senior management focuses most attention on factors such as mission accomplishment, planning, and managing NASA-LARC; and least attention on managing people. The most revealing finding is that managers and supervisors view organizational culture significantly differently than do nonsupervisory employees.

1989 VS 1993 Perceptions of organizational culture.

In order to determine if differences in perceptions of organizational culture by managers and employees changed, it was appropriate to compare specific data from the 1989 Culture Survey with similar results from the 1993 Quality Climate Survey. The following differences in perceptions of organizational culture will be presented descriptively and graphically.

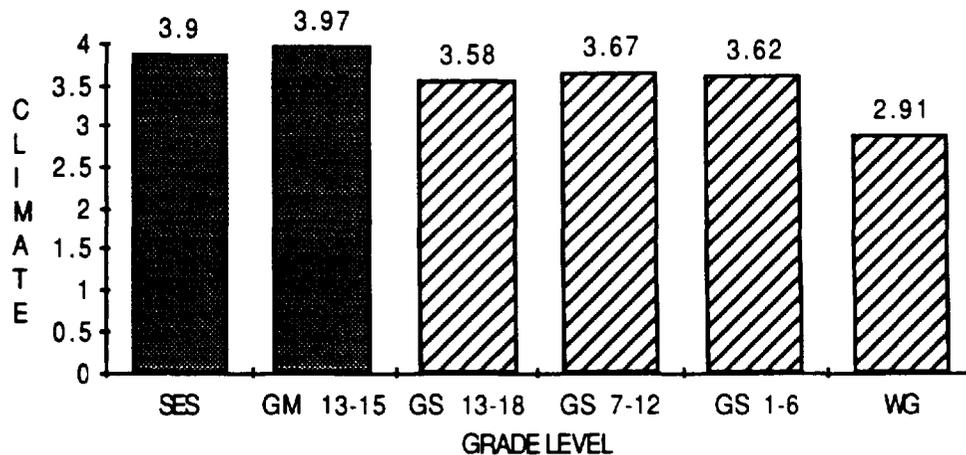
1989 Perceptions of organizational culture.

Using the survey instrument shown in Appendix A, a stratified random sample of 937 employees was asked to rate their perceptions of organizational culture using a Likert-type scale of 1 through 5, with 1 being the lowest rating and 5 being the highest. The mean scores resulting from 462 responses to the 1989 Culture Survey indicate differences in employee perceptions of organizational culture by their supervisory or nonsupervisory status, i.e., grade level, occupation and organizational assignment. A discussion of differences in these three areas is described.

Perceptions of organizational climate based on employees' supervisory or nonsupervisory status are shown in Figure 4. In Figure 4, the category labeled the Senior Executive Service (SES) represents senior level management employees; and the category labeled General Management (GM) 13-15 are supervisory employees who occupy middle management positions. All other categories represent various levels of nonsupervisory employees. Figure 4 illustrates differences in supervisory and nonsupervisory perceptions of organizational culture. Within the nonsupervisory population, Wage Grade (WG), i.e., blue-collar employees, clearly

have lower perceptions of organizational culture than do their nonsupervisory white collar counterparts. With the exception of nonsupervisory employees graded GS 13-18, there appears to exist a direct relationship between grade level and perception of organizational culture. The higher graded or ranked the employee, the higher the employee's perception of culture.

Figure 4. 1989 Overall supervisory and nonsupervisory perceptions of organizational culture by status



LEGEND:  - Supervisory  - Nonsupervisory

Just as differences in perception of organizational culture were observed between supervisory and nonsupervisory employees at

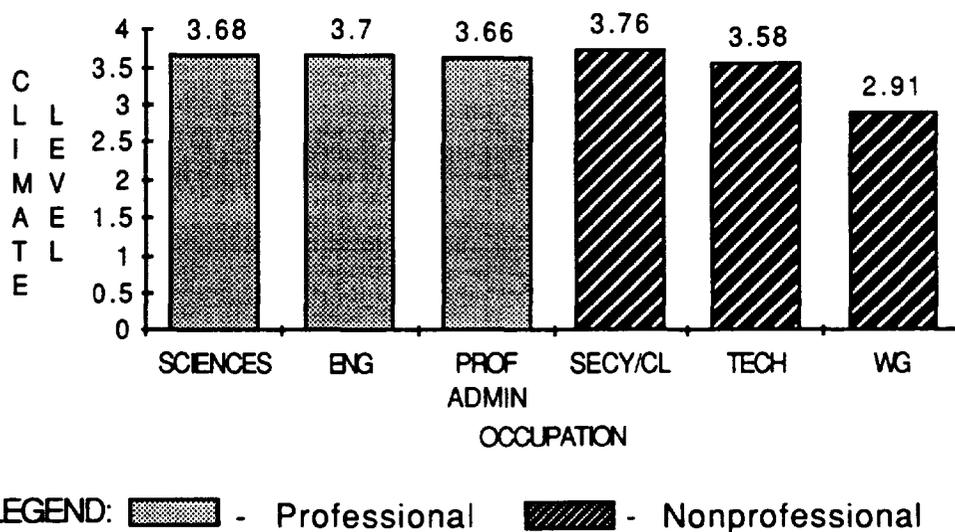
NASA-LARC, differences were also found in the perception of organizational culture based on employees' occupations.

As part of the National Aeronautics and Space Administration, NASA-LARC's primary mission is to conduct aeronautical and space research. The mission requires the employment of world class engineers and scientists whose research efforts are supported by administrative professionals, secretarial and clerical personnel, engineering technicians, and wage grade employees. The perception of culture by occupation is reflected in Figure 5. Generally, scientists and engineers are higher graded than are other employees. Administrative professionals, technician and wage grade employees, and secretarial and clerical employees are graded in this respective order. An analysis of climate by occupation suggests a correlate between occupation and perception of climate. Note is given to the departure of this general statement by secretarial and clerical personnel. One possible explanation for this anomaly is the close association that exists between managers and supervisors and secretarial and clerical employees.

At the time of the 1989 Culture Survey, NASA-LARC was divided into seven major organizations called "directorates." While

employees representing each of the occupational groups are generally found in each of the directorates, it is generally accepted that the organizations consist of three groups: Office of Director,

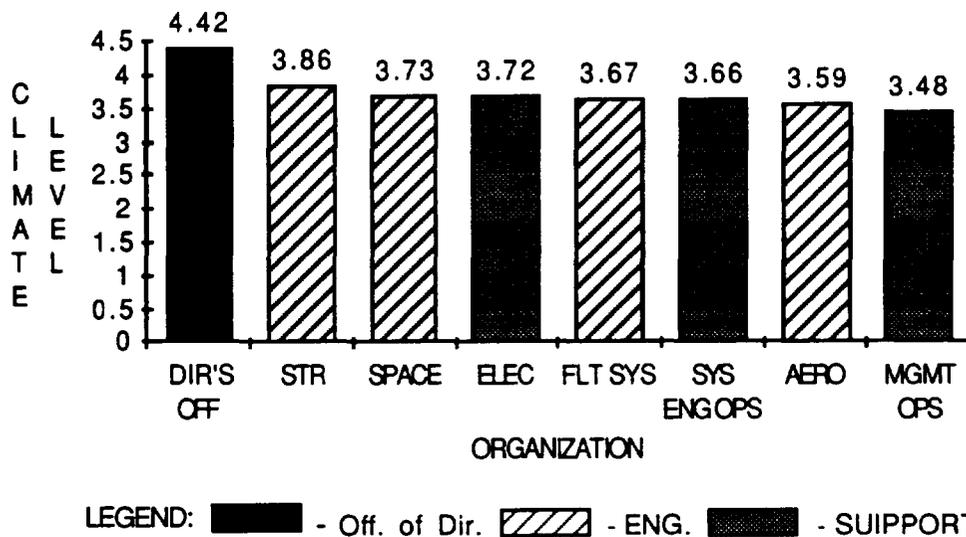
Figure 5. 1989 Overall perceptions of organizational culture by occupation



engineering directorates and support directorates. When presented graphically, the Office of the Director's perception of organizational culture is clearly higher than other organizations, either engineering or support. The difference in perception of organizational culture

based on organizational assignment outside the Office of the Director, as reflected in Figure 6, is almost indistinguishable.

Figure 6. 1989 Perceptions of organizational culture by organization



These data clearly document differences in perceptions of organizational culture by employees based on their supervisory or nonsupervisory status, occupation, and organizational assignment. During interviews conducted by this researcher, the Associate Director, Assistant Director and program directors acknowledged these differences and credited these differences as the source of

motivation for the educational initiative. The information that follows is a detailed description of senior management's efforts to diminish differences in employee perceptions of organizational culture at NASA-LARC.

During the interviews, one manager after another reported that they were convinced that "something" should be done, however, the specificity of what should be done was uncertain. Based on the results of the 1989 Culture Survey, they were certain that emphasis should be placed on the areas of communications, rewards and recognition and career development.

During this researcher's interview with the Associate Director, considerable detail was offered regarding his leadership role in commissioning the three SCAN Teams, designating a member of senior staff to serve as an ombudsman between the SCAN Teams and the senior staff, and providing both verbal and written data relative to their charter and timetable. According to a memorandum prepared by the facilitator responsible for technical assistance, the SCAN Teams' strategy was to collect written data, conduct interviews, consult with programmatic experts, analyze information, make interim reports, and then make a final report to the entire senior

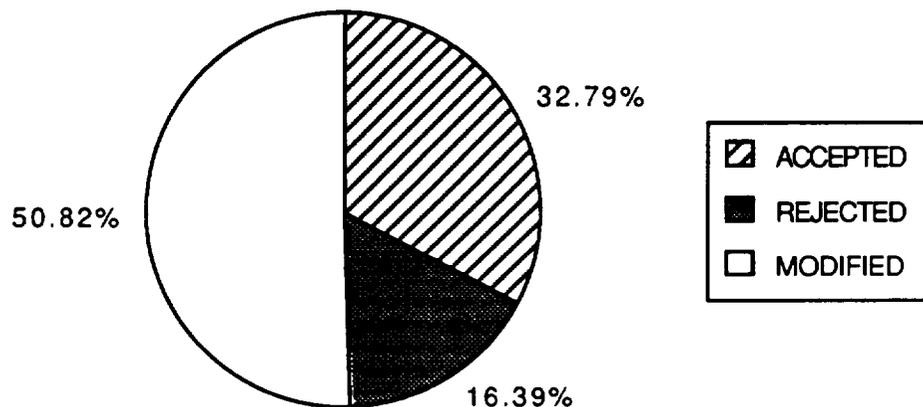
staff. (Louise Hamilton, personal communication, 1990).

As leader for the SCAN effort, the Associate Director held meetings on a variety of issues concerning culture at NASA-LARC, tasked other managers to research issues and make recommendations, and prepared senior managers to be receptive to the possibility of sweeping change. The Associate Director recalls that his efforts with other members of the senior staff were in tandem with efforts of the SCAN Teams. Nonetheless, his stringent efforts were instrumental in persuading senior staff that their research combined with that conducted by the SCAN Teams were sufficient to make decisions on recommendations that were scheduled to be presented at the Senior Staff Retreat. The Associate Director referred to the meeting as an "Action" meeting during which major management decisions would be made on-the-spot.

After consulting with over 200 employees, program specialists, and supervisors, and after collecting and analyzing considerable data, a review of NASA-LARC's records reveals that the SCAN Teams made a total of 61 recommendations. Of those 61 recommendations (referred to herein as 'educational interventions'), the senior staff accepted 20 as they were presented, and 31 with modification. The

remaining 10 were rejected. For those interventions which were accepted, the senior staff established a timetable for implementation. The recommendations accepted as interventions are shown in Appendix C. Figure 7 is a profile of senior staff's decisions on the recommendations made by the SCAN Teams.

Figure 7. Senior staff's decisions on recommended educational interventions



Based on the subject of the recommendation or implementation requirements, members of senior staff and support organizations such as the Human Resource Management Division were tasked with leading the implementation effort for each of the interventions. The actual implementation time varied by the complexity or level of

difficulty associated with the intervention. For example, action on certain educational interventions could be taken immediately, requiring no approvals or funding other than that vested in the senior staff.

This analysis and presentation of the results of the 1989 Culture Survey, and summary of senior management's efforts to design an educational initiative have been presented in order to establish a baseline against which to compare the data resulting from the 1993 Quality Climate Survey.

1993 Perceptions of organizational culture.

For the purposes of this study, selected results of the 1993 Quality Climate Survey will be analyzed and presented. The results of the 1993 Quality Climate Survey represent post intervention data, which will be compared to the results of the 1989 Culture Survey. The resulting comparative analysis will permit this researcher to objectively respond to the evaluation question: Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?

The "Quality Climate Survey" instrument shown in Appendix E was designed, validated, and administered to all 2,881 permanent civil service employees at NASA-LARC. The instrument measured employees' levels of agreement with 95 statements divided into ten categories. Questions 96, 97, and 98 were open-ended questions to which employees could provide free responses.

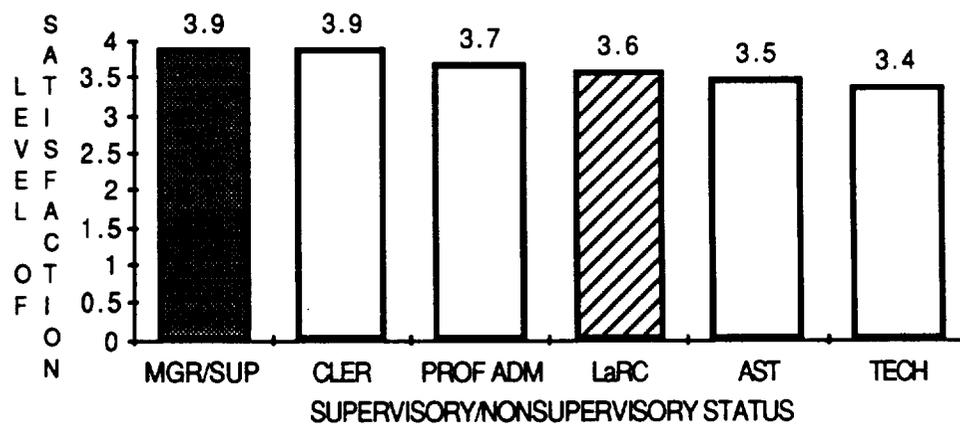
Responses to the 95 statements were analyzed using a five level Likert-type scale. In order to compare the results of this survey with the results of the 1989 survey, it was necessary to determine if information contained in the 1989 survey could be directly matched to comparable data in the 1993 survey. A review of the specific questionnaire statements found that the statement numbered 41 (Considering everything, I am satisfied with the teamwork in my work group.) directly parallels the results of the 1989 Culture Survey on perceptions of organizational culture. Therefore, employee responses to this statement will be analyzed and subsequently compared to 1989 employee responses. The results of the comparison will be useful to determine whether or not the difference in managerial and employee perceptions of organizational

culture has diminished. An analysis of responses to this statement is described.

I am satisfied with the teamwork in my work group.

An analysis of employee responses regarding levels of satisfaction with teamwork by supervisory or nonsupervisory status is shown in Figure 8.

Figure 8. 1993 Employee satisfaction with team work by supervisory or nonsupervisory status



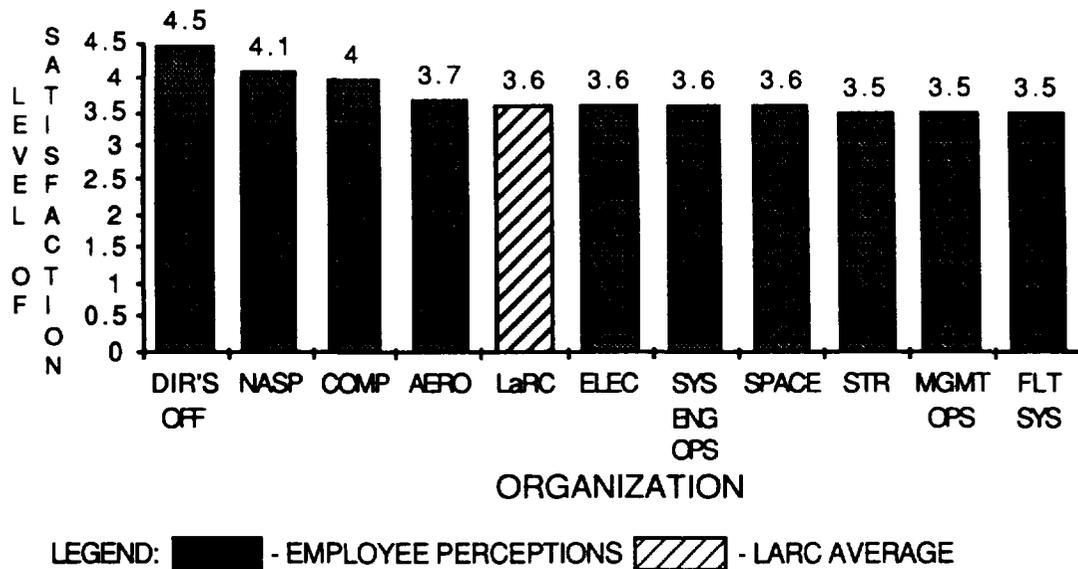
LEGEND: ■ - Supervisory □ - Nonsupervisory ▨ - LaRC

The data in Figure 8 indicates that managerial and supervisory perceptions of organizational culture are equal to or higher than all

other groups of nonsupervisory employees. This finding is consistent with the results in 1989 regarding employee perceptions of organizational culture based on their supervisory or nonsupervisory status. The perceptions of nonsupervisory AST's (scientists and engineers) and technicians (nonprofessional engineering technicians and skilled tradesmen) are lower than NASA-LARC's average.

When aggregating employee responses to the same statement by organizational assignment, results showed that the perceptions of organizational culture in the Director's Office are considerably higher

Figure 9. 1993 Employee satisfaction by organization



than NASA-LARC's average. The organizations whose mean scores were below NASA-LARC's average include all three of the support organizations and two engineering directorates. The perceptions of employees in the two newly created organizations (NASP and COMP were created since the 1989 Culture Survey) are higher than NASA-LARC's average. These results are described in Figure 9.

Comparison of 1989 and 1993 survey results.

The findings pertaining to managerial and nonsupervisory perceptions of organizational culture in 1989 and 1993 are presented graphically in Figures 4 through 9. A summary of the analyses and results are stated below.

A. Perceptions of organizational culture in 1989 by nonsupervisory employees are consistently lower than those of managers and supervisors.

B. When aggregating employee perceptions by occupation, the perceptions of nonsupervisory employees in nonprofessional support positions are lower than those of employees in either professional engineering or administrative positions. An exception was found among secretarial and clerical employees. The perceptions of

organizational culture by wage grade (blue collar) employees were markedly lower than the other nonsupervisory employees.

C. The perceptions of organizational culture by nonsupervisory employees in 1993 are lower than those of managerial and supervisory employees.

D. When aggregating employee perceptions of organizational culture in 1993 by occupation, perceptions of nonsupervisory employees in technician support positions are lower than those of employees in either professional engineering or administrative positions.

E. As in 1989, the perception of organizational culture by secretarial and clerical employees exceeds that of other nonsupervisory employees.

F. By 1993, the perceptions of organizational culture by secretarial and clerical employees equalled that of managerial and supervisory employees.

Table 1 summarizes managerial and nonsupervisory perceptions of organizational culture in 1989 and 1993; and directly responds to evaluation question regarding the extent to which the difference in

managerial and employee perceptions of organizational culture changed from 1989 to 1993.

Table 1

Comparison of Managerial and Nonsupervisory Perceptions of Organizational Culture

SUPERVISORY	1989	1993
SES	3.90	
MGR	3.97	3.90
NONSUPERVISORY	1989	1993
ENG	3.70	3.50
PROF ADMIN	3.66	3.70
SEC/CL	3.76	3.90
TECH	3.58	3.40
WG	2.91	

Table 1 compares the differences in supervisory and nonsupervisory perceptions of organizational culture in 1989 with those in 1993. The data for 1989 show that the mean score for mid-level managers was higher than senior level managers, whose mean score was higher than nonsupervisory employees. Responses of nonsupervisory employees whose occupations are engineers,

professional administrators, secretarial/clerical, technician and wage grade range from 2.91 to 3.76.

The data for 1993 show that the mean score for supervisors at all levels is 3.9. It is appropriate to note that the categories SES and managers have been collapsed. Given that the number of SES employees is approximately 35-40, and the number of other managers and supervisors is approximately 375, the lowered mean score signifies a general lowering of perceptions of organizational culture by supervisory employees.

Mean scores for nonsupervisory employees whose occupations are engineers, professional administrators, secretarial/clerical, technicians (includes wage grade employees) range from 3.4 to 3.9. Again, it is appropriate to note that the categories technician and WG are collapsed. Collectively, this evidence supports the research finding that the difference in perceptions of organizational culture by supervisory and nonsupervisory employees is diminishing.

What are the prevalent views held by employees concerning organizational culture at NASA-LARC?

The second evaluation question for this study seeks to uncover

contemporary views on organizational culture by employees at NASA-LARC. Two data gathering processes were completed in order to determine the prevalent views of employees on organizational culture. The first strategy involved an analysis of quantitative data derived from the 1993 Quality Climate Survey, and the second an analysis of free responses to open-ended questions contained in the same 1993 survey. The analysis and results of the data collected follows.

Quantitative data from the 1993 Quality Climate Survey.

The design of the educational initiative at NASA-LARC concentrates on the areas of communications, rewards and recognition, and career development. A review of the 1993 Quality Climate Survey process reveals that the survey instrument was administered to all 2,881 permanent civil service employees and that 1,906 (66%) employees responded. Three statements contained in the survey are of particular interest to this study. Statements numbered 31 (I am satisfied with communications), 76 (I am satisfied with my training and development), and 82 (I am satisfied

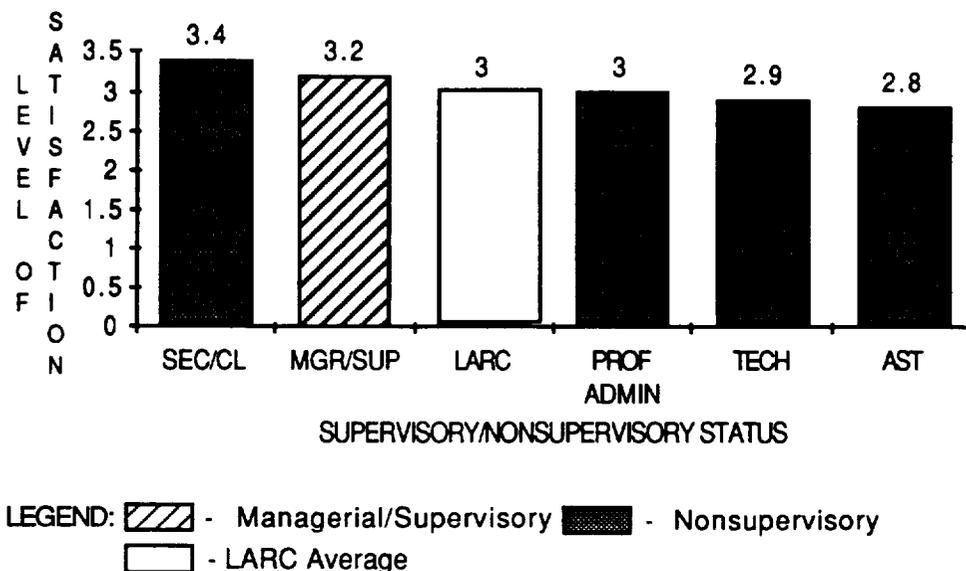
with how employees are recognized and rewarded for performing high quality work) provide current data pertaining to employee perceptions on these factors related to organizational culture.

The instructions requested that employees indicate a "level of agreement" on a Likert-type scale ranging from 1 to 5, with 1 denoting 'strongly disagree', 2 denoting 'disagree', 3 denoting 'neither agree or disagree', 4 denoting 'agree', and 5 denoting 'strongly agree.' The analyses of employee responses to the communications, reward and recognition and career development variables are aggregated by the employee's supervisory or nonsupervisory status, occupational grouping, organizational assignment, and years of service.

Communications.

Data pertaining to employee perceptions of communications (Statement 31) within NASA-LARC were extracted from the results of the 1993 Quality Climate Survey. Employee descriptions of their perceptions of communications based on their supervisory or nonsupervisory status are contained in Figure 10.

Figure 10. 1993 Supervisory and nonsupervisory perceptions of communications

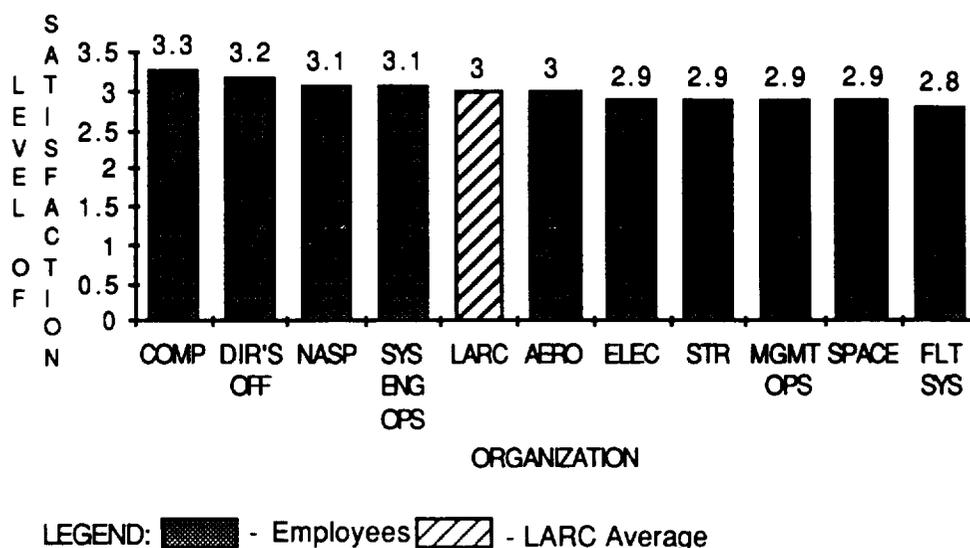


Mean scores for all employees range from 2.8 to 3.4 with an average score of 3.0. Given that a rating of "3" denotes neither agreement or disagreement, an average rating of "3" by all employees is interpreted as meaning that in general, employees are neither satisfied nor dissatisfied with communications at NASA-LARC. The results also show that with the exception of secretarial and clerical employees, managers and supervisors have a higher and more favorable perception of communications, while all other nonsupervisory employee perceptions of communications are equal to or less than NASA-LARC's average of 3.0. Employees classified as

technicians and AST's (scientists and engineers), who together comprise 69.5% of the workforce, have the lowest and most unfavorable perceptions of communications at NASA-LARC. The significance of the perception of communications by this segment of the population is considered to be greater than the mean scores imply since these are the employees to whom the primary task for aeronautical and space research is assigned. Therefore, the current and future success of NASA-LARC's capacity to meet or exceed its national research mission is highly linked to this organizational characteristic.

The results of data reflecting perceptions of communications based on an employee's organizational assignment are shown in Figure 11. Perceptions of communications by employees in the Director's Office are exceeded only by those employees assigned to the newly created Office of the Comptroller. Those employees having favorable perceptions of communications represent two support organizations and one newly created research directorate. Perceptions of communications in the remaining three research directorates and two support directorates are lower than NASA-LARC's average and unfavorable.

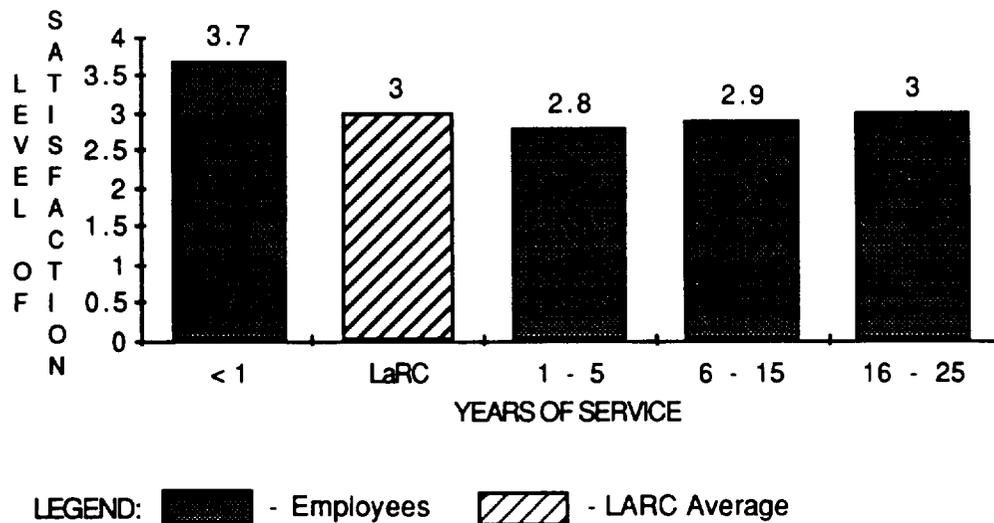
Figure 11. 1993 Perceptions of communication by organization



In addition to analyzing employee perceptions of communications based on their supervisory or nonsupervisory status, occupation, and organizational assignment, an analysis was made based on employees' years of service. The range of mean scores reflecting differences in employee perceptions of communications by years of service is shown in Figure 12. Perceptions of communications by employees whose service is less than one year represent the highest rating indicated thus far. The perceptions of employees whose length of service ranges from one to 15 years approximate each other. The perceptions of employees

whose length of service is 16 to 25 years appear to increase slightly. This research finding attributes the favorable perceptions of employees whose employment is less than one year to their participation in special training programs that have high levels of interaction with supervisory employees, employee development specialists, and other persons responsible for the recruitment, placement, orientation, development, and advancement of newly employed personnel.

Figure 12. 1993 Perceptions of communications by years of service

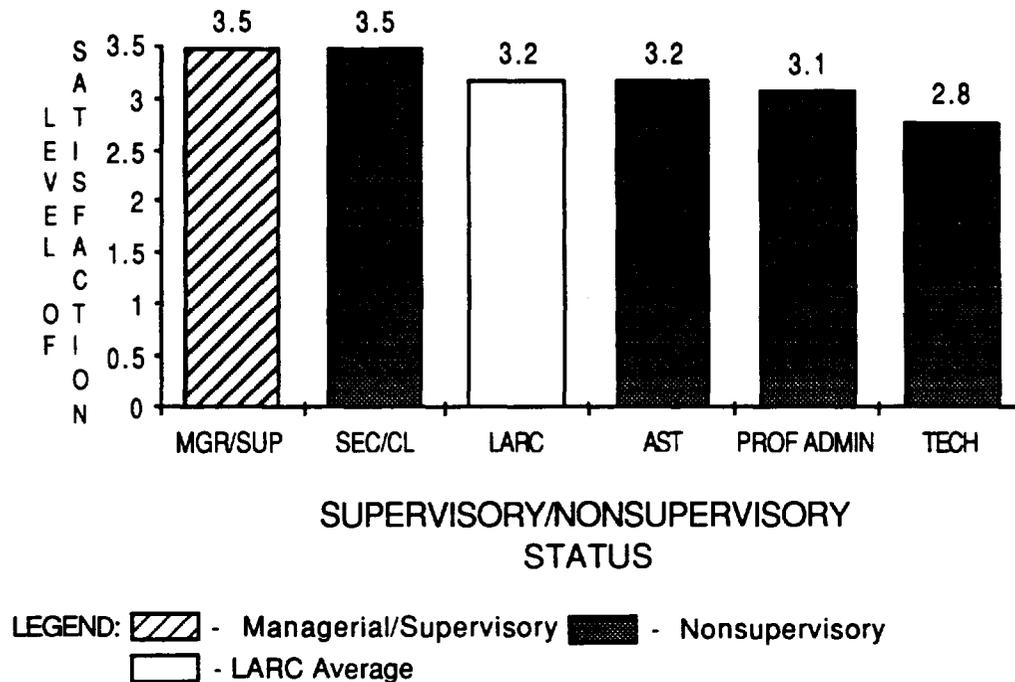


Rewards and Recognition.

After examining prevalent employee perceptions on communications, the analyses were expanded to include data on employee perceptions related to rewards and recognition. Data pertaining to employee perceptions relating to rewards and recognition within NASA-LARC were extracted from the results of the 1993 Quality Climate Survey based on responses to the statement "I am satisfied with how employees are recognized and rewarded for doing high quality work." The responses to the statement based on employees' supervisory or nonsupervisory status were examined first. These results are shown in Figure 13.

With the exception of technician employees, employees in general have a favorable view of rewards and recognition at NASA-LARC. Like the perceptions of employees on the communications variable, a difference exists between supervisory and nonsupervisory perceptions of rewards and recognition policies and practices. Managerial and supervisory perceptions are equalled by the perceptions of secretarial and clerical employees; and noticeably higher than those of technical support employees.

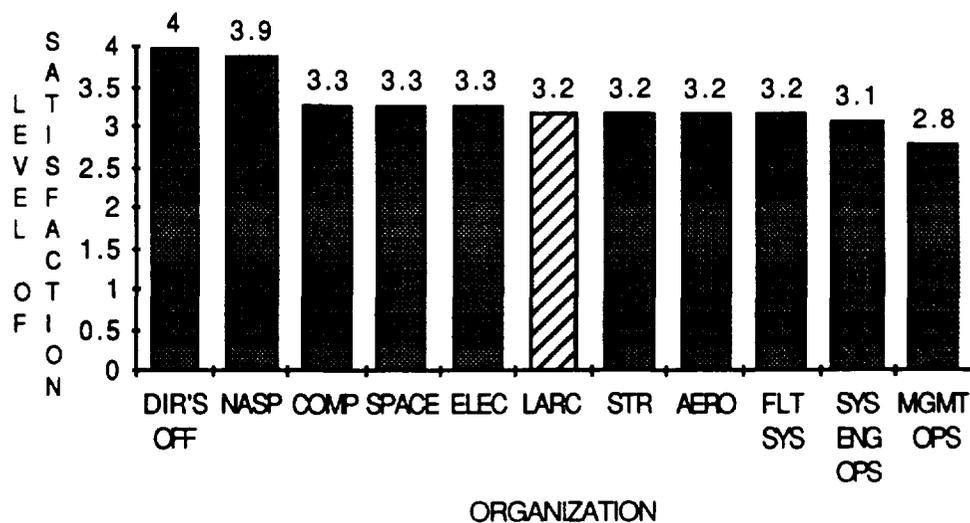
Figure 13. 1993 Perceptions of rewards and recognition by supervisory and nonsupervisory status



When aggregating employee perceptions of rewards and recognition by organizational assignment, all directorates, with the exception of Management Operations, have a favorable perception of rewards and recognition as shown in Figure 14. The range of perceptions of those organizations having favorable responses was generally clustered around 3.2 and 3.3; although one of the more

recently created directorates' favorable perception of 3.9 almost equalled that of the Director's Office.

Figure 14. 1993 Perceptions of rewards and recognition by organization



LEGEND: ■ - Employees ▨ - LARC Average

As was the case with the communications variable, the perceptions of rewards and recognition by employees based on their years of service reveal that those employees with the least service have higher perceptions of rewards and recognition systems at NASA-LARC. Differences in the perceptions of employees with one or more years of service are minimally discernable. Figure 15

reflects differences in perceptions as they compare to each other and the NASA-LARC average. For the first 15 years of service, as the years increase,

Figure 15. 1993 Perceptions of rewards and recognition by years of service.



favorable perceptions decrease. The data is inadequate to assert that this happens on an annual basis. Some mild increase in employee perceptions is observable after 15 years.

Career development.

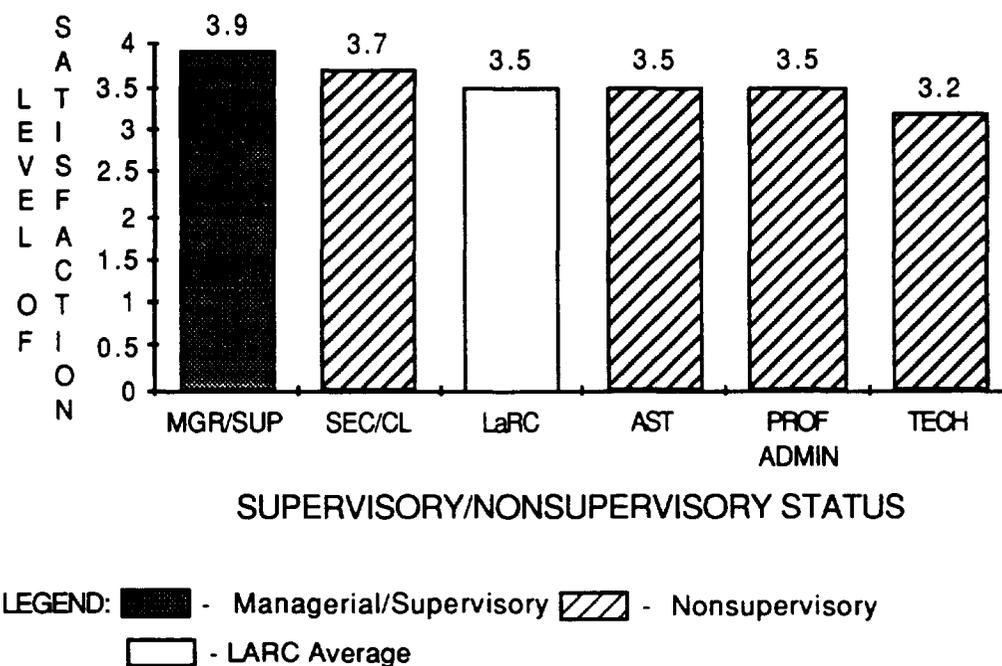
The final variable pertaining to employee perceptions on organizational culture relates to career development within NASA-LARC. These data were also extracted from the results of the 1993 Quality Climate Survey based on responses to the statement "I am satisfied with my training and development." Employee responses to the statement, based on their supervisory or nonsupervisory status are shown in Figure 16.

Perceptions by all employees, including technician employees are positive. Of the three variables considered, employee perceptions of training and career development opportunities have the highest average mean score, 3.5 as compared to 3.0 for communications and 3.2 for rewards and recognition. When comparing either the range or average of mean scores of employee perceptions of training and career development opportunities at NASA-LARC to their perceptions of communications and rewards and recognition, employee perceptions of career development are considerably higher.

Managerial and supervisory perceptions of training and career development are higher than all categories of nonsupervisory

employees. As shown in Figure 16, with the exception of secretarial and clerical employees, the mean scores of all other categories of nonsupervisory employees are equal to or less than NASA-LARC's average.

Figure 16. 1993 perceptions of training and career development by supervisory and nonsupervisory status

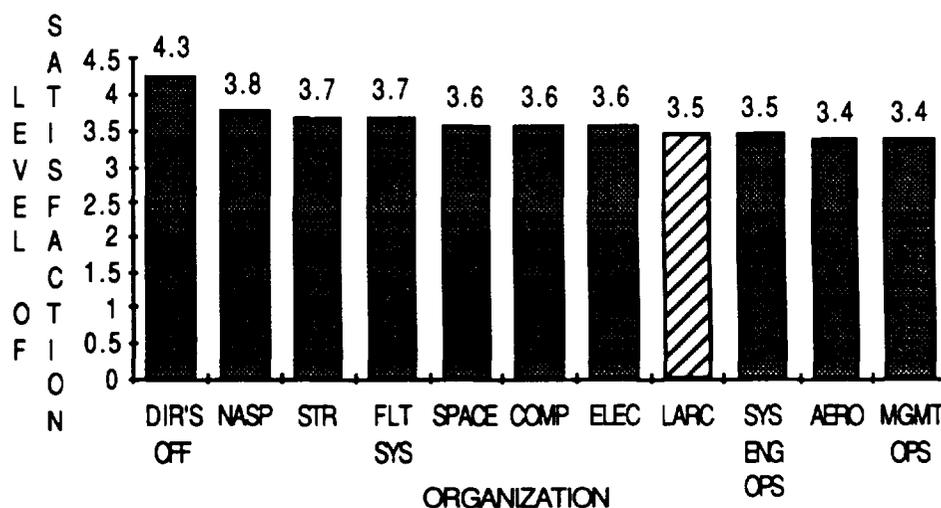


When analyzing employee perceptions of training and career development based on their organizational assignment, findings indicate that the perceptions of employees assigned to the Director's

Office exceeded to a considerable degree, employee perceptions in all other organizations. Figure 17 shows employee perceptions of training and career development based on organizational assignment. The perceptions of employees in the research directorates are clearly higher than those in support organizations.

An analysis of employee perceptions of training and development based on their years of service reveals that as with the

Figure 17. 1993 Perceptions of training and career development by organization

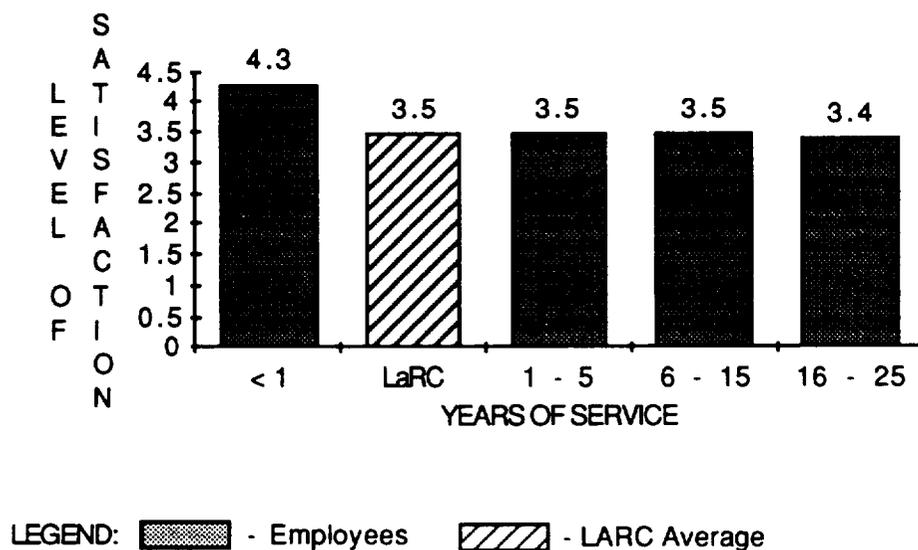


LEGEND:  - Employees  - LARC Average

other two variables, employees with less than one year of service

have higher perceptions than do their more tenured counterparts. While the difference in perceptions of training and career development drops slightly after 15 years of service, perceptions of training and career development beyond one year of service remain favorable. The data contained in figure 18 support this analysis.

Figure 18. 1993 Perceptions of training and career development by years of service



In summary, the prevalent views held by employees concerning organizational culture, i.e., communications, rewards and recognition,

and career development, at NASA-LARC are shown in Figures 10 through 18. The data suggest the following:

A. Differences in perceptions of communications, rewards and recognition, and career development by supervisory and nonsupervisory employees remain unchanged.

B. In general, perceptions of organizational culture, based on the three aforementioned variables, by supervisors remain higher than those perceptions of nonsupervisory employees.

C. The overall perception of communication, regardless of supervisory or nonsupervisory status, occupation, organizational assignment, or years of service is less than that believed essential to a world class research organization.

D. All categories of employees, except technician employees who represent one fourth of the total workforce, have a favorable (albeit minimal) perception of rewards and recognition.

E. Employees have favorable perceptions of career development regardless of supervisory or nonsupervisory status, organizational assignment or years of service.

F. In general, secretarial and clerical perceptions of organizational culture are consistently higher than other

nonsupervisory employees, while the perceptions of organizational culture by technician employees are lower than that of other nonsupervisory employees.

G. The data show that during the first year of service, employee perceptions of communications (3.7), rewards and recognition (3.3), and career development (4.3) are favorable and tend to decline as the years progress.

Free responses from the 1993 Quality Climate Survey.

A comprehensive analysis of data from the 1993 Quality Climate Survey used in this research uncovered thousands of free responses provided by employees. These responses were examined, analyzed, and incorporated herein for the purpose of exposing a rich and contemporary portrait of employee perceptions on a wide range of cultural variables at NASA-LARC.

Employees responding to this Survey were given an opportunity to provide free responses to three open-ended statements. Statements numbered 96, 97, and 98 instructed employees to "describe at least two areas where improvement could take place within your organization", "list two or more things you like about this

organization", and offer "any further comments", respectively.

Employee responses were coded into 23 categories. The "Definitions of Category Codes" are shown in Appendix G. These codes were used in this research to develop a summary of responses to open-ended statements numbered 96, 97, and 98. The table of free responses developed for analysis is shown in Appendix H.

As shown in Appendix H, a total of 7,372 free responses were received in responses to the statements requesting that employees describe areas where improvements could be made (Statement 96), list two or more things they liked about NASA-LARC (Statement 97), and provide any further comments (Statement 98). Over half of the employee responses (3,741 or 51%) relate to areas where improvements could be made, 2,687 (36%) responses relate to things employees liked about NASA-LARC, and the remaining 944 (13%) responses relate to other circumstances employees elected to cite.

Areas needing improvement.

When addressing areas where improvements could be made, employees offered 3,741 responses related to the 23 categories of information shown in Appendix H. The number of responses ranged

from one related to job security to 527 related to management support. The top five categories of responses include management support (527), communications (441), processes (387), policies (376), and management (282). Based on the definitions of categories, 'management support' refers to the way in which the various levels of management within the organization provide coaching, feedback, and assistance in accomplishing work. 'Communication' refers to processes by which employees receive information about their jobs, divisions, branches, offices and the organization. 'Processes' refer to specific work activities undertaken within the organization. 'Policies' refer to the various official positions adopted within NASA-LARC. 'Management' refers to comments about the styles and systems used by persons in authority to accomplish the work through people that work for them. These five categories of responses comprise 54% of the total responses in 23 categories regarding areas needing improvement. Therefore, it is reasonable to presume that employees believe that management's style, communications, ability to establish policies and processes which positively contribute to the accomplishment of work, and willingness to provide that level of

coaching and assistance necessary for maximizing organizational productivity are not as positive as they could be.

Since the educational initiative was originally designed to focus on the areas of communications, rewards and recognition, and career development, attention is now directed toward comments related to these three categories. Employee responses related to areas of improvement totaled 441 for communications, 166 for recognition, and 176 for training. Together, these comments represent 20% of the total recommendations for improvement. These responses are consistent with concerns revealed in statistical data pertaining to these same categories.

Areas liked.

Regarding the two things they liked most about their organization, employees provided 2,687 responses which are shown in Appendix H. Using the same categories as noted in Appendix G, there are several categories for which there were no responses. In categories for which responses were offered, the number of responses ranged from six related to processes to 547 related to teamwork. The top five categories of responses include teamwork

(547), general (534), management support (503), policies (210), and working conditions (196). An analysis of these data revealed that these top five categories represent 75% of employee responses to the things they liked about the organization.

The category 'teamwork' received the highest number of responses, indicating that there exists a group of employees who are more than satisfied with their professional relationships. The 'general' category also received a large number of responses. Analysis of this category of responses reveals that employees addressed workplace components such as the diversity of work, job security, job satisfaction, challenging nature of work, campus like environment, technical challenge, NASA's reputation, professionalism, and exciting projects. While labeled "general", comments such as these reflect the values employees share for work, the environment in which the work is performed, the standards that have been set and accepted for the performance of that work, and the satisfaction shared in performing that work. Such statements are vital and enlightening to a critical analysis of organizational culture at NASA-LARC.

The category receiving the next highest number of responses was management support, which was the number one area employees identified for improvement. Although 527 employees recommended improvements, 503 employees indicated that this was one of the areas they liked about NASA-LARC. Two hundred ten responses indicated employees were satisfied with NASA-LARC's policies and 196 responses were satisfied with working conditions. NASA-LARC's policies received a large number of responses recommending improvements. These responses indicate that there are policies which employees do share a level of satisfaction. When enumerating policies that enhanced satisfaction, employees mentioned policies related to graduate study, research opportunities and travel. However, the vast majority (maybe as high as 98%) points directly to NASA-LARC's policy on variable work day as the policy liked best.

Since the educational initiative was designed to focus primarily on communications, rewards and recognition, and career development, it is appropriate then to examine the extent to which employees found these areas to be favorable. One hundred seven responses cited communications as favorable within NASA-LARC.

Employee responses totalling 44 for recognition and 80 for training were also received. Together, the responses for communications, recognition and training account for less than 10% of the responses employees responded favorably about NASA-LARC. This is evidence that NASA-LARC can benefit from a continued and aggressive educational initiative.

Free responses to Statement 98 (any further comments) totaled 944, of which 113 were related to the conduct of surveys. Most of the comments were negative. In general, employees expressed concerns such as the survey was poorly constructed, did not ask the right questions, was a waste of time, or was not sufficiently anonymous to preclude identification of the respondent. The latter comment may account for the 57 responses for which no occupational category was cited.

Overall, the free responses, just by their number and category were informative. For example, it is worthy to note that employees provided 1,000 more recommendations for areas of improvement than they did for responses indicating areas of satisfaction. These responses reflect the prevalent issues which are uppermost in the minds of employees. These responses however, reflect the views of

the general population. Accordingly, this researcher sought to determine whether or not employees in differing occupations had differing perceptions of organizational culture. Therefore, the free responses of employees were further analyzed to discern common themes as they reflect the thoughts, beliefs, values, and other behavioral elements of employees based on their supervisory or nonsupervisory status and occupation.

A review of free responses on suggested improvements reveals that managers and supervisors across organizational lines would recommend improvements in the area of communications. To a much lesser degree, managers and supervisors offered comments directed at improvements in rewards and reductions in paperwork (the bureaucracy). Nonsupervisory employees were universally and equally concerned with improving communications in the organization. Professional nonsupervisory employees expressed concerns on items relating to training and teamwork.

Nonsupervisory technician employees shared in the desire to improve communications, but also addressed efforts which sought to improve NASA-LARC's values related to equality, equity, and

honesty. Such comments correlate highly with the consistently lower perceptions of culture by this occupational grouping.

On the subject of 'things employees like about NASA-LARC', managers and supervisors across organizational lines consistently cite the work and the people. They make limited mention of factors such as facilities, atmosphere, and tradition.

Responses from engineers give special attention to working conditions, atmosphere, career development and research freedom. Responses from administrative professionals emphasize teamwork, people and work freedom among the favorable situations within the NASA-LARC organization.

Secretarial and clerical employees 'like' the people, work, and benefits such as the credit union and educational opportunities. Technician employees share in the perception that the people and the work were things they liked about NASA-LARC.

Without challenge however, free responses by nonsupervisory employees in every organization regard the adoption of the policy on variable day as NASA-LARC's most satisfying variable.

To what extent do employees perceive that organizational culture at NASA-LaRC has been influenced by the educational initiative?

The instrument shown in Appendix D was originally designed to collect data regarding the extent to which employees perceive that organizational culture at NASA-LARC has been influenced by the educational initiative. This evaluation question was included in order to compensate for the fact that the construct of the 1993 Quality Climate Survey did not attempt to relate change in culture, if at all, to the implementation of the educational initiative. The results of such information may prove useful to management in making future decisions regarding the formation of policy and the allocation of scarce resources.

Originally, a purposive sample of 15 employees was to be identified, interviewed individually and have their responses recorded and analyzed. When requested to participate in an interview which would produce information relative to the extent to which organizational culture at NASA-LARC has been influenced by the educational initiative, employees who were members of the SCAN team expressed concern about the amount of information they

would be expected to provide. The first three employees contacted stated that because they had served on different teams, they may not have an in depth knowledge of the interventions developed by other teams. The third employee offered and this researcher accepted a proposal to have employees interviewed as a focus group. The belief was that as a group, they could comment on each of the educational interventions.

A meeting was held with a total of 16 employees who were invited to participate in a discussion on the interventions related to communications, rewards and recognition and career development. The responses provided by employees were recorded, analyzed, and summarized.

Using the instrument shown in Appendix D, employees were asked to comment on each of the interventions. The interventions related to communications were discussed first. Employees were quick to point out the difference in implementation and impact. They responded that in some cases interventions had been implemented; but, the impact of that intervention had not yet produced a discernable impact on organizational culture.

Their specific responses indicated that some of the interventions had been implemented very well, while others had not been implemented at all. The consensus of the employees was that the influence of the majority of the interventions, when considered individually, was minimal if at all. For example, employees stated that scheduled staff meetings, written minutes of meetings, a weekly newsletter, and improved communications with employees through closed circuit televisions located in most buildings are being implemented well. Employees reported that, to their knowledge, management had not taken steps to implement TELEINFO systems, develop a LARC/Mail database, or create technical committees. They also added that for those interventions which were implemented, those interventions are having only a minimally positive influence on organizational culture.

One employee hastened to add however, that were it not for the communications interventions, nothing would have been done to improve communications or positively influence organizational culture. After making this statement, a discussion ensued on factors such as employee forums, the weekly newsletter, and screened standard mail distributions. As a group, employees agreed that they

remained dissatisfied with communications at NASA-LARC, but could not overlook senior management's efforts to make improvement.

Collectively, they concluded that management's commitment to and involvement in creating an environment more conducive to communications were commendable. Nevertheless, they hastened to add that NASA-LARC's future hinges on continued progress in the area of communications.

The same interview strategy and kind of analyses were applied to rewards and recognition and career development interventions. When asked about their perceptions of the influence of reward and recognition interventions, employees focused their responses on interventions numbered 18, 20, 21, and 22. After some discussion, it was agreed that these interventions had not been implemented as they were intended. Employee comments expressed dissatisfaction with the performance appraisal system, interventions 15 through 17. Their conclusion was simply that these interventions have not been implemented at the employee level.

Employees agreed that budget reductions were definitely an extraneous variable with regard to rewards and recognition. Nevertheless, employees were exceedingly complimentary on

management's efforts. For example, they specifically commented on management's efforts to have awards presented in a more open manner, adopt an alternative work schedule (variable day), and eliminate supervisor's ratings from competitive positions. In framing their summary statements, employees concluded that to the extent which the interventions had been implemented, the influence on culture is regarded as positive.

As the interview progressed to career development interventions, employee responses became less complimentary. Employees stated that managers and supervisors had been trained in 'coaching and counseling', but that the effort was a "one-shot" effort that had not been institutionalized into day-to-day management practices. They further commented that they were not aware of any follow-up by senior management on mid-management's application of learned skills in the workplace. While employees expressed some excitement about the newly implemented Professional Development Program (Level III) and the inclusion of a human resource management skill criterion on competitive supervisory position announcements, their impact is yet to be realized.

Employee responses acknowledged that management's current emphasis on Total Quality Management (TQM), reduced budgets, a major reorganization (which is in process), and an almost zero hiring status are factors which have thwarted career development interventions. Employees concluded that career development interventions had not had any influence, positive or negative, on organizational culture at NASA-LARC.

As was agreed at the beginning of the interviews, employees would be given an opportunity to provide summary statements. The provision for this information is consistent with the original plan of providing employees an opportunity to include 'comments or recommendations' on the interview instrument shown in Appendix D.

First, employees acknowledge that changes in culture require the passage of several years and that NASA-LARC has not had the benefit of time, in some cases, to influence, observe, follow-up, and document meaningful change in organizational culture.

Second, employees recognize the impact of an Agency-wide emphasis on TQM that redirected management's effort, at least in part, away from the educational initiative. Employees likewise note

that recent budgetary constraints had all but eliminated efforts to implement educational interventions that have fiscal implications or require additional human resources as would be required by reward and recognition efforts and career development programs.

Third, employees were adamant in their desire to have the record reflect that indices of positive change, as minimal as they may be, are the result of the educational interventions and senior management's genuine interest in responding to the issues raised by employees. The employees reasoned that even though the influence of the educational initiative is minimal; had none of the interventions been implemented, then no change in culture would have taken place and the hope generated among employees throughout the SCAN process would no longer exist. Moreover, some employees commented that if current economic trends continue, and NASA-LARC continues to experience declines in funding and personnel, the importance of manager and employee communications, rewards and recognition of employee contributions and career development experiences will become increasingly important to organizational effectiveness and productivity.

CHAPTER V

Summary, Conclusions, Recommendations and Future Implications

The review of the related literature selected for this study is a synthesis of major theories on contemporary management, human relations, human motivation, organizational behavior, organizational culture and educational interventions. The review process confirms the near absence of information on the impact of educational interventions on organizational culture within the public sector as opposed to the private sector. Notwithstanding the fact that few empirical studies of organizational culture in the public sector exist, the specific theories and concepts selected for review establish the natural link between existing knowledge and this study.

The research methodology sets forth the design, data collection procedure, and data analysis strategy utilized in order to formulate meaningful responses to the three primary evaluation questions upon which this study focuses. The analyses performed and the results that followed are based on the: (1) results of the 1989 Culture Survey; (2) interviews of top management concerning their

intent in designing and implementing the educational initiative; (3) educational interventions designed and implemented at NASA-LARC; (4) interviews of employees, including supervisors; (5) free responses contained in the 1993 Quality Climate Survey; and (6) quantitative results of the 1993 Quality Climate Survey. In this final chapter, the findings of this study are summarized, conclusions are drawn, and recommendations and implications of future research are discussed.

Summary and Conclusions

In the workplace, the way employees perceive, think, and feel affects the organization's capacity to meet and/or exceed its objectives. Management's responsibility, in part, is to identify the mission, create the vision and institutionalize the values which best move the organization toward the accomplishment of that mission. The literature review pertinent to this study traces the evolutionary nature of organizational culture. Commencing with Weber's (Gerth and Mills, 1958) theory of 'bureaucracy', Taylor's (1911) concepts on the specialization of work, and the Gilbreth's (Spriegel, 1953) strategies on minimizing waste and maximizing organizational

prosperity, the development of classical theories on administration and management begin to unfold. Follett's (Metcalf & Urwick, 1941)) definition of management as working through others; Mayo's (1933) description of more 'pleasanter' and happier working conditions; Barnard's (1938) 'functions of the executive'; and Roethlisberger and Dickson's (1939) account of the Hawthorne studies introduce the human element into the organizational effectiveness equation. Fayol's (1949) principles of management, Drucker's (1954, 1966, 1974) description of management, Homan's (1950) emphasis on 'the human group', Maslow's (1943) theory on individual needs, McGregor's (1960) theory on leadership styles, Herzberg's (1959) theory on motivation, Katz and Kahn's (1966) portrayal of 'the social psychology of organizations' and Simon's concept of 'satisficing' are concepts and models of management which have become forerunners of the phenomenon known as 'organizational culture.'

Tagiuri and Litwin (1968), Schein (1985a, 1987b, 1990), Hofstede (1980), Trice and Beyer (1985), Deal and Kennedy (1982), and others initiated the scholarly exploration of the essence of organizational culture. The fact that the body of knowledge

regarding the description and definition of organizational culture is expanding is evidenced through the writings of Brandt (1981), Peters and Waterman (1982), Wilkins and Ouchi (1983), Dastmalchian (1989), Tichy (1983), Kilmann (1984), Kotter and Heskett (1982). Such research and/or studies have established linkages between organizational culture and productivity. However, despite these advances, the related literature remains relatively silent on the impact of educational interventions on organizational culture.

At NASA-LARC, a Culture Survey was completed in 1989. Data from that Survey established the existence of significant differences in perceptions of organizational culture by supervisory and nonsupervisory employees at NASA-LARC. A more indepth and critical analysis of the data unveils striking relationships between the culture at NASA-LARC and the related literature selected for this study.

For example, the study finds that employees perceive that senior management focuses most attention on factors such as mission accomplishment, planning and managing NASA-LARC; and, the least attention on managing people. Such perceptions have far

reaching and numerous linkages to the literature. From Follett's (Metcalf & Urwick, 1940) definition of management, it can be concluded that reasonable levels of attention must be directed toward those individuals who are responsible for organizational productivity.

The nature of the attention management pays to employees is not however, without structure. In 1938, Barnard departed from the traditional top-down management approach and endorsed a philosophy that 'the function of the executive' is to establish procedures, develop strategies and design techniques of motivation through an effective communications system. These same principles were reinforced by Fayol (1949) and Drucker (1954, 1966, 1974, 1987). The data from both the 1989 Culture Survey and the 1993 Quality Climate Survey confirm that lines of communication between managers and employees are in need of positive modification.

The findings of the Western Electric study establish the correlate between human relations and productivity. Years earlier, Follett (Metcalf & Urwick, 1941) had addressed the "partnership" that must exist between managers and employees if the work of the organization is to be performed effectively. The research by Mayo

(1933) and Rothlisberger and Dickson (1939) firmly establishes that financial and economic incentives are not the real motivators of performance. Maslow (1943) describes individual needs perceived to influence behavior. Herzberg (1959), distinguishes between maintenance factors and motivators. McGregor's (1960) research highlights the role of leader perceptions in the accomplishment of work. House and Mitchell (1974) emphasize the value of communications, coaching, and rewarding in achieving desired levels of performance. Blake and Mouton (1964) describe managers' orientation toward task and people which maximize or minimize the accomplishment of work and/or human relations.

The findings of the 1989 Culture Survey, in varying degrees, touch on each of these areas of research. Employee perceptions that management focuses most attention on mission accomplishment, planning and managing the work and the least attention on managing people are both consistent and inconsistent with the principles articulated by the scholars noted above. The following examples highlight the congruences and inconsistencies between behavior at NASA-LARC and these theories.

Management's attention to the technical mission of the organization is, in large part, consistent with Barnard's (1938) description of the functions of the executive, Drucker's (1954, 1966, 1974, 1987) view that management's role is to oversee the bureaucracy, and Blake and Mouton's (1964) description of the task oriented manager. Employee perceptions of deficiencies in the area of communications signal management's failure to incorporate Barnard's (1938) recommendation that management develop and maintain a system of communication; and Drucker's (1974) standard that management turn away from its own technical specialty and move toward strategies which communicate, motivate and develop people.

The research of both Maslow (1943) and Herzberg (1959) focuses on human motivation. The former describes individual levels of need. The latter distinguishes between hygiene factors and motivators. These two theories are of particular import in order to obtain maximum benefit from the data analysis of the two culture surveys.

Maslow's (1943) theory on the hierarchy of individual needs starts with psychological needs essential to survival and advances to

safety and security needs, to social needs, to esteem needs and eventually to self-actualization. A review of the free responses reveals that of the 3,741 responses on 'areas employees would like to improve', the categories of benefits, job security, pay, and job opportunities received a combined total of 187 or 5% of the responses. This is convincing evidence that NASA-LARC's employees have satisfied their lower level needs as described by Maslow. Therefore, when designing interventions which satisfy employee needs, senior management must concentrate on those strategies which address higher level needs.

Higher level needs include the need for belonging, interacting socially, achievement, respect of others and recognition, and the need to grow as an individual and as a professional. The primary factors identified by employees in the 1989 Culture Survey and which remain as significant factors in the 1993 Quality Climate Survey are communications, rewards and recognition and career development. The factors identified by employees fit the description of higher level needs which remain unmet. Of the categories of circumstances or conditions employees would like to improve, six of the 23 categories (management support,

communications, recognition, management, training, and teamwork) contained 1,804 or 48% of the responses. Such responses document employees' desires for management to develop and implement strategies which meet their higher order needs.

In the workplace, Herzberg's (1959) research found that the absence of hygiene factors (pay, working conditions, quality of supervision, company policies) proved to be dissatisfiers, but their presence did not motivate. Motivators, strategies which increase productivity and move employees toward the accomplishment of organizational objectives, are to be found in policies and practices related to achievement, advancement, recognition, and growth opportunities. Notwithstanding expressions of dissatisfaction previously mentioned, there is strong evidence that NASA-LARC employees are highly motivated. Responses to the open-ended question to list things about NASA-LARC which were liked totaled 2,687. Of these responses, the categories of management support, general, teamwork, recognition, policies, and job opportunities, represented 2,154 or 81% of the responses. The category 'general' is of particular significance since it is within this category that employees expressed positive feelings toward the diversity of work,

job security, job satisfaction, challenging nature of work, campus like environment, technical challenge, NASA's reputation, professionalism, and exciting projects.

When describing areas employees disliked, free responses are definite and succinct. This is evidenced by the fact that 74% of responses are clustered in five of the 23 categories and the substantially low number of responses in the "general" category. However, when considering the things employees favored, a broader range of variables were presented, especially in the "general" category. Taken together, these factors describe a workforce which is highly motivated by the work, the people with whom they work, the support received from management, and their reputation in the research community. These data support the conclusion that senior management's willingness and ability to significantly reduce, if not eliminate, undesirable conditions in a few focused areas have the potential to unleash a highly motivated workforce who possesses exceptional potential for continued and greater levels of productivity.

This potential in employees can be unleashed provided the motivators present and the rewards conferred are appropriate and

timely. House and Mitchell's model of leadership stresses the importance of communications, coaching and rewards in achieving organizational goals. The perception by employees that rewards and recognition are not commensurate with their contributions detracts from the partnership between managers and employees and, thus, retards employee performance.

Organizational culture has many definitions. Among these definitions are patterns of basic assumptions by groups, norms, values, habits of thinking, prevailing attitudes, and climate. The extent to which management is able to accurately diagnose its culture, determines management's ability to assess the extent to which organizational behavior supports or detracts from organizational goals. At NASA-LARC, senior management risked a major analysis of employee behavior and attitudes when it commissioned the SCAN teams. The risk was two fold. First, senior management bypassed middle management for a grass roots response to questions regarding organizational culture. Second, management in a manner without precedent, sought to follow Schein's observation that if the researcher is sufficiently talented to correctly identify the issues to be studied, asks the central

question(s), and selects an appropriate research design, the nature of what culture is can be decoded. Based on the 1989 Culture Survey, the issues were identified and the direction was clear. The destination was not as clear. Employees were involved and empowered to ask the questions, conduct the analyses, and make the report directly to senior management. Had employees possessed and demonstrated the characteristics of McGregor's Theory "X" employees, the process would have been counterproductive.

Based on a review of the data contained in the Survey, the Associate Director developed a comprehensive strategy (research design) for the accomplishment of what researchers and anthropologists refer to as "cultural engineering." The paradigm includes the following elements:

A. Designation of a senior manager to lead the effort.

B. Involvement and empowerment of employees to research records, interview employees and programmatic officials, analyze data and reach conclusions, and present their findings and recommendations directly to senior management.

C. Designation of a senior manager to each of the employee groups to serve as an ombudsman between the Senior Staff and that

employee group. The senior manager's role is to provide top level support, serve as a "sounding board" when needed, and remove barriers that may obstruct the work of employee groups.

D. Development and implementation of strategies which promote and prepare senior management for cultural change.

E. Review of the final report by employees and make "on-the-spot" commitments to recommendations.

F. Development of a plan for post intervention evaluation.

This researcher has deduced that this model is well rooted in the theoretical knowledge base of organizations and represents an effective strategy for cultural engineering. For example, the literature includes references to Mary Parker Follett's (Metcalf & Urwick, 1940) philosophy on the partnership that exists between managers and employees. The philosophy emphasized the growth and development of individuals to their highest levels of competency, creativity and fulfillment. The extent to which this partnership can be operationalized determines the degree to which employees become more responsible persons, thereby creating a culture in which each contributes to the limits of their improved abilities.

Based on his description of the manner in which the SCAN teams conducted their inquiry and the level of excellence attached to the recommendations developed by the SCAN teams, the evidence suggests that the Associate Director possesses the belief structure of a Theory Y leader and had the confidence to forge that partnership discussed earlier. The result was the discovery that NASA-LARC employees perceive work as natural and seek responsibility; support organizational goals and objectives; are committed to the organization; and at all levels of the organization, are endowed with creative abilities, and the capacity to solve problems. The existence of a partnership such as that described by Follett (Metcalf & Urwick, 1940), and "Y" employees as described by McGregor (1960), at NASA-LARC is borne out in the interviews of senior management and employees.

It is also important to note that when assessing the educational initiative, management and employees recognized that they worked in an environment where decisions have social, regulatory and economic consequences. The decision to accept, modify, and ultimately implement a recommendation can reflect an organization's ability or inability to achieve optimum levels of

change. Reduced budgets, changing roles and responsibilities for NASA Installations, and lowered complements individually and collectively, limit the extent to which some interventions can be implemented. Accordingly, managers and employees at NASA-LARC recognize that there are valid instances when it is not possible to achieve optimum levels of success. Rather, decisions implementing incremental change parallel what Simon (1947) called "satisficing." The benefits of this realization would not have been possible had it not been for the shared roles in the partnership to analyze the culture and respond to the findings.

The literature also spoke to educational interventions as vehicles to cultural change. Lewin defined the change process as unfreezing, moving and refreezing. NASA-LARC's culture was unfrozen by the results of the 1989 Culture Survey. The SCAN process represented a direction for change. The work of Argyris (1970) and Cummings and Huse (1989) helped to refine the definition of educational interventions as that organized, systematically planned, and sustained effort which when effectively implemented, ameliorates structures, procedures, and organizational culture.

The results of both the 1989 Culture and 1993 Quality Climate Surveys expose differences in perceptions of organizational culture by managers and employees. Differences are also found in the perceptions of organizational culture based on the employees occupation and organizational assignment. The three research evaluation questions for this study are: (1) Has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993?; (2) What are the prevalent views held by employees concerning organizational culture?; and (3) To what extent do employees perceive that organizational culture has been influenced by NASA-LARC's educational initiative?

The statistical data and interviews of employees support the prevalent views of employees (including managers and supervisors) that cultural changes are progressing. However, significant and meaningful movement resulting from the educational initiative remains to be realized. Both managers and employees are nevertheless optimistic, up to this point, regarding progress to date in diminishing differences in manager and employee perceptions of organizational culture at NASA-LARC.

The survey instruments used in the 1989 Culture Survey and the 1993 Quality Climate Survey both requested demographic data related to gender and ethnicity. Additionally, free responses regarding ethnic factors were (in some cases) negative. This research finding concludes that none of the participating parties availed themselves of the opportunity to examine differences in perception of culture and the corresponding effect of educational interventions based on gender and/or ethnicity.

The following conclusion relates to the nature of organizational culture rather than to the impact of educational interventions on organizational culture. In the model developed by Lewin (1952, 1958), culture was believed to exist in some descriptive form which when unfrozen, could be modified by intervention, and refrozen into another descriptive form. Based on the research findings of this study, it concludes that a descriptive form of organizational culture exists, which when unfrozen can be reengineered by an infinite set of variables, including educational interventions. It can be concluded then, that this newly engineered organizational culture is a 'response' to those interventions.

Based on a review of the related literature, interviews of supervisory and nonsupervisory employees, and an analysis of volumes of data from two culture surveys, this researcher rejects the belief that organizational culture is a set of values, norms, behaviors, customs, and attitudes. Rather, this researcher is highly persuaded that organizational culture is a response, the properties of which, are similar to the medical phenomena known as the "knee-jerk."

For example, the doctor taps the patellar tendon (knee) which elicits a jerking motion. The observer can describe the tapping process and the subsequent motions. However, that motion is no more than the outward appearance (or response) of an incalculable set of physiological functions of an intricate and highly complex system. So it is with culture. The values, norms, behaviors, customs, and attitudes of employees are not definitions of, but rather are the outward, and observable manifestations of culture. Within this context, this researcher concludes that organizational culture is "a shared organic response to the policies conceived and strategies implemented by management to accomplish the organization's mission."

This final conclusion relates to Lewin's (1952, 1958) concept of unfreezing, moving and refreezing. Organizational culture of some description exists in every organization. Two factors are significant with regard to the existence of organizational culture. First, organizational culture is a shared organic response to the policies conceived and the strategies implemented by management. Second, the policies conceived and the strategies implemented are unceasing, unless the organization ceases to exist. Given this unending characteristic of policies and strategies, it is unlikely that organizational culture ever truly "refreezes." It is possible that a photograph or perhaps more accurately, a 'snapshot' can be taken of organizational culture using data gathering tools such as those used during this study. That snapshot of organizational culture would only describe the values, norms, behaviors, customs, and attitudes of the organization at that precise moment in time. Since the organization is constantly changing, the culture that exists the next day, month or year is not exactly like that shown in the snapshot. The view that culture does not totally 'refreeze' represents a favorable circumstance for managers and employees in that they both have increased opportunities to engage in cultural engineering

initiatives without having to suffer the deficiencies of reduced employee satisfaction and morale; and declining productivity often associated with 'unfreezing.'

Recommendations and Future Implications

A review of the related literature results in the conclusion by this researcher that the literature is virtually silent on the impact of educational interventions on organizational culture. Therefore, it is recommended that future research on organizational culture include empirical studies of the impact of educational interventions on organizational culture.

Data from the 1989 Culture Survey indicates that management focuses most attention on mission accomplishment, and planning and managing NASA-LARC. Conversely, management focuses least attention on managing people. While the data from the 1993 Quality Climate Survey and interviews of employees support the conclusion that the difference in perception of organizational culture by managers and employees is diminishing, differences remain. Consistent with this finding, it is recommended that the mission statement found in strategic plans be broadened beyond the normal

technical objectives to include the creation and cultivation of an organizational culture which sustains and advances the organization.

It is also recommended that future policies and plans include strategies for building the bonds of professionalism which promote organizational productivity through the involvement of mid-level managers. In concert with Drucker's (1954, 1966, 1974, 1987) standard that management turn away from his or her own technical specialty and toward strategies which communicate, motivate and develop people, it is recommended that coaching, counseling, mentoring and related strategies designed to build 'partnerships' between leaders and employees be tailored and offered to meet NASA-LARC's specific cultural goals. It is predicted that managers and supervisors will require concentrated development in these areas.

Of the 3,741 free responses to Statement 96 in the 1993 Quality Climate Survey concerning areas employees would recommend for improvement, 20% were related to policies and processes. Accordingly, it is recommended that where possible, consideration be given to these issues for appropriate disposition.

NASA-LARC's educational initiative represents a comprehensive strategy for cultural engineering based on data derived from, and strategies conceived and presented by employees. Neither the 1989 Culture Survey nor the 1993 Quality Climate Survey reflects efforts to aggregate data by gender or ethnicity. Given the cultural diversity that exists within the workforce, it is recommended that future studies include such information so as to determine whether or not the same or different perceptions of organizational culture exist among females and members of minority groups; and if the same kinds of interventions are effective in changing perceptions and motivating males, females, minorities and nonminorities toward higher levels of productivity.

The 1989 Culture Survey brought to senior management's attention the need for a concerted effort to improve policies and practices related to communications, rewards and recognition, and career development. The involvement of employees in the SCAN process raised exponentially, the level of trust between senior management and employees. The manner in which employees conducted their inquiries and the overall quality of their recommendations confirmed their support of organizational values

and commitment to organizational objectives. Therefore, it is recommended that future surveys include data gathering strategies similar to the SCAN process.

The final recommendation is to develop a cultural engineering model for urban federal agencies. The concept would include strategies for employee involvement and empowerment, data gathering, management support, implementation, and evaluation. The specifics of such a model would be contingent upon the particular findings derived during data gathering and the intervention designed to be responsive to those findings.

To limit the recommendations for future research to those made thus far may leave the reader with an erroneous impression. As was concluded earlier, the educational initiative at NASA-LARC is without precedent at the federal level. The SCAN process and the educational initiative were responses to findings regarding differences in perception of organizational culture by managers and employees. The 1993 Quality Climate Survey requested and received responses regarding areas employees would recommend for improvement. These combined efforts serve to substantiate the existence of a federal agency willing to discard centralized,

bureaucratic and policy-driven practices which resist change. At the same time, the federal agency is demonstrating by example, a willingness to reinvent itself through strategies which abandon ineffective policies and practices; and empowers employees to become full partners in the search for the entrepreneurial spirit that leads to increased productivity and customer satisfaction.

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APPENDIX A
1989 CULTURE SURVEY

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia
23665-5225



Reply to Attn of 106

March 20, 1989

TO: All Langley Employees Participating in the NASA Culture Survey

FROM: 106/Director

SUBJECT: NASA Culture Study

I have reviewed the enclosed NASA Culture Survey and request your support in completing the form and returning it according to the directions enclosed. I have asked that a special set of questions, tailored specifically for the Langley Research Center, be enclosed and incorporated as part of the survey. You will find these questions in the survey package. Please also, as you complete this survey, be careful to interpret the questions so as to differentiate between your opinion concerning NASA as a whole or Langley Research Center or your work unit. We will carefully study the results provided by the survey and intend to provide all of our Center employees with the results as soon as possible. Thanks again for your support in this important survey activity.

A handwritten signature in cursive script, appearing to read "Richard H. Petersen".

Richard H. Petersen
44111

Enclosure



National Aeronautics and
Space Administration

Washington, D.C.
20546

Office of the Administrator

FEB 21 1989

TO: Study Participants

FROM: ADA/Associate Deputy Administrator

SUBJECT: 1989 NASA Culture Study

In 1986 an extensive culture study of NASA was conducted which established a baseline and resulted in the identification of underlying values, beliefs, and norms...the culture...prevalent throughout NASA. In addition, the study revealed several issues such as role clarity, career development, and communications which needed further attention.

We are sponsoring a second agencywide culture study to obtain an up-to-date picture of NASA's culture. The earlier questionnaire has been revised and, among other changes, now includes a set of questions particularly designed for each center. The knowledge obtained from this study will help us develop more effective ways of conducting business and provide information on our progress with issues resulting from the 1986 survey.

Your thoughts are extremely helpful to us, and this questionnaire is a way to communicate them.

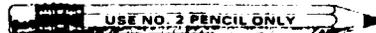
Thank you for your cooperation.

Noel W. Hinners

NASA CULTURE QUESTIONNAIRE
for
LANGLEY RESEARCH CENTER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION CULTURE SURVEY

ANSWER SHEET



CURRENT ORGANIZATION CODE

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Y	Y	Y	Y	Y	Y						
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EDUCATION (HIGHEST DEGREE EARNED)

High School Diploma or Equivalent
 Business College/Technical School
 B.A./B.S.
 M.A./M.S./M.B.A.
 M.D./J.D.
 Ph.D.
 Other

AGE

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SEX

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RACE/ETHNICITY

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 Black
 Hispanic
 Native American
 Asian/Pacific Islander
 Other

YEARS AT NASA

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NASA GRADE - FILL IN YOUR GRADE LEVEL IN THE APPROPRIATE CATEGORY

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CURRENT INSTALLATION

ARC/Moffett
 ARC/Dryden
 GSFC/Greenbelt
 GSFC/Wallops
 HQ
 JPL
 JSC
 KSC
 LaRC
 LeRC
 MSFC
 SSC

OCCUPATIONAL GROUP
Please Pick One Only

Engineering Positions
 Scientific Positions
 Life Science Support Positions
 Technical Support Positions
 Secretarial/Clerical/Non-Professional Administrative Positions
 Professional Administrative Positions
 Wage System

Do you directly supervise other employees?

Yes
 No

Have you attended the NASA Senior Executive Program (SEP)?

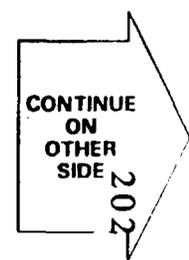
Yes
 No

Have you attended the NASA Management Education Program (MEP)?

Yes
 No

Number of NASA installations where you have worked →

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4	5	6	7	8	9	49	50	51	52	53	54	79	80	81	82	83	84	109	110	111	112	113	114	139	140	141	142	143	144	169	170	171	172	173	174
5	6	7	8	9	10	55	56	57	58	59	60	85	86	87	88	89	90	115	116	117	118	119	120	145	146	147	148	149	150	175	176	177	178	179	180
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23	24	25	26	27	28																														
24	25	26	27	28	29																														
25	26	27	28	29	30																														

THANK YOU FOR COMPLETING THIS SURVEY.

To All Survey Participants:

This questionnaire, a follow-on to the December 1986 NASA Culture Survey, asks for your perceptions about:

- A. Work Satisfaction
- B. Your Work Unit Climate
- C. NASA Culture
- D. LANGLEY RESEARCH CENTER Culture
- E. Center Specific Items

Statements pertaining to *WORK SATISFACTION*, *WORK UNIT CLIMATE*, *NASA CULTURE* and *LANGLEY RESEARCH CENTER CULTURE* are in Sections A, B, C and D respectively. The final section, E: Center Specific Items, asks for further information about your center. Throughout this questionnaire, the term "*work unit*" refers to your immediate organizational unit, that is, your immediate supervisor and peers.

Your responses to the *CULTURE QUESTIONNAIRE* will be included as part of the composite picture of how you and others in *LANGLEY RESEARCH CENTER* view the culture. Please answer the questions carefully, since this information will be of little or no value unless it is completely accurate. Your answers to the questionnaire will be kept completely confidential. W. Warner Burke Associates, Inc., will not release your individual responses to anyone in your organization. The questionnaires will be computer processed and statistically analyzed. Once the data have been compiled, your *NASA Culture Answer Sheet* will be destroyed. If you have any questions, feel free to call W. Warner Burke Associates at (914) 738-0080.

Please return the NASA CULTURE SURVEY ANSWER SHEET to W. Warner Burke Associates, Inc. in the enclosed envelope within three days.

Thank you for your cooperation.

BACKGROUND INFORMATION

In order to make optimum use of your responses to the NASA Culture questionnaire, we need some background information on yourself. *When answering the following questions, please complete the front side of the NASA CULTURE SURVEY ANSWER SHEET enclosed with your questionnaire. Note: on the ANSWER SHEET please fill in the circles and where appropriate the corresponding boxes above the circles.*

CURRENT ORGANIZATION CODE: LaRC

On the NASA CULTURE SURVEY ANSWER SHEET, record the numerical code that identifies your *directorate*. For example, if you work in the *Structures Directorate*, fill in "2000" in the first 4 numeric columns on the ANSWER SHEET (see example below). Below is a listing of the LaRC directorates by their numeric codes:

EXAMPLE: Code "2000" is below:

Directorate Code Definitions

0100	Office of the Director
1000	Electronics
2000	Structures
3000	Aeronautics
4000	Management Operations
5000	Systems Engineering & Operations
6000	Space
9000	Flight Systems

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| CURRENT ORGANIZATION CODE |
|
| AAAAAA0...00 |
|
| BBBBBB111111 |
|
| CCCCCC22222 |
|
| DDDDDD333333 |
|
| EEEEEEE444444 |
|
| FFFFFFF555555 |
|
| GGGGGG666666 |
|
| HHHHHH777777 |
|
| IIIIII888888 |
|
| JJJJJJ999999 |
|
| KKKKKK |
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| QQQQQQ |
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| RRRRRR |
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| SSSSSS |
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| TTTTTT |
|
| UUUUUU |
|
| VVVVVV |
|
| WWWWWW |
|
| XXXXXX |
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| YYYYYY |
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| ZZZZZZ |
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EDUCATION: *Fill in the circle representing the highest degree you have earned*

AGE: *Fill in the appropriate number*

SEX: *Fill in the appropriate response*

RACE/ETHNICITY: *Fill in the appropriate response*

YEARS AT NASA: *To the closest year*

YEARS AT CURRENT INSTALLATION: *To the closest year*

NASA GRADE: *Fill in your grade level in the appropriate category, i.e. W-06, GS-13, GM-14, SES (for all SESers fill in the two (8)(8) circles under SES), etc.*

CURRENT INSTALLATION: *Fill in "LaRC" (If you are temporarily detailed to LANGLEY RESEARCH CENTER, please fill in your permanent installation):*

OCCUPATIONAL GROUP *(based on your current responsibilities. Pick ONE only):*

Engineering Positions: includes professional engineering positions engaged in aerospace research, development, operations, professional engineering support, mathematics support, computer science and related work.

Scientific Positions: includes professional scientific positions engaged in aerospace research, development, and operations including professional physical science and mathematics support and related work.

Life Science Support Positions: includes life science professional positions such as medical officers and other positions performing professional work in psychology, the biological sciences and professions which support the science of medicine such as nursing and medical technology.

Technical Support Positions: includes scientific and engineering aids, technicians, photographers, illustrators, quality assurance specialists, etc.

Secretarial/Clerical/Non-professional Administrative Positions: includes secretarial, clerical and administrative support positions.

Professional Administrative Positions: includes professional/management positions in areas such as financial management, procurement, personnel, security, administration, law, public affairs, etc.

Wage System: includes trade, craft and general labor positions.

DO YOU DIRECTLY SUPERVISE OTHER EMPLOYEES?: *Fill in the appropriate response*

ATTENDED NASA Senior Executive Program (SEP): *Fill in the appropriate response*

ATTENDED NASA Management Education Program (MEP): *Fill in the appropriate response*

NUMBER OF NASA INSTALLATIONS WHERE YOU HAVE WORKED: *Fill in the appropriate number*

INSTRUCTIONS FOR COMPLETING THE CULTURE QUESTIONNAIRE

Please use the NASA CULTURE SURVEY ANSWER SHEET when making your responses to items 1 through 180 in this questionnaire.

Please read each item in the questionnaire. Then, using a No. 2 black lead pencil, mark your rating of that item on the NASA CULTURE SURVEY ANSWER SHEET. DO NOT use ink or ballpoint pens. When marking your answer on the NASA CULTURE SURVEY ANSWER SHEET, be sure to completely fill in the appropriate circle. Please do not make any stray marks on the answer sheet; they may be read as intended answers. If you make a mistake or want to change your rating, please erase thoroughly the old response and fill in your new response.

Finally, please be sure that the number of the item you are answering in the NASA CULTURE SURVEY ANSWER SHEET corresponds to the number of the item in your questionnaire.

AN EXAMPLE IS PROVIDED BELOW:

On Your Questionnaire:

NOT DESCRIPTIVE (1) (2) (3) (4) (5) *VERY DESCRIPTIVE*

1. Information is readily available to anyone who needs it.
2. Relevant information gets to the decision makers.
3. Information is passed up and down through formal management channels.

If you give item #1 a rating of "4" (meaning *Descriptive*); item #2 a rating of "3" (meaning *Somewhat Descriptive*); and item #3 a rating of "5" (meaning *Very Descriptive*) then mark these items on the NASA CULTURE SURVEY ANSWER SHEET in the following way:

On Your Answer Sheet: (fill in as follows)

1. (1) (2) (3) (•) (5) (S)
2. (1) (2) (•) (4) (5) (S)
3. (1) (2) (3) (4) (•) (S)

In the example above, you will also notice that to the right of each rating scale is the letter S in a circle, denoted as (S). Please disregard column (S) for the time being - this column will be used later on in Sections C, D and E of the questionnaire.

SECTION A: WORK SATISFACTION

In this section, you are being asked to evaluate your work satisfaction at four different levels: your own work, your work unit, LANGLEY RESEARCH CENTER, and NASA. Please rate the extent to which the following statements are descriptive of your work satisfaction, given the current conditions and organizational practices. Use the rating scale below to indicate your response on the NASA CULTURE SURVEY ANSWER SHEET.

NOT DESCRIPTIVE (1) (2) (3) (4) (5) *VERY DESCRIPTIVE*

1. Overall, I am satisfied with my job.
2. Overall, I am satisfied with my work unit.
3. Overall, I am satisfied with LANGLEY RESEARCH CENTER.
4. Overall, I am satisfied with NASA.
5. I am proud to work for NASA.
6. I am optimistic about NASA's future.

SECTION B: WORK UNIT CLIMATE

This section asks you to describe your local *work unit* environment. Remember, the term "*work unit*" refers to your immediate organizational unit, that is, your immediate supervisor and peers. Use the scale below to rate how well each statement describes your work unit. Indicate your responses on the NASA CULTURE SURVEY ANSWER SHEET.

NOT DESCRIPTIVE (1) (2) (3) (4) (5) *VERY DESCRIPTIVE*

7. The members of my work unit have sufficient clarity about what is expected of them.
8. People in my work unit are properly recognized for their work performance, i.e., according to individual merit.
9. Members of my work unit are involved in making decisions that directly affect their work.
10. Members of my work unit continually strive to do their best work.
11. Members of my work unit trust one another.
12. Members of my unit work cooperatively and effectively with members of other LANGLEY RESEARCH CENTER units.

SECTION C: NASA CULTURE

In this section we are asking you to respond to statements about NASA as a whole. Rate each statement as a description of NASA's culture, as you perceive it to exist today. Do this by choosing a number from the rating scale accompanying the statements, and indicating your response on the NASA CULTURE SURVEY ANSWER SHEET.

In addition, you will also notice that to the right of each rating scale is the letter S in a circle, denoted as (S). After rating all of the statements in this section, choose those statements that, in your opinion, *should characterize NASA in the future if it is to be most effective*. Indicate your choices by filling in the circle marked (S), which corresponds to your selection.

An example of items is provided below:

1. Information is readily available to anyone who needs it.
2. Relevant information gets to the decision makers.
3. Information is passed up and down through formal management channels.

Once you have completed your ratings of items 1-3 in the example above, If you decide that items #1 and #3 should characterize NASA in the future if it is to be most effective, please indicate them by marking the (S) in items 1 and 3. Your final response to this cluster would look as follows: (*Remember: You may choose as many items as you think necessary for NASA's effectiveness*).

Answer Sheet: (*Fill in as follows*)

1. (1) (2) (3) (•) (5) (•)
2. (1) (2) (•) (4) (5) (S)
3. (1) (2) (3) (4) (•) (•)

Remember to respond with your perceptions of the Agency as a whole.

NOT DESCRIPTIVE OF NASA TODAY (1) (2) (3) (4) (5) VERY DESCRIPTIVE OF NASA TODAY

- 13. NASA people value commitment to high quality work.
- 14. NASA people value excellence.
- 15. NASA can be described as a system of "empires," and there is very little sharing among them.
- 16. NASA effectiveness is based on how well it accomplishes its goals.
- 17. Agency senior management ensures that scientific and technical expertise are maintained within NASA.
- 18. Agency senior management emphasizes re-establishing a strong image, both within NASA and externally.
- 19. People are willing to share their power—there is an atmosphere of working together.
- 20. The roles and missions of NASA installations are clear.
- 21. Agency senior management fosters the integration of large, complex and unique projects/programs across NASA.
- 22. Employees are very loyal to NASA as a total organization.
- 23. NASA employees typically diagnose and solve problems individually rather than confer with other key players in the agency.
- 24. NASA effectiveness is assessed by its image as a world leader in aeronautics and space.
- 25. NASA employees are reluctant to move to other NASA locations, even if such moves would enhance their careers.
- 26. Most people expect to have a long career with NASA.
- 27. Information that may indicate "bad news" is readily passed up through formal management channels.
- 28. Agency senior management can be expected to do the right thing.
- 29. Decisions are made at a higher level than necessary.
- 30. Innovation in NASA is perceived as too risky and is resisted.
- 31. If one performs well, there is sufficient recognition and rewards.

Please go back through items 13 - 31 and indicate those items that you feel are most important for NASA to be as effective as possible. For each item you select, use column (S) to indicate your response.

SECTION D: LANGLEY RESEARCH CENTER CULTURE

There are 14 groups of culture statements in this section of the questionnaire. Rate each statement, as you did before, only this time as a description of LANGLEY RESEARCH CENTER's culture. Do this by choosing a number from the rating scale accompanying the statements, and indicating your response on the NASA CULTURE SURVEY ANSWER SHEET.

After rating all statements in each group, choose the **one** statement that, in your opinion, *should characterize LANGLEY RESEARCH CENTER in the future if it is to be most effective*. Indicate your choice by filling in the circle with the S in it, (S), which corresponds to your selection.

Remember to respond with your perceptions of LANGLEY RESEARCH CENTER.

I: ORGANIZATIONAL VALUES

To what degree are the items listed below descriptive of what LaRC values today? Read each statement carefully, then rate on a scale of "1" *NOT DESCRIPTIVE OF LaRC TODAY* to "5" *VERY DESCRIPTIVE OF LaRC TODAY*, the number which best reflects your assessment. Please indicate one rating for each statement in the space provided on the NASA CULTURE SURVEY ANSWER SHEET.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

LaRC values...

- 32. The employees
- 33. Organizational politics
- 34. Cultural diversity, i.e., race, ethnicity and gender
- 35. Challenging work
- 36. Cooperation
- 37. Integrity
- 38. Image to the public
- 39. Having clear goals
- 40. Having high work standards
- 41. Work safety

What should be the primary value if LaRC is to be as effective as possible in the future? For items 32-41, select the one item by filling in the column (S) on the ANSWER SHEET.

II: DECISIONS

In your opinion, how are key decisions made within LaRC? Rate each statement below as a description of your beliefs about decision making processes within LaRC.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

42. Decision making is delegated to the lowest possible level of authority.
43. Decisions are made on the basis of research, data and technical criteria, as opposed to political concerns.
44. Decisions are based on open discussion and debate of facts.
45. Schedule pressures have a great effect on decisions.
46. Budget pressures have a great effect on decisions.
47. Individuals involved in implementing decisions have a say in making the decisions.
48. Once a decision is made, management communicates the results and rationale to employees.

Select the statement that should best characterize LaRC's decision making if it is to be most effective. For items 42-48 select the one item by filling in the column (S) on the ANSWER SHEET.

III: INNOVATION

What are the norms (i.e., standards or rules of conduct set by the organization) regarding innovation in LaRC? Is the organization open to innovation?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

49. Technical innovation, based on research results, is readily accepted.
50. Innovation is readily accepted in program/project management.
51. People are penalized for new ideas that don't work.
52. Management actively seeks innovative ideas.
53. Innovation in LaRC is perceived as too risky and is resisted.
54. Innovation in administrative processes (personnel, budget, procurement, reporting, etc.) is welcomed.

Which statement is most important for innovation if LaRC is to be as effective as possible? For items 49-54 select the one item by filling in the column (S) on the ANSWER SHEET.

IV: COMMUNICATIONS

Within LaRC, how is general information communicated to employees, (e.g., information about how the agency is doing in Congress, operating changes, activities at other installations, activities within this installation, etc.)? How freely is information provided?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 55. Formal management channels are used effectively to pass information up and down the organization.
- 56. Information is readily available to anyone who needs it.
- 57. Information comes from an informal "grapevine" not through formal channels.
- 58. LaRC senior managers take the time to talk informally with the working troops.
- 59. Staff meetings are effectively used to communicate information.
- 60. Relevant information gets to the decision makers.
- 61. Information that may indicate "bad news" is readily passed up through formal channels.

Which statement is most important for communications if LaRC is to be as effective as possible in the future? For items 55-61 select the one item by filling in the column (S) on the ANSWER SHEET.

V: REWARDS

What do you believe about rewards in LaRC? Please use the rating scale below to indicate your response.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 62. If one performs well, there is appropriate recognition and reward.
- 63. If a work unit performs well, there is appropriate recognition and reward for all members.
- 64. The real reward is the work itself.
- 65. Getting rewarded is political--it's who you know.
- 66. The performance appraisal system provides a useful forum for discussion of work performance.
- 67. People orientation is an important criterion for the advancement of managers.

Which statement above should best represent rewards in LaRC if the organization is to be as effective as possible? For items 62-67 select the one item by filling in the column (S) on the ANSWER SHEET.

VI: LOYALTY

Does LaRC encourage employee loyalty? Is LaRC an organization people expect to stay with for a long time? How loyal are the employees today?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 68. Employees are very loyal to LaRC.
- 69. Employees look at work as a job, not a career, here at LaRC.
- 70. LaRC is effective in orienting new employees.
- 71. LaRC takes care of its people.

Which statement should be most important if LaRC is to be as effective as possible in the future? For items 68-71 select the one item by filling in the column (S) on the ANSWER SHEET.

VII: SUPPORT

To what extent is a helpful, supportive attitude respected and valued by employees at LaRC today?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 72. People throughout LaRC are supportive and helpful.
- 73. There is a willingness to accept responsibility for failure.
- 74. There is a willingness to collaborate across organizational units within LaRC.
- 75. Family members of LaRC employees feel pride in their connection with the agency.
- 76. There is a good balance among work, family and self goals for employees.

Which statement should be most important if LaRC is to be as effective as possible? For items 72-76 select the one item by filling in the column (S) on the ANSWER SHEET.

VIII: TRUST

Do employees in LaRC behave in a way that leads others to trust them? Is trust an important value in LaRC today?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

77. Trust is the norm across work units.

78. Trust is the norm within work units.

79. People only pay lip service to the value of trust; the real world within LaRC is one of undercutting and behind the scenes politics.

80. Employees can say what is right without fear of reprimand from management.

81. LaRC senior management can be expected to do the right thing.

82. I feel free to speak my mind.

Which statement should be most important if LaRC is to be as effective as possible? For items 77-82 select the one item by filling in the column (S) on the ANSWER SHEET.

IX: POWER

How is power (i.e., authority, control, etc.) shared in LaRC? Please use the rating scale below to indicate your response.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

83. People are willing to share their power -- there is an atmosphere of working together.

84. We talk about teamwork and sharing, but people quietly hold on to their power and authority.

85. In general, people with the technical knowledge and expertise can get things done around LaRC.

86. Employees are treated fairly and equitably.

87. Authority is highly centralized; only a handful at the top have it.

Which statement regarding power should be most important if LaRC is to be maximally effective? For items 83-87 select the one item by filling in the column (S) on the ANSWER SHEET.

X: PROBLEM SOLVING

How are problems considered and solved at LaRC? Use the rating scale below to indicate your responses.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 88. Decision makers are provided with realistic, multiple alternatives.
- 89. Problems need broader consideration than they receive.
- 90. People with the most pertinent knowledge are involved in the resolution of problems.
- 91. Issues can be discussed clearly and openly without having a negative impact on personal relationships.
- 92. Meetings are used effectively to identify and solve problems.

Select the statement that should characterize LaRC's problem solving ability in the future if it is to be effective. For items 88-92 select the one item by filling in the column (S) on the ANSWER SHEET.

XI: SENIOR MANAGEMENT EMPHASIS

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How would you describe the priorities of LaRC senior management today? What do they emphasize?

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

- 93. Mission accomplishment.
- 94. Strategic planning.
- 95. Securing necessary resources for Center programs.
- 96. Affirmative Action/Equal Opportunity
- 97. Employee morale.
- 98. Making clear-cut and timely decisions.
- 99. Ensuring that the right questions are raised and addressed.
- 100. Advocating programs.
- 101. Giving specialists sufficient autonomy to make decisions without losing management responsibility for those decisions.
- 102. Planning for a future workforce that is more culturally and gender diverse.
- 103. Ensuring that adequate resources are available for required institutional capabilities.

What should the top priority be to assure effectiveness in the future? For items 93-103 select the one item by filling in the column (S) on the ANSWER SHEET.

XII: ORGANIZATIONAL EFFECTIVENESS

How is organizational effectiveness measured at LaRC? Please use the rating scale below to indicate your response.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

104. LaRC effectiveness is measured on how well it accomplishes its goals.
105. LaRC effectiveness is measured on how well it acquires needed resources, e.g., money, programs, etc.
106. LaRC effectiveness is measured on how well it operates internally, that is, as a smoothly run organization, e.g., efficient use of time and resources, good communications, absence of internal strain.

Which statement should be most important if LaRC is to be effective as possible in the future? For items 104-106 select the one item by filling in the column (S) on the ANSWER SHEET.

XIII: ORGANIZATIONAL FUNCTIONING AND ADAPTABILITY

How well does LaRC function, in general, and adapt to change, in particular? Please use the rating scale below to indicate your response.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

107. Lack of clarity around responsibility, accountability and authority is a source of major problems for LaRC.
108. The formal structure of LaRC is well organized to support the installation's missions.
109. Employees at LaRC have clear concepts of their own roles and how they relate to the roles of others.
110. At LaRC, most employees believe in a set of shared values about how people should work together.
111. The pressure to maintain the status quo at LaRC is so great that if a major change were required for the organization to survive, it might not.

Which statement should best characterize LaRC in the future if it is to be effective? For items 107-111 select the one item by filling in the column (S) on the ANSWER SHEET.

XIV: CAREERS

How might one's career be characterized? Use the five-point scale below in making your ratings.

NOT DESCRIPTIVE OF LaRC TODAY (1) (2) (3) (4) (5) *VERY DESCRIPTIVE OF LaRC TODAY*

112. LaRC supervisors and managers take time to discuss career planning with their people.
113. LaRC provides opportunities for individual development other than formal training (e.g., work assignments, job rotation, etc.).
114. LaRC encourages managers to attend formal developmental activities such as training, professional seminars, symposia, etc.
115. Few in LaRC management are really concerned about the promotion and career development of their people--you are on your own.
116. Having a manager at a higher level take a personal interest in you is important for advancement within LaRC.
117. LaRC is able to hire high quality recruits.
118. There are viable career paths for non-supervisory/managerial employees.
119. There are people at LaRC who provide guidance and counsel regarding one's career.
120. Career management is a shared responsibility of both the employee and the manager.

Which statement above should be the most important factor for effective career development within LaRC? For items 112-120 select the one item by filling in the column (S) on the ANSWER SHEET.

SECTION E: CENTER SPECIFIC ITEMS

The remainder of the survey is comprised of items for the LANGLEY RESEARCH CENTER only. Your answers to these items will be used to ascertain the state of this Center only. As with all your answers on this survey, your responses will be kept confidential and will be shown to no one. They will be aggregated with the responses of all LaRC employees. Thank you for your help in answering these items.

Instructions: You are being asked to evaluate LaRC along 7 organizational indicators. Please rate the extent to which you agree with the following statements, given the current conditions and organizational practices. Use the rating scale below to indicate your response on the NASA CULTURE SURVEY ANSWER SHEET.

STRONGLY DISAGREE (1) (2) (3) (4) (5) *STRONGLY AGREE*

I: Work Load Management

- 121. I have the opportunity to use my skills and abilities effectively in my job.
- 122. I can do more in my job without much more effort.
- 123. My job keeps me busy.
- 124. I believe the work in my unit is well organized.
- 125. My job is interesting and keeps me challenged.

II: Contractor Management

- 126. I think the present support/civil servant ratio is appropriate.
- 127. I feel that our contractors have adequate technical skills and expertise.
- 128. I think NASA employees are getting enough "hands-on" technical experience.
- 129. I'm concerned that our use of contractors may result in the loss of our technical expertise.
- 130. I believe the system of contractor management enables LaRC to determine who is accountable for particular projects/actions.
- 131. I understand how our contractor's performance is evaluated.
- 132. I believe contractors are evaluated adequately.
- 133. I understand how to provide direction to the contractor.
- 134. I think we provide the contractors too little direction.
- 135. I believe we are making effective use of our contractor work force.

STRONGLY DISAGREE

(1) (2) (3) (4) (5)

STRONGLY AGREE

III: Effectiveness in Our Planning for the Future

136. My organization is actively developing technologies and capabilities to meet future requirements.
137. I believe the Center is doing a good job of planning for the future.
138. I am optimistic about the future of LaRC.
139. I believe LaRC management considers long-term implications in making day-to-day decisions.
140. I feel LaRC activities are too focused on crisis management at the expense of planning for the future.
141. I believe LaRC administrative systems and procedures are effective in helping me get my work done.
142. I believe LaRC program management systems and procedures are effective in helping me get my work done.

IV: Relationships with Customers

For this section, *customers* are defined as those individuals and organizations you work with who are not members of your work unit. Customers include DOD, payload customers (such as foreign countries, corporations, and educational/research institutions), foreign government representatives and other Centers and/or Agencies.

143. The people in my organization understand who our customers are.
144. The people in my organization understand what our customers want.
145. Our organization is organized in a way that helps us meet customer needs.
146. My organization is effective at meeting our customers' needs.
147. My organization's use of contractors is effective in meeting our customers' needs.
148. My organization anticipates the future needs of our customers.

STRONGLY DISAGREE

(1) (2) (3) (4) (5)

*STRONGLY AGREE***V: Pay and Performance**

- 149. Overall, I am satisfied with the way my pay is determined.
- 150. I am motivated by the current performance appraisal process.
- 151. I am paid about as much in my current job as I would be paid for a similar job in private industry.
- 152. I understand the way my pay is determined.
- 153. My performance is a key factor in the salary increases I receive.
- 154. Within the Center, my pay is about the same as those with jobs of similar difficulty and responsibility.
- 155. I believe supervisors should have more authority in determining pay for their employees.
- 156. The "personnel system" has greater bearing on my salary than decisions made by my supervisors.
- 157. The length of time an employee has worked for the government should be a significant factor in pay increase decisions.
- 158. The current performance appraisal system accurately measures my contributions to the organization.
- 159. The current performance appraisal system contributes to effective communications between me and my supervisor.
- 160. The current performance appraisal system affects my career development.
- 161. The current performance appraisal system is an effective work planning tool.
- 162. My supervisor is effective in his/her role as an appraiser of my performance.
- 163. I believe the current performance appraisal system is too complex.
- 164. I understand the linkage between my performance and my pay.

VI: Inter-Center Relationships

- 165. My sense is that there is more cooperation than competition among Centers.
- 166. I feel that LaRC is too compromising in its dealings with other Centers.
- 167. I think LaRC is effective at influencing Headquarters policies/procedures/directions.

Read the statement below and select the one center of your choice. Use items 168-170 on your ANSWER SHEET to indicate your response.

The Center that I find the easiest to work with is:

168. (1) ARC-Moffett (2) ARC-Dryden (3) GSFC-Greenbelt (4) GSFC-Wallops (5) HQ
 169. (1) JSC (2) KSC (3) LeRC (4) MSFC (5) SSC
 170. (1) JPL (2) I don't deal with other Centers

Read the statement below and select the one center of your choice. Use items 171-173 on your ANSWER SHEET to indicate your response.

The Center I feel we need to most improve our relationship with is:

171. (1) ARC-Moffett (2) ARC-Dryden (3) GSFC-Greenbelt (4) GSFC-Wallops (5) HQ
 172. (1) JSC (2) KSC (3) LeRC (4) MSFC (5) SSC
 173. (1) JPL (2) I don't deal with other Centers

VII: Miscellaneous

174. I have the opportunity to move to another organization if I choose to.
 175. I believe LaRC management is cost conscious.
 176. I believe technical expertise is rewarded at LaRC.
 177. I believe my organization is willing to take the necessary actions in hard times.
 178. I believe LaRC does a good job of providing the necessary equipment and facilities needed to do my job.
 179. I believe the Center's incentive award policy should be to recognize as many people as possible -- even if it means that the awards are relatively small.
 180. I am proud to work for LaRC.

You have reached the end of the NASA CULTURE SURVEY. Please check to make sure that the last item marked on your answer sheet is item 180. When you have finished, please return the questionnaire and NASA CULTURE SURVEY ANSWER SHEET in the postage paid envelope provided to the following address:

W. Warner Burke Associates Inc.

201 Wolf's Lane

Pelham, N.Y. 10803

If you have any questions please feel free to contact Dr. Lawrence P. Clark or Dr. Celeste Coruzzi at (914) 738-0080.

THANK YOU FOR YOUR KIND ATTENTION AND TIMELY RESPONSE!

APPENDIX B

INTERVIEW QUESTIONS FOR TOP AND MIDDLE MANAGEMENT

INTERVIEW QUESTIONS FOR TOP AND MIDDLE MANAGEMENT

At NASA-LaRC, a Culture Survey was completed in 1989. Based on the findings of that survey, SCAN Teams were formed to study conditions related to communications, rewards and recognition, and career development. At the completion of their assessment, a variety of actions (educational interventions) were recommended to Senior Management for their consideration and appropriate disposition. Of the 61 recommendation considered, Senior Management accepted 51, (either as presented or modified) for implementation. A Quality Climate Survey conducted in 1993, yielded data relative to employees perception of communications, rewards and recognition, and career development.

This educational evaluation of the impact of educational interventions on organizational culture seeks to determine the extent to which the educational initiative accomplished its intended objectives. Accordingly, the evaluation questions which guided this study are: (1) has the difference in management and employee perceptions of organizational culture changed from 1989 to 1993; and (2) what are the prevalent views held by employees concerning organizational culture at NASA-LaRC?

Data pertinent to these questions is available. Data not readily available pertains to the Senior Management's intent with respect to the "new culture" it was seeking to influence. In order to provide insight on the subject, responses to the following questions are requested.

1. What was management's intent when accepting the SCAN recommendations for implementation?
2. Did management attach any names or labels to the culture it was trying to create? For example, do you recall goals to create a culture in which employees could be described as "cooperative", "trusting", "supportive", "collaborative", "closer-knit", "team players", etc?
3. As it relates to the SCAN effort, is there anything about which you are particularly proud?
4. When history is written, what will be SCAN's legacy to Langley?

APPENDIX C
EDUCATIONAL INTERVENTIONS

EDUCATIONAL INTERVENTIONS

SUMMARY

LEGEND: A - Accepted as Presented
 M - Accepted as Modified
 R - Rejected

	<u>RECOMMENDATION NUMBER</u>	<u>RESPONSE</u>	<u>EFFECTIVE DATE</u>
1.	Regularly scheduled weekly update meetings strongly suggested at every level	A	Now
2.	Regularly scheduled monthly staff meetings required at every level	A	Now
3.	Provide Senior Staff "Key Activities" and written minutes of the weekly Senior Staff Meetings	A	Nov 1991
4.	Filter Standard Distributions	A	Ongoing
5.	Extend Video Distribution System (VDS) to all buildings on the West side	M	Now
6.	Implement Teleinfo System	A	Now
7.	Develop LaRC/Database system	A	Nov 1991, Jun 1992
8.	Becoming internally paperless	A	Ongoing
9.	Extend VDS to all buildings on both East and West sides	M	\$ Availability
10.	Utilize LaRCMail Database to replace all internal Standard Distribution Lists (SDL), reference documents, and other information	M	Ongoing
11.	Establish a Communication Division	R	---
12.	Make <i>Researcher News</i> an employee newsletter with weekly distribution	M	Now
13.	Develop a separate Public Relations (PR) publication if required by the Senior Staff	R	---

14.	Create a Technical Advisory Board of Senior Researchers to be utilized by the Senior Staff as advisors on programmatic matters	Merged with Recomm #16-M	
15.	Institute regular monthly employee forums	M	Now
16.	Create Langley Technical Committees (AIAA stature)	M	Now
17.	Revise Senior Management Research Review (SMRR)	M	Now
18.	Langley should participate in the Agency Performance Appraisal Study currently in progress	R	---
19.	A Langley Demonstration Project should be proposed	R	---
20.	a. Performance elements will correspond to the actual duties of the employee	M	Now
	b. High risk items should be identified with a stipulation that the minimum rating on those elements will be MEETS	M	Now
	c. Mentoring duties should be identified on the performance plan with no rating (lack of objective criteria) to aid the manager in the development/appraisal of junior employees and to emphasize the importance of the mentor's contributions	M	Now
	d. Career development plan items should be included in the performance plans with no ratings	M	Now
21.	Abandon the promotion point system	A	Now
22.	Uniformly implement "Tolson-Like" Salary Structures	A	Now
23.	Commission "Tolson" study for technicians, Administrative Professionals, and clericals (distinguish between research secretary and other clericals), using research laboratory statistics (not local economy)	M	1st qtr, FY 1992
24.	Create a Special Contribution Award (SCA)	M	Now

25.	Create an Exemplary Performance Award (EPA)	M	Now
26.	Create a Team Excellence Award (TEA)	M	Now
27.	All promotions and awards are to be presented in Branch and/or Division gatherings	A	Now
28.	All team awards are to be presented to the entire team at a special team gathering (e.g., NTF Fan Blade Team, CETA Team) and the citations will be mentioned at the Center Awards Ceremony	M	Now
29.	Promotions above journeyman level to be published in the <i>Researcher News</i>	R	---
30.	Adopt an unstructured work schedule where possible	Merged with Recomm #31-M	
31.	Adopt alternative work schedules where structure is required	M	October 1991
32.	Eliminate applicant response to KSAOCs by using SF-171/172 as official resume	R	---
33.	Eliminate supervisor's ratings from all positions (may be contacted by selecting official for additional comments)	M	Now
34.	Develop a computerized job selection system	R	---
35.	Career Development Center (CDC) establish a generic career path model	Merged with Recomm #39-M	
36.	Clarify confusion about the Dual Career Ladder (DCL)	M	Now
37.	Create more non-management fellowship opportunities	A	Now
38.	Career Development Center establish a Career Guidance Workshop for Senior Staff down through first line supervisors	Merged with Recomm #39-M	
39.	Manager and employee customize career path model developed by the Career Development Center into career development plan	M	Training for supervisors to begin 1st qtr, FY 1992

40.	Increase on-Center development opportunities	M	Nov 1991
41.	Identify or develop training for administrative assistants	A	Now
42.	Training section establish core curriculums for each small group	M	Now
43.	Increase travel budget to adequately support training and development for non/supervisors	M	Now
44.	Utilize on-Center training specialists to develop curriculums and teach courses as appropriate	A	Now
45.	Managers recognize need for mentors when establishing Career Development plans	Merged with Recomm #47-M	
46.	Include mentor as non-rated performance appraisal item	Merged with Recomm #47-M	
47.	Award mentor contributions	M	Now
48.	Create a mobility pool of slots	R	
49.	Encourage use of temporary duty details of less than 1 year (e.g., 3 months) without transfer of employee permanently (i.e., slot does not move) to increase cross-training and allow "try out"	A	Now
50.	Identify "MAST for the Masses" course	A	Now
51.	Employees interested in management path take an assessment course	A	Now
52.	Identify or develop pre-management curriculum for AST's and AP's	R	---
53.	Emphasize HRM skills as well as technical skills on selection of all supervisors	A	Now
54.	Give yearly training to managers in people skill areas	M	Now
55.	Yearly evaluate managers on people skills	M	2nd qtr, FY 1992
56.	Create an Organizational Development Office	R	---

- | | | | |
|-----|---|---|-----|
| 57. | Increase staff of current training and CDC by five people to accomplish workload | A | Now |
| 58. | Increase travel and training budgets expanded career and human resource development | M | Now |
| 59. | Add Chief Scientist and Administrative Assistant to branch office | M | Now |
| 60. | Reduce research efforts in focused areas where possible | A | Now |
| 61. | At all levels, filter requests for information, particularly from NASA Headquarters | A | Now |

APPENDIX D

ORGANIZATIONAL CULTURE IMPACT MATRIX

**ORGANIZATIONAL CULTURE
IMPACT MATRIX**

INSTRUCTIONS

1. In October 1991, the Center Director informed all employees of the Senior Staff responses to the recommendations, i.e., educational interventions made by the three SCAN teams. In his letter to all employees, the Director noted his confidence that when fully implemented, the recommendations would have a significant and positive impact on the Center.
2. The purpose of this interview survey is to determine the extent to which the recommendations have impacted the culture at LaRC.
3. The survey items represent the recommendations or educational interventions that were approved for implementation by the Senior Staff. You are requested to indicate the degree to which you believe each recommendation has been implemented at the Center by shading in the number which best describes your perception.
4. For example: Under "Communications", the first recommendation approved for implementation was "Regularly scheduled staff meetings at every level."

Regularly scheduled staff meetings at every level.

-	-	N	+	+	
1	2		4	5	DK

If you believe that implementation had a **negative impact** then select either "1" or "2." An example of negative implementation would be not having regularly scheduled meetings or having unproductive meetings.

If you believe that implementation had **no impact**, then select "3." An example of no impact is having regularly scheduled staff meetings, but those meetings have not contributed to the improvement of communications within the organization.

If you believe that implementation had a **positive impact** then choose either "4" or "5." An example of positive implementation is having regularly scheduled meetings and those meetings contributing to improved communications within the organization.

If you are **not aware** of the implementation of the recommendation, then select "DK" for DON'T KNOW.

5. In addition to indicating the extent to which the recommendation has been implemented, you also have the option of providing comments or making recommendation(s) for appropriate consideration.

ORGANIZATIONAL CULTURE IMPACT MATRIX

INSTRUCTIONS: You are requested to indicate the degree to which you believe that the recommendation, (i.e., educational intervention) has been implemented at the Center by shading in the number which best describes your perception.

-	-	NI	+	+	
1	2	3	4	5	DK

I. COMMUNICATIONS

COMMENT(S) OR RECOMMENDATION(S)
(OPTIONAL)

01. Regularly Scheduled Staff Meetings At Every Level.	1 2 3 4 5 DK	
02. Provide Senior Staff "Key Activities" and written minutes of the weekly Senior Staff Meetings.	1 2 3 4 5 DK	
03. Filter standard distributions.	1 2 3 4 5 DK	
04. Extend Video Distribution System (VDS) to all buildings on the west side.	1 2 3 4 5 DK	
05. Implement TELEINFO system.	1 2 3 4 5 DK	
06. Develop LaRC/Mail Database system.	1 2 3 4 5 DK	
07. Become internally paperless.	1 2 3 4 5 DK	
08. Extend VDS to all building on both East and West Sides.	1 2 3 4 5 DK	
09. Utilize LaRCMail Database to replace all internal Standard Distribution Lists (SDL) reference documents and other information stated above.	1 2 3 4 5 DK	
10. Make Researcher an employee newsletter with weekly distribution.	1 2 3 4 5 DK	
11. Create a Technical Advisory Board of Senior Researchers to be utilized by the Senior Staff as advisors on programmatic matters.	1 2 3 4 5 DK	
12. Institute regular monthly employee forums.	1 2 3 4 5 DK	
13. Create Langley Technical Committees.	1 2 3 4 5 DK	
14. Revise Senior Management Research Review (SMRR).	1 2 3 4 5 DK	

II. AWARDS AND RECOGNITION

COMMENT(S) OR RECOMMENDATION(S)
(OPTIONAL)

15. Performance elements will correspond to the actual duties of the employees.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
16. High risk items should be identified in the Performance Plans, with a stipulation that the minimum rating on those elements will be MEETS.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
17. Mentoring duties should be identified on the performance plan with no rating (lack of objective criteria) to aid the manager in the development/appraisal of junior employees and to emphasize the importance of the mentor's contributions.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
18. Career Development plan items should be included in the Performance Plan with no ratings.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
19. Abandon the promotion point system.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
20. Uniformly implement "Tolson-Like" Salary Structures.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
21. Commission "Tolson" study for technicians, administrative professional, and clericals (distinguish between research secretary and other clericals).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
22. Create a Special Contribution Award (SCA).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
23. Create an Exemplary Performance Award (EPA).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
24. Create a Team Excellence Award (TEA).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
25. All promotions and awards are to be presented in Branch and/or Division gatherings.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
26. All team awards are to be presented to the entire team at a special team gathering (e.g. NTF Fan Blade Team, CETA Team), and the citations will be mentioned at the Center Awards Ceremony.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
27. Adopt alternative work schedules where structure is required.	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	
28. Eliminate supervisor's ratings form for all positions (may be contacted by selecting official for additional comments).	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> DK	

III. CAREER DEVELOPMENT

COMMENT(S) OR RECOMMENDATION(S)
(OPTIONAL)

29. Clarify confusion about the Dual Career Ladder.	1 2 3 4 5 DK	
30. Create more non-management fellowship opportunities.	1 2 3 4 5 DK	
31. Train all managers and supervisors in coaching and counseling.	1 2 3 4 5 DK	
32. Implement Professional Development Program III on Center.	1 2 3 4 5 DK	
33. Identify or develop training for administrative assistants.	1 2 3 4 5 DK	
34. Utilize on-Center training specialists to develop curriculums and teach courses as appropriate.	1 2 3 4 5 DK	
35. Assign a sponsor to each new employee.	1 2 3 4 5 DK	
36. Encourage use of temporary duty details of less than 1 year (e.g. 3 months) to increase cross-training and allow "try out."	1 2 3 4 5 DK	
37. Identify NASA for the Masses course.	1 2 3 4 5 DK	
38. Offer "Crossroads", a pre-management assessment course.	1 2 3 4 5 DK	
39. A Human Resource Management skill KASOC will be included in Competitive Placement Program supervisory announcements.	1 2 3 4 5 DK	
40. Give yearly training to managers in people skill areas.	1 2 3 4 5 DK	
41. Yearly evaluate managers on people skills.	1 2 3 4 5 DK	
42. Increase staff of current training and CDC by five people to accomplish above workload.	1 2 3 4 5 DK	
43. Increase travel and training budgets for expanded career and human resource development.	1 2 3 4 5 DK	
44. Add Chief Scientists and Admin. Assistants to Branch Offices.	1 2 3 4 5 DK	
45. Reduce research efforts in focused areas where possible.	1 2 3 4 5 DK	
46. At all levels, filter requests for information, particularly from NASA Headquarters.	1 2 3 4 5 DK	

APPENDIX E
1993 QUALITY CLIMATE SURVEY

Instructions

1. Your survey, along with all others from your group, will be sent to 3M Quality Management Services for analysis. The completed surveys will be processed by computer. Results will be summarized for groups of people; therefore, you will not be individually identified in any way.
2. Each question in this survey has two parts which both require an answer.

To fully answer each question, you will need to do the following:

- a. Circle the ONE answer from Column A which best corresponds with the degree of importance you feel should be placed on each of the questionnaire items in your work environment.

Example: I feel the warm weather in this town adds to the quality of my life.

If this aspect of the weather is VERY IMPORTANT to your decision as to where you live, then circle the number under VERY IMPORTANT (5) like this:

A. IMPORTANCE

Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know
5	4	3	2	1	DK

I feel the warm weather in this town adds to the quality of my life. →

- b. Circle the ONE answer from Column B which best indicates the extent to which you agree or disagree with each question.

Example: I feel the warm weather in this town adds to the quality of my life.

If you AGREE with this statement about the weather, then circle the number under AGREE (4) like this:

B. LEVEL OF AGREEMENT

I feel the warm weather in this town adds to the quality of my life. →

Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	Don't Know
5	4	3	2	1	DK

3. Remember, you should answer each question as honestly as you can. You will not be identified by your answers.
4. As you complete this questionnaire, please use the following definitions:
 - TOP MANAGEMENT: Program Director and above.
 - MANAGEMENT: the person you report to directly (your supervisor or first-line manager).
 - WORK GROUP: all individuals in your own area with whom you work (usually they all work for the same supervisor or manager).
 - JOB: if you work on more than one job within your division, please answer in terms of the job that you perform most frequently.
 - INTERNAL CUSTOMER: the person(s) and/or group(s) inside your organization that use your products/services.
 - EXTERNAL CUSTOMER: the agencies, groups, and/or persons outside your organization that use your products/services.
 - TOOLS: any equipment or supplies used to perform your particular job (examples include: computers, test equipment, telephones, etc.).
 - SUPPLIER QUALITY PROCESS: a process that manages the supplier community with the purpose of continuous improvement.

A. In the left-hand column below, please circle the number which best corresponds with the degree of importance you feel should be placed on each of the following questionnaire items within your work environment.

B. In the right-hand column below, please circle the number which best indicates the extent to which you agree or disagree with each of the following questionnaire items.

A. IMPORTANCE						B. LEVEL OF AGREEMENT						
Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know							
5	4	3	2	1	DK		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
						I. ORGANIZATION						
5	4	3	2	1	DK	1. Top management (Program Director and above) in this organization is generally receptive and open to my ideas	5	4	3	2	1	DK
5	4	3	2	1	DK	2. Employee suggestions are reviewed and followed up by management	5	4	3	2	1	DK
5	4	3	2	1	DK	3. Most of the time I can say what I think around here	5	4	3	2	1	DK
5	4	3	2	1	DK	4. In my present job, I have a good opportunity to show what I can do	5	4	3	2	1	DK
5	4	3	2	1	DK	5. I have the right tools to perform my job function	5	4	3	2	1	DK
5	4	3	2	1	DK	6. Our equipment is up-to-date	5	4	3	2	1	DK
5	4	3	2	1	DK	7. I have enough space in which to do my work	5	4	3	2	1	DK
5	4	3	2	1	DK	8. People in my work group have a positive attitude about performing quality work	5	4	3	2	1	DK
5	4	3	2	1	DK	9. My work group is adequately staffed with people	5	4	3	2	1	DK
5	4	3	2	1	DK	10. I have a positive attitude about performing quality work on my job	5	4	3	2	1	DK
5	4	3	2	1	DK	11. The morale of my work group is high	5	4	3	2	1	DK
5	4	3	2	1	DK	12. Considering everything, I am satisfied with the way LaRC is organized	5	4	3	2	1	DK
						II. MANAGEMENT						
5	4	3	2	1	DK	13. Management explains the purpose and reasoning behind policies and directives	5	4	3	2	1	DK
5	4	3	2	1	DK	14. Top management sets quality goals and objectives for the organization	5	4	3	2	1	DK
5	4	3	2	1	DK	15. Top management encourages decision-making at lower levels in the organization	5	4	3	2	1	DK
5	4	3	2	1	DK	16. Management's actions and words are believable about making quality improvements	5	4	3	2	1	DK
5	4	3	2	1	DK	17. My manager is available when I need assistance or coaching	5	4	3	2	1	DK
5	4	3	2	1	DK	18. Management is willing to spend money in order to improve the quality of our products/services	5	4	3	2	1	DK
5	4	3	2	1	DK	19. What management wants me to do and what customers want me to do are usually the same	5	4	3	2	1	DK
5	4	3	2	1	DK	20. Management's planning process emphasizes continuous quality improvement	5	4	3	2	1	DK
5	4	3	2	1	DK	21. I believe that my management is as concerned about the quality of our work as they are about productivity	5	4	3	2	1	DK

PAGE 2

- A. In the left-hand column below, please circle the number which best corresponds with the degree of importance you feel should be placed on each of the following questionnaire items within your work environment.
- B. In the right-hand column below, please circle the number which best indicates the extent to which you agree or disagree with each of the following questionnaire items.

A. IMPORTANCE						B. LEVEL OF AGREEMENT						
Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know							
5	4	3	2	1	DK		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
5	4	3	2	1	DK	22. Management regularly reviews our progress toward the organization's quality goals and objectives	5	4	3	2	1	DK
5	4	3	2	1	DK	23. Considering everything, am satisfied with the management support I receive	5	4	3	2	1	DK
						III. COMMUNICATION						
5	4	3	2	1	DK	24. The information that I receive from management is generally accurate and believable	5	4	3	2	1	DK
5	4	3	2	1	DK	25. I usually get all the information I need to know in order to do my job effectively	5	4	3	2	1	DK
5	4	3	2	1	DK	26. My management gives me feedback on how to improve the quality of my work	5	4	3	2	1	DK
5	4	3	2	1	DK	27. Management shares customer feedback on the quality of my work with me	5	4	3	2	1	DK
5	4	3	2	1	DK	28. My work group has regular meetings to discuss the quality of our work	5	4	3	2	1	DK
5	4	3	2	1	DK	29. I receive adequate information concerning other work groups	5	4	3	2	1	DK
5	4	3	2	1	DK	30. Communications between work groups are encouraged within our organization	5	4	3	2	1	DK
5	4	3	2	1	DK	31. Considering everything, I am satisfied with communications at LaRC	5	4	3	2	1	DK
						IV. WORK GROUP						
5	4	3	2	1	DK	32. The people I work with display good teamwork	5	4	3	2	1	DK
5	4	3	2	1	DK	33. My work group is generally quick to adopt improved work methods	5	4	3	2	1	DK
5	4	3	2	1	DK	34. My work group has clear work goals and objectives	5	4	3	2	1	DK
5	4	3	2	1	DK	35. Communications within my work group are good	5	4	3	2	1	DK
5	4	3	2	1	DK	36. Work is well organized in my work group	5	4	3	2	1	DK
5	4	3	2	1	DK	37. My work group consistently meets its project deadlines	5	4	3	2	1	DK
5	4	3	2	1	DK	38. Providing a high quality product/service is a top priority in my work group	5	4	3	2	1	DK
5	4	3	2	1	DK	39. My work group completes a large volume of work	5	4	3	2	1	DK
5	4	3	2	1	DK	40. There is a high level of cooperation between my work group and other work groups	5	4	3	2	1	DK
5	4	3	2	1	DK	41. Considering everything, I am satisfied with the teamwork in my work group	5	4	3	2	1	DK

A. In the left-hand column below, please circle the number which best corresponds with the degree of importance you feel should be placed on each of the following questionnaire items within your work environment.

B. In the right-hand column below, please circle the number which best indicates the extent to which you agree or disagree with each of the following questionnaire items.

A. IMPORTANCE						B. LEVEL OF AGREEMENT						
Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
						V. PROBLEM SOLVING						
5	4	3	2	1	DK	42. My suggestions for changes or improvements have been implemented	5	4	3	2	1	DK
5	4	3	2	1	DK	43. I have worked on a team or project to solve a quality problem	5	4	3	2	1	DK
5	4	3	2	1	DK	44. Members of my work group take actions to identify product/service quality issues before they become problems	5	4	3	2	1	DK
5	4	3	2	1	DK	45. When a problem is discovered, my work group acts on it quickly	5	4	3	2	1	DK
5	4	3	2	1	DK	46. My work group uses a team approach to solve customer problems	5	4	3	2	1	DK
5	4	3	2	1	DK	47. I have the authority to act on product and service quality problems	5	4	3	2	1	DK
5	4	3	2	1	DK	48. Considering everything, I am satisfied with the way we handle problems	5	4	3	2	1	DK
						VI. CUSTOMER ORIENTATION						
						INTERNAL CUSTOMER: The person(s) and/or group(s) inside your organization that use your products/services						
						EXTERNAL CUSTOMER: The agencies, groups, and/or persons outside your organization that buy/use your products/services						
5	4	3	2	1	DK	49. I know who my internal customers are	5	4	3	2	1	DK
5	4	3	2	1	DK	50. I am kept well-informed about customer expectations and requirements	5	4	3	2	1	DK
5	4	3	2	1	DK	51. I am encouraged to make improvements in my work to enhance customer satisfaction	5	4	3	2	1	DK
5	4	3	2	1	DK	52. I know who our organization's external customers are	5	4	3	2	1	DK
5	4	3	2	1	DK	53. The way I do my job plays an important role in keeping our customers satisfied	5	4	3	2	1	DK
5	4	3	2	1	DK	54. I think about what our customers expect in terms of quality when I am performing my job	5	4	3	2	1	DK
5	4	3	2	1	DK	55. My work group understands our customers' needs and problems	5	4	3	2	1	DK
5	4	3	2	1	DK	56. I am able to deliver the level of service our customers expect	5	4	3	2	1	DK
5	4	3	2	1	DK	57. I feel that my work group quickly responds to customer needs and problems	5	4	3	2	1	DK
5	4	3	2	1	DK	58. Our information systems allow us to meet customer needs by making information readily available	5	4	3	2	1	DK
5	4	3	2	1	DK	59. My work group views the telephone as an important tool to use in keeping customers satisfied	5	4	3	2	1	DK
5	4	3	2	1	DK	60. Considering everything, I am satisfied with the level of customer satisfaction my work group provides	5	4	3	2	1	DK

- A. In the left-hand column below, please circle the number which best corresponds with the degree of importance you feel should be placed on each of the following questionnaire items within your work environment.
- B. In the right-hand column below, please circle the number which best indicates the extent to which you agree or disagree with each of the following questionnaire items.

A. IMPORTANCE						B. LEVEL OF AGREEMENT						
Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know							
5	4	3	2	1	DK		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
VII. MEASURES												
5	4	3	2	1	DK	61. I am aware of how our customers measure the quality of our products and services	5	4	3	2	1	DK
5	4	3	2	1	DK	62. Quality measurements are in place to assess the work performed by my work group	5	4	3	2	1	DK
5	4	3	2	1	DK	63. Customer satisfaction data is gathered and used in the decision making process of our work group	5	4	3	2	1	DK
5	4	3	2	1	DK	64. I am aware of the strengths and weaknesses of our products/ services as compared to the competition	5	4	3	2	1	DK
5	4	3	2	1	DK	65. I am responsible for meeting specific customer satisfaction goals as part of my job	5	4	3	2	1	DK
5	4	3	2	1	DK	66. Customer complaints are communicated to my work group	5	4	3	2	1	DK
5	4	3	2	1	DK	67. Considering everything, I am satisfied with how we measure customer satisfaction	5	4	3	2	1	DK
VIII. TRAINING												
5	4	3	2	1	DK	68. I have received training in problem solving, group process skills or decision-making	5	4	3	2	1	DK
5	4	3	2	1	DK	69. I use at least one of the following problem solving methods on my job: statistical process control, roadmapping techniques, flowcharting, or other MTQ tools	5	4	3	2	1	DK
5	4	3	2	1	DK	70. I have received quality concept (quality awareness) training	5	4	3	2	1	DK
5	4	3	2	1	DK	71. I routinely apply quality improvement concepts to my work	5	4	3	2	1	DK
5	4	3	2	1	DK	72. The organization keeps us <u>current</u> on the best ways to do our jobs through training, publications, etc.	5	4	3	2	1	DK
5	4	3	2	1	DK	73. Employees in my work group are well-trained to perform their jobs	5	4	3	2	1	DK
5	4	3	2	1	DK	74. Management encourages employees to pursue continuing education	5	4	3	2	1	DK
5	4	3	2	1	DK	75. Employees who develop themselves are able to qualify for other job opportunities at LaRC	5	4	3	2	1	DK
5	4	3	2	1	DK	76. Considering everything, I am satisfied with my training and development	5	4	3	2	1	DK

A. In the left-hand column below, please circle the number which best corresponds with the degree of importance you feel should be placed on each of the following questionnaire items within your work environment.

B. In the right-hand column below, please circle the number which best indicates the extent to which you agree or disagree with each of the following questionnaire items.

A. IMPORTANCE						B. LEVEL OF AGREEMENT						
Very Important	Relatively Important	Neutral	Relatively Unimportant	Very Unimportant	Don't Know							
5	4	3	2	1	DK		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Don't Know
						IX. RECOGNITION AND REWARDS						
5	4	3	2	1	DK	77. My management provides positive reinforcement (praise) when I do high quality work	5	4	3	2	1	DK
5	4	3	2	1	DK	78. Management recognizes and rewards work groups/project teams who perform high quality work	5	4	3	2	1	DK
5	4	3	2	1	DK	79. My work group/project team has been recognized and rewarded for the high quality of its work	5	4	3	2	1	DK
5	4	3	2	1	DK	80. Management recognizes and rewards employees with bonuses or gifts when they do high quality work	5	4	3	2	1	DK
5	4	3	2	1	DK	81. I have been recognized and rewarded for the high quality of my work	5	4	3	2	1	DK
5	4	3	2	1	DK	82. Considering everything, I am satisfied with how employees are recognized and rewarded for doing high quality work	5	4	3	2	1	DK
						X. GENERAL						
5	4	3	2	1	DK	83. The work I do here is satisfying to me personally	5	4	3	2	1	DK
5	4	3	2	1	DK	84. Management informs me of the steps I must take to meet my performance goals	5	4	3	2	1	DK
5	4	3	2	1	DK	85. I believe my job performance is evaluated fairly by my manager	5	4	3	2	1	DK
5	4	3	2	1	DK	86. I feel employees will respond openly to this survey	5	4	3	2	1	DK
5	4	3	2	1	DK	87. I feel that management will act upon the results of this survey	5	4	3	2	1	DK
5	4	3	2	1	DK	88. We have a supplier quality process in place within LaRC	5	4	3	2	1	DK
5	4	3	2	1	DK	89. LaRC is continuously improving the systems and methods for doing work	5	4	3	2	1	DK
5	4	3	2	1	DK	90. Career coaching and counseling of employees by their supervisors is improving within my organization	5	4	3	2	1	DK
5	4	3	2	1	DK	91. Electronic communication processes have improved overall communication at LaRC	5	4	3	2	1	DK
5	4	3	2	1	DK	92. The variable workday has enhanced the quality worklife in my organization	5	4	3	2	1	DK
5	4	3	2	1	DK	93. Innovation and creativity are encouraged at LaRC	5	4	3	2	1	DK
5	4	3	2	1	DK	94. LaRC utilizes its cultural diversity to enhance mission performance	5	4	3	2	1	DK
5	4	3	2	1	DK	95. Considering everything, I am satisfied with LaRC as an organization to work for	5	4	3	2	1	DK

XI. COMMENTS

96. Describe at least two areas where improvement could take place within your organization?

97. List two or more things you like about this organization?

98. Any further comments? (Feel free to attach another page if needed)

DATA ANALYSIS INFORMATION

This information will be used by an independent company which will analyze the data and report results to your organization by broad categories. Under no circumstances will individual responses be provided to anyone at the NASA Langley Research Center.

A. LENGTH OF SERVICE WITH NASA

- Less than 1 year
- 1-5 years
- 6-15 years
- 16-25 years
- 26 or more years

B. CAREER CATEGORY

- Manager/Supervisor
- AST
- Administrative Professional (non-supervisory)
- Clerical
- Technician

C. GENDER

- Male
- Female

D. WHAT IS THE NAME OF THE ORGANIZATIONAL GROUP THAT YOU ARE ADMINISTRATIVELY ASSIGNED TO? (Select the one box below to indicate the lowest level group which best describes your situation)

Example: If you actually work in the Instrument Research Division (IRD), then you would place a check (✓) mark to the left of that organizational name.

However, if you actually work in the Facility Research Instrumentation Branch which reports into the Instrument Research Division, then you would place a check (✓) mark to the left of the Facility Research Instrumentation Branch name.

Note: If you work in a group, section or office whose name does not appear on the following list, please select the appropriate Branch or Office your organization reports into.

1. OFFICE OF DIRECTOR

- 01 [] Office of Director
- 02 [] Office of Equal Opportunity Programs
- 03 [] Office of External Affairs

2. OFFICE OF DIRECTOR FOR ELECTRONICS

- 01 [] Office of Director for Electronics
- 02 [] Information Resources Management Office
- 03 [] **Analysis and Computation Division (ACD)**
- 04 [] Computer Applications Branch
- 05 [] Analysis and Simulation Branch
- 06 [] Communications and Network Systems Branch
- 07 [] Computer Management Branch
- 08 [] Computer Systems Branch
- 09 [] Flight Software and Graphics Branch
- 10 [] **Instrument Research Division (IRD)**
- 11 [] Non-Destructive Evaluation Sciences Branch
- 12 [] Aerodynamic & Thermodynamic Meas. Branch
- 13 [] Facility Research Instrumentation Branch
- 14 [] Acoustic and Mechanical Measurements Branch
- 15 [] Non-Intrusive Diagnostic Branch
- 16 [] **Flight Electronics Division (FED)**
- 17 [] LASE Project Office
- 18 [] Aircraft Instrumentation Branch
- 19 [] Spaceflight Electronics Branch
- 20 [] Electro-Optics Branch
- 21 [] Sensor Systems Branch
- 22 [] Sensor Technology Branch
- 23 [] **Projects Division (PD)**
- 24 [] Projects Controls Branch
- 25 [] Small Projects Branch
- 26 [] LITE Project Office
- 27 [] CERES Project Office
- 28 [] SAGE III Project Office
- 29 [] F-16XL SLFC Flight Experiment Project Office

3. OFFICE OF DIRECTOR FOR STRUCTURES

- 01 [] Office of Director for Structures
- 02 [] **Structures Technology Program Office**
- 03 [] **Structural Mechanics Division (SMD)**
- 04 [] Aircraft Structures Branch
- 05 [] Spacecraft Structures Branch
- 06 [] Computational Mechanics Branch
- 07 [] Aerothermal Loads Branch
- 08 [] **Structural Dynamics Division (SDYD)**
- 09 [] Aeroelasticity Branch
- 10 [] Spacecraft Dynamics Branch

- 11 [] Aeroelastic Analysis and Optimization Branch
- 12 [] Landing and Impact Dynamics Branch
- 13 [] **Materials Division (MD)**
- 14 [] Polymeric Materials Branch
- 15 [] Mechanics of Materials Branch
- 16 [] Applied Materials Branch
- 17 [] Metallic Materials Branch

- 18 [] **Acoustics Division (ACOD)**
- 19 [] Structural Acoustics Branch
- 20 [] Aeroacoustics Branch
- 21 [] Applied Acoustics Branch

4. OFFICE OF DIRECTOR FOR AERONAUTICS

- 01 [] Office of Director for Aeronautics
- 02 [] Facilities Planning Office
- 03 [] **Advanced Vehicles Division (AVD)**
- 04 [] Advanced Aircraft Branch
- 05 [] Mission Analysis Branch
- 06 [] Vehicle Integration Branch
- 07 [] High-Speed Research Program Office
- 08 [] **Applied Aerodynamics Division (AAD)**
- 09 [] Subsonic Aerodynamics Branch
- 10 [] Transonic Aerodynamics Branch
- 11 [] High-Reynolds-Number Aerodynamics Branch
- 12 [] Supersonic/Hypersonic Aerodynamics Branch
- 13 [] Propulsion Aerodynamics Branch
- 14 [] **Flight Applications Division (FAD)**
- 15 [] Laminar Flow Control Project Office
- 16 [] Aircraft Operations Branch
- 17 [] Flight Research Branch
- 18 [] Flight Dynamics Branch
- 19 [] **Fluid Mechanics Division (FLDM)**
- 20 [] Computational Aerodynamics Branch
- 21 [] Theoretical Flow Physics Branch
- 22 [] Experimental Methods Branch
- 23 [] Experimental Flow Physics Branch
- 24 [] Hypersonic Propulsion Branch
- 25 [] Computational Sciences Branch

5. OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS

- 01 [] Office of Director for Management Operations
- 02 [] **Office of Chief Counsel**
- 03 [] **Management Resources Office**
- 04 [] **Management Support Division (MSD)**
- 05 [] Support Operations Office
- 06 [] Logistics Management Branch

5. OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS (Cont.)

- 07 [] Security Services Branch
- 08 [] Institutional Support Branch
- 09 [] **Human Resources Mgmt. Division (HRMD)**
- 10 [] Employee Relations Office
- 11 [] Employee Development Branch
- 12 [] Placement and Position Management Branch
- 13 [] **Business Data Systems Division (BDS)**
- 14 [] Information Management and Technology Office
- 15 [] Administrative Software Applications Office
- 16 [] **Acquisition Division (AD)**
- 17 [] Acquisition Operations Branch
- 18 [] Purchase and ADP Branch
- 19 [] Services Contracts Branch
- 20 [] Grants, Supply & Construction Contracts Branch
- 21 [] Research and Projects Contracts Branch
- 22 [] **Research Information and Applications Division (RIAD)**
- 23 [] Visual Imaging Branch
- 24 [] Technical Editing Branch
- 25 [] Printing and Graphics Branch
- 26 [] Technology Utilization and Applications Office
- 27 [] Technical Library Branch

6. OFFICE OF DIRECTOR FOR SYSTEMS ENGINEERING AND OPERATIONS

- 01 [] Office of Director for Systems Engineering and Operations
- 02 [] **Systems Safety, Quality and Reliability Division (SSQRD)**
- 03 [] Risk Management Branch
- 04 [] Systems Assurance Branch
- 05 [] Environmental Engineering Branch
- 06 [] **Fabrication Division (FD)**
- 07 [] Resources and Contracts Branch
- 08 [] Metals Applications Technology Branch
- 09 [] Models and Materials Technology Branch
- 10 [] Quality Assurance and Inspection Branch
- 11 [] Electronics Technology Branch
- 12 [] **Facilities Program Development Office (FPDO)**
- 13 [] **8-Foot High Temperature Tunnel Shakedown Project Office (8-HTTSPO)**
- 14 [] **Systems Engineering Division (SED)**
- 15 [] Engineering Analysis Branch
- 16 [] Control and Electronics Branch
- 17 [] Test and Development Branch
- 18 [] Aeronautical Systems Engineering Branch
- 19 [] Space Systems Engineering Branch

- 20 [] **Facilities Engineering Division (FENG)**
- 21 [] Structural Design Branch
- 22 [] Facility Systems Branch
- 23 [] Facilities Projects Branch
- 24 [] Electronic Systems Branch
- 25 [] Facilities Engineering Support Branch
- 26 [] Specifications and Contract Coordination Office
- 27 [] **Operations Support Division (OSD)**
- 28 [] **Mechanical Support and Utilities Operations Branch**
- 29 [] Electrical Support Branch
- 30 [] Laboratories Operations Branch
- 31 [] Tunnels Operations Branch
- 32 [] Work Control and Contracted Services Branch

7. OFFICE OF DIRECTOR FOR SPACE

- 01 [] Office of Director for Space
- 02 [] **Advanced Space Concepts Division**
- 03 [] Advanced Programs Branch
- 04 [] Science Mission Analysis Branch
- 05 [] Space System Analysis Branch
- 06 [] Experiments and Utilization Branch
- 07 [] **Atmospheric Sciences Division (ASD)**
- 08 [] Data Management Office
- 09 [] Chemistry and Dynamics Branch
- 10 [] Theoretical Studies Branch
- 11 [] Aerosol Research Branch
- 12 [] Radiation Sciences Branch
- 13 [] Atmospheric Studies Branch
- 14 [] **Space Systems Division (SSD)**
- 15 [] Aerothermodynamics Branch
- 16 [] Experimental Hypersonics Branch
- 17 [] Vehicle Analysis Branch
- 18 [] High Energy Science Branch
- 19 [] **Space Technology Initiative Office (STIO)**

8. NATIONAL AERO-SPACE PLANE OFFICE

- 01 [] National Aero-Space Plane Office
- 02 [] Systems Analysis Office
- 03 [] Numerical Applications Office
- 04 [] NASP Technology Office
- 05 [] Flight Research Office

9. OFFICE OF THE COMPTROLLER

- 01 [] Office of the Comptroller
- 02 [] **Financial Management Division**
- 03 [] Accounting Branch
- 04 [] Financial Services Branch

9. OFFICE OF THE COMPTROLLER (Cont.)

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- 05 [] **Programs and Resources Division (PRD)**
- 06 [] Research and Program Management Branch
- 07 [] Research and Development Programs Branch
- 08 [] Technical Programs Support Branch

10. OFFICE OF DIRECTOR FOR FLIGHT SYSTEMS

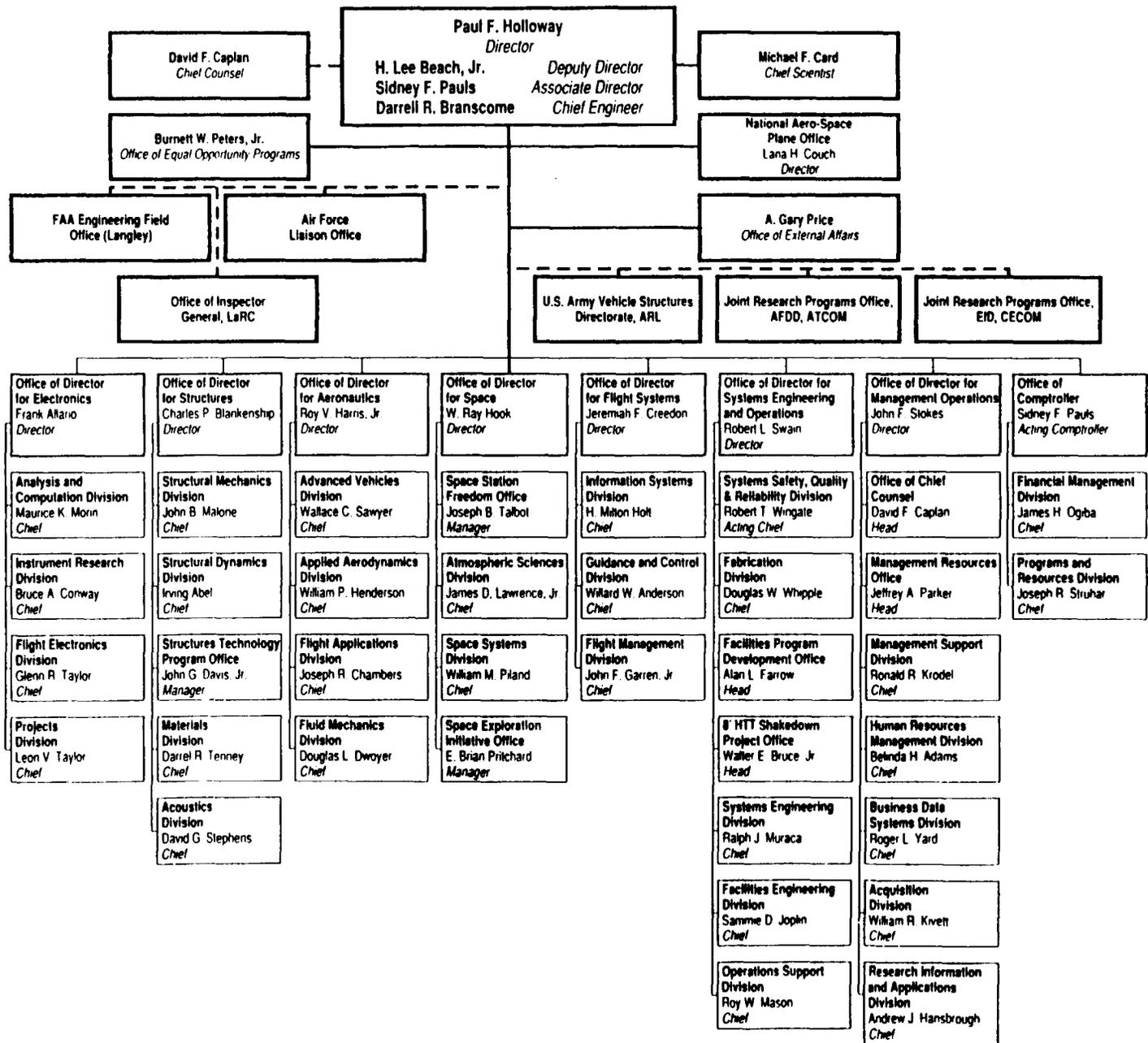
- 01 [] Office of Director for Flight Systems
- 02 [] Wind Shear Program Office
- 03 [] **Information Systems Division (ISD)**
- 04 [] Information Processing Technology Branch
- 05 [] Automation Technology Branch
- 06 [] System Validation Methods Branch
- 07 [] Systems Architecture Branch
- 08 [] **Guidance and Control Division (GCD)**
- 09 [] Aircraft Guidance and Controls Branch
- 10 [] Spacecraft Controls Branch
- 11 [] Antenna and Microwave Research Branch
- 12 [] Controls-Structures Interaction Office
- 13 [] **Flight Management Division (FLTMD)**
- 14 [] Cockpit Technology Branch
- 15 [] Vehicle Operations Research Branch
- 16 [] Human/Automation Integration Branch
- 17 [] Advanced Transport Operating Systems
Program Office

APPENDIX F

ORGANIZATIONAL CHART AND FUNCTIONAL STATEMENTS

Langley Research Center

Organization Chart
November 1992



LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF THE DIRECTOR

Responsible for the general management of the Langley Research Center in the development and execution of an advanced research and technology program for enhancement of United States leadership in aeronautics and space, and the successful accomplishment of important national programs and objectives. This includes maintenance of effective relationships with NASA Headquarters and other field Centers; the formulation, implementation, and evaluation of Center policy and procedures, research and technology programs, administrative functions, and supporting activities; the effective management of extensive ground and flight facilities; and the optimal utilization of manpower and funding resources. Assesses evolving aerospace problems and opportunities in relation to national programs and tailors research and technology program to achieve a balanced contribution to current flight problems and mission, advanced flight developments, and the support of other national interests. Establishes relationships with other Government agencies, industry, educational institutions, the public sector, and the international community to promote technology transfer and to ensure relevance of the research program.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR ELECTRONICS

Responsible for the planning, direction, and evaluation of measurements and computer science research and applications programs of potential benefit to Langley; for management of major approved projects; and for coordinating the activities for the Analysis and Computation Division, the Instrument Research Division, the Flight Electronics Division, and the Projects Division. Also responsible for the management of the Center's ADP resources.

LANGLEY RESEARCH CENTER

ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR STRUCTURES

Plans, directs, and evaluates the research, technology, and science activities of the Structures Directorate which include executing analytical and experimental research and technology programs in structures, materials, and acoustics with emphasis on : (a) structural mechanics, aircraft and spacecraft structures, computational mechanics, and aerothermal loads; (b) structural dynamics, aircraft aeroelasticity, unsteady aerodynamics, spacecraft dynamics, and landing and impact dynamics; (c) polymeric materials, metallic materials, and composite materials; (d) aeroacoustics and structural acoustics; and (3) interdisciplinary analysis and optimization.

Principal research objectives include providing structural and materials technologies that will enhance the performance, efficiency, and reliability of advanced aircraft, spacecraft, and launch vehicles. Manages and directs programs, the scope of which ranges from fundamental and experimental research through execution of specific projects that may involve flight experiments on aircraft or spacecraft. Exercises managerial direction in the planning, coordinating, and implementing of the research efforts of the Materials Division, the Acoustics Division, the Structural Dynamics Division, the Structural Mechanics Division, and the Structures Technology Program Office. Serves as technical leader and principal adviser to the Center Director, NASA Headquarters, and other Centers, and consultant in all activities that

involve the Directorate's disciplines to insure that these activities are of high technical quality, and address NASA and national technical needs.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR AERONAUTICS

Planning, advocacy, and direction of aeronautics research programs with specific line responsibility for the Facilities Planning Office, the Advanced Vehicles Division, the Applied Aerodynamics Division, the Flight Applications Division, and the Fluid Mechanics Division.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR MANAGEMENT OPERATIONS

Plans and directs the management operations necessary to support aeronautical and aerospace research, with particular responsibility for the management and internal control of the Office of Chief Counsel, Management Resources Office, Management Support Division, Human Resources Management Division, Acquisition Division, Research Information and Applications Division, and Business Data Systems Division.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR SYSTEMS ENGINEERING AND OPERATIONS

Plans, directs, coordinates, and integrates the general and specialized services provided by the Facilities Program Development Office, Systems Engineering Division, Facilities Engineering Division, Operations Support Division, Fabrication Division, and the Systems Safety, Quality, and Reliability Division, in support of aerospace and aeronautical research. Included are specifying, designing, procuring, modifying, altering, installing, assembling, repairing, and operating large mechanical and electrical systems, complex research facilities and equipment, test apparatus, and the normal building, structures, and grounds to support a large research complex. Also included are design, analyses, fabrication, test, and operation complex aerospace systems and research test articles. Plans and directs Center safety and quality assurance programs, Construction of Facilities Program, and energy conservation and environmental compatibility programs.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR SPACE

Plans, directs, and evaluates overall programs in atmospheric sciences and space technology disciplines including theoretical studies of atmospheric chemical, dynamical, and radiative processes; conceives and develops techniques for laboratory, in situ, and remote sensing, as well as techniques for sensing the radiative environment, aerosol particles; and trace constituents to aid in the understanding of atmospheric processes and climate; conceives and investigates advanced space transportation systems including shuttle-derived vehicles and orbital-transfer vehicles; analyzes and reduces space shuttle aerothermodynamic data; conducts system studies for future transportation vehicles, space stations, and large space structures; develops space system technology in support of aerothermodynamics and operations analysis; defines and develops space shuttle orbiter experiments; predicts aerodynamic and aerothermodynamic performance of atmospheric energy vehicles; conducts basic research in space energy conversion and transmission; supports Space Station Freedom systems engineering and integration and international activities; coordinates and administers the Agency's In-Space RT&E Experiment Program; leads the Agency's activities in Aeroassist Flight Experiment (AFE) in the areas of science experiments, aerothermodynamics, configurations, and operations analysis. Plans, coordinates, and directs program activities ranging from conception to execution of airborne, field, and space-flight experiments with the

intermediate activities of planning, developing, and conducting basic analytical, theoretical, and experimental laboratory and field studies.

Coordinates and directs research and technology programs performed by the Atmospheric Sciences, Space Systems, and Advanced Space Concepts Divisions, and the Space Technology Initiatives Office, as well as coordinates Centerwide activities in support of advanced space transportation vehicles, space station, aerobrake, and space technology initiatives.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR FLIGHT SYSTEMS

Conceives, develops, coordinates, and conducts research and development activities in the broad field of aerospace flight systems including defining system hardware and software architecture concepts and reliable software methodologies appropriate to flight crucial aerospace systems applications; providing design approaches and performance validation and verification methods for fully integrated, highly reliable, fault tolerant flight control systems; defining advanced cockpit interface and automation technology essential to development of advanced transport aircraft and for improved performance and reliability of the human/machine system in complex, demanding aerospace flight operations; exploring the potential of advanced airborne systems technology, traffic flow management, strategies, and aircraft operating procedures improving the efficiency and safety of aircraft in the national airspace system (this includes planning, developing, and implementing a joint FAA/NASA program to define and alleviate the threat of airborne wind shear); conducting fundamental research in electronic materials, sensors, antennas, and electromagnetic wave propagation; conducting basic and applied research on automated and telerobotic systems for use in space operations such as the assembly of large space structures and on-orbit spacecraft servicing and processing; and performing theoretical controls research and defining and developing guidance and control system design methods for application to aircraft and space vehicles and structures

with special emphasis on the control-structures interaction of large space systems.

LANGLEY RESEARCH CENTER

ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF DIRECTOR FOR NATIONAL AERO-SPACE PLANE OFFICE

The National Aero-Space Plane (NASP) Office has the coordination and oversight responsibility for all NASP technical activity in NASA, as a part of Langley's duties as NASA Lead Center for NASP. These responsibilities can be summarized as follows: Administers and reports on all NASA support of the NASP Program. Coordinates all NASP Government work package (GWP) activity at the three NASA Centers and reports to the Director of Interagency Programs (NAF) at the NASP Joint Program Office (JPO). Maintains an ongoing independent technical evaluation of the NASP contractor X-30 vehicle design effort in support of the Director of Engineering (NAE) at the JPO and the Program Director (RN) at NASA Headquarters. Maintains systems engineering capability in conceptual vehicle design and optimization including expertise in aerodynamics, propulsion, structures, thermal management, and systems integration. Conducts studies and analyses on specific questions which arise from the design effort. Provides technical support to the NASP National Program Office (NPO) when expertise is needed in certain areas. Conducts extensive applications of advanced Computational Fluid Dynamics (CFD) computer codes to NASP propulsion and vehicle flow problems. Utilizes experimental databases in the validation and calibration of CFD codes for specific applications. Develops the research plans for flight experiments and for the X-30 vehicle, assuring that the necessary features and capabilities are incorporated into the designs and the necessary flight instrumentation is

developed and incorporated to allow a productive flight research program. Carries out the vertical cut management and vehicle systems analyses responsibilities at Langley for the NASA Hypersonic Research Program.

Reports to the Director, Langley Research Center, and maintains close communication with Headquarters' Code RN, the NASP JPO, and NASP NPO. Acts as the single technical focal point for NASP for NASA Headquarters' Office of Aeronautics. Supports all three offices in planning, implementation, and review activities.

LANGLEY RESEARCH CENTER
ORGANIZATIONAL FUNCTIONAL STATEMENTS

OFFICE OF COMPTROLLER

The Office of the Comptroller is responsible for the centralized planning and analysis of all Center resources and financial management activities. The office is the principal advisor to the Center Director, and is the focal point to ensure a uniform Center posture for the development and execution of financial resource decisions.

APPENDIX G**DEFINITION OF CATEGORIES OF 1993 FREE RESPONSES**

DEFINITIONS OF CATEGORY CODES

Benefits: refers to those tangibles which the company provides for employees other than pay. These items can include healthcare insurance, life insurance, stock options, retirement plans/pension plans, sick leave, vacation time, free parking, etc.

Communication: refers to the processes - both formal and informal - by which employees receive information about their jobs, divisions, branches, offices, and the organization.

Customer Orientation: refers to the mind set or disposition of employees toward the customers who they make products for or render services to. These customers could be internal to the company/agency and/or external to the company/agency (those who actually buy the product or use the service).

Discrimination: refers to acts and/or words which employees perceive as being offensive to them personally based upon their race, nationality, sex, age, or handicap.

General: refers to comments which have no particular topical focus and therefore, they do not fit into any specific category listed here.

Growth-Oriented: refers to comments which pertain to the growth orientation the organization has, especially due to its expanding mission and business.

Human Resources: refers to comments which pertain to policies and procedures that deal with employment, headcount shortages in departments or other personnel issues.

Interdepartment Cooperation: refers to the presence or absence of acts of cooperation, help, etc., between various departments/work groups within a company, plant, or division.

Job Opportunities: refers to comments about career advancement or work change procedure. Items such as job posting systems,

promotional policies and favoritism issues pertaining to who gets jobs/positions are referenced in this category.

Job Security: refers to any comments made regarding employment security and stability; i.e., no layoffs, etc.

Morale: refers to the expressed attitudes/feelings of employees about their jobs, work groups, and the environment in which they work.

Management: refers to comments about the styles and systems which are used by people in positions of authority at the supervisory and lower levels of management within the organization to accomplish the work through the people that work for them and through other resources within the organization.

Marketing: refers to any comments made regarding the organization's marketing policies and marketing management style. The comments pertain to the 4 P's of marketing - product, price, promotion, and place/distribution.

Management Support: refers to the way in which the various levels of management within the organization provide coaching, feedback, help in the process of getting work done.

Pay: refers to the wages/salaries the employees are given for the jobs they do.

Politics, External: refers to external political forces which the organization has very little control over.

Policies: refers to the various policies of the company/agency.

Processes: refers to the specific work processes used within the organization.

Quality: refers to any employee comment made in regard to "quality" within the organization. This category includes any references about 3M's "Managing Total Quality" process.

Recognition: refers to the absence or presence of explicit positive reinforcement for employees and/or work groups who perform "high quality work." Positive reinforcement can be provided through rewards such as gifts and monies, through recognition in a company newsletter, and even by positive words which indicate appreciation of the employee's/work group's efforts on the job.

Survey: refers to any comments made regarding the 3M "Quality Climate Survey" document.

Training: refers primarily to the formal structured learning opportunities which have been given or made available to employees to enhance their knowledge and skill with regard to job-related tasks and "quality."

Teamwork: refers to any comments made about a team, work group and/or department, and how they function and interact internally.

Top Management: refers to the leaders of the company as well as middle management.

Working Conditions: refers to the physical environment an employee/work group works in as well as the equipment/tools an employee/work group uses or needs to have to perform various tasks. This category includes issues surrounding health, safety, improperly maintained equipment/machinery and other working environment concerns.

APPENDIX H**SUMMARY OF 1993 FREE RESPONSES BY CATEGORY**

FOLDOUT FRAME

Q96	BENEFITS	COMMUN	CUST ORIENT	DISCRIM	GENERAL	HUMAN RES	INTERGROUP COO	JOB OPPO
DIR'S OFF	1	1			1	3		1
ELECTRONICS		66	15	2	3	40	18	21
STRUCTURES	1	41	15	2	2	22	13	12
AERONAUTICS		59	20		2	43	19	15
MGMT OPS		65	13	2	1	20	5	21
SYS ENG OPS		98	20	1	1	69	26	47
SPACE		37	3		2	20	7	11
NASP		3				2		
COMP		12	1	1		2	2	6
FLT SYS		59	17		2	16	13	16
TOTAL	2	441	104	8	14	237	103	150
Q97	BENEFITS	COMMUN	CUST ORIENT	DISCRIM	GENERAL	HUMAN RES	INTERGROUP COO	JOB OPPO
DIR'S OFF					5			
ELECTRONICS	15	5	5		72	1		6
STRUCTURES	5	59				1	3	3
AERONAUTICS	12	10	5		109		2	5
MGMT OPS	21	6	9		40	1	1	8
SYS ENG OPS	23	16	4		200	4	11	18
SPACE	1	2	1		40		1	1
NASP		2			3		1	1
COMP	4	2			7			1
FLT SYS	7	5	1		58	1	1	3
TOTAL	88	107	25	0	534	8	20	46
Q98	BENEFITS	COMMUN	CUST ORIENT	DISCRIM	GENERAL	HUMAN RES	INTERGROUP COO	JOB OPPO
DIR'S OFF					1			1
ELFCTRONICS	1	4	1	4	10	5	2	3
STRUCTURES	2		2		19	4	1	4
AERONAUTICS	1	1	5	1	17	6	2	6
MGMT OPS	1	6	1		8		1	4
SYS ENG OPS	3	6	6	1	25	14	4	16
SPACE	1	5	3		7	3		2
NASP					1			
COMP		1			1			2
FLT SYS	1	8	2		8	6	1	2
TOTAL	10	31	20	6	97	38	11	40
	100	579	149	14	645	283	134	236

SUMMARY OF 1993 FREE RESPONSES BY CATEGORY

R	JOB SECURITY	MORALE	MGMT	MGMT SUP	POLITICS	POLICIES	PROCESSES	QUALITY	RECOG
				4		1	7		2
		7	40	77		50	55	16	29
		7	34	55		44	51	25	10
		4	43	76	9	71	64	24	13
	1	2	44	71		31	25	14	37
		6	59	127	1	104	97	42	62
		1	18	41	4	34	35	10	7
			1	2		1	3		1
			8	14		7	5	2	2
		1	35	60	1	33	45	8	1
	1	28	282	527	15	376	387	141	16

R	JOB SECURITY	MORALE	MGMT	MGMT SUP	POLITICS	POLICIES	PROCESSES	QUALITY	RECOG
		1	2	9				1	1
	5	5	11	93		28	2	4	3
	3	1	8	57		23		1	3
	3	4	14	87		13		12	9
	6	7	9	55		31	1	9	2
	8	16	38	85		74	2	17	1
	1	2	10	40		13	1	2	3
		1	3	2		2		1	1
			2	8		10			3
	1	1	8	67		16	2	16	5
	27	38	105	503	0	210	8	63	4

R	JOB SECURITY	MORALE	MGMT	MGMT SUP	POLITICS	POLICIES	PROCESSES	QUALITY	RECOG
					1				
	1	3	12	12	3	9	3	15	2
		5	6	1	2	8	5	13	3
		4	11	4	2	8	13	14	3
		7	4	7	2	5	4	13	4
	1	7	6	21	6	9	8	25	7
	1	3	5	6	3	6	4	12	3
			1			1		1	1
			1			1	1	1	1
		2	8	9	1	7	4	17	7
	3	31	54	60	20	54	42	111	2
	31	97	441	1090	35	640	437	315	2

FOLDOUT FRAME

3.

POSITION	SURVEY	TRAINING	TEAMWORK	TOP MGMT	WORKING COND	PAY	TOTAL
			2		1		24
	3	22	41	20	24	8	557
		9	29	27	8		407
	1	27	23	17	25		555
		27	26	29	11	3	442
	4	75	39	17	72	19	986
	2	3	16	23	9	2	285
		2	2		1		18
		5	7	2	6		82
	1	8	24	20	13	2	385
8	11	178	209	155	170	34	3741
POSITION	SURVEY	TRAINING	TEAMWORK	TOP MGMT	WORKING COND	PAY	TOTAL
		1	12	1	2		35
		21	58	1	25	3	363
		12	66		25		270
		11	72	1	22	2	393
		15	71	5	20	3	320
		8	152	6	45	9	750
		2	43		17	2	181
			6		1		24
		1	14	1	3		57
		9	53	1	36	3	294
4	0	80	547	16	196	22	2687
POSITION	SURVEY	TRAINING	TEAMWORK	TOP MGMT	WORKING COND	PAY	TOTAL
		1		1			5
	14	3	6	14	2		129
	17	2	3	8	1	2	108
	16	3	5	15	4	1	142
	15	1	7	11	1	1	103
	22	9	5	18	7	4	230
	16	1	2	11	2		98
	1						5
	4						14
	8	3	5	8	6	2	110
9	113	23	33	86	23	10	944
0	124	281	789	257	389	66	7372

Autobiographical Statement

Janet Myrick McKenzie, the daughter of William E. and Lois C. Myrick, was born in [REDACTED] on [REDACTED] [REDACTED]. She is the sister of William, Melvin, Jean and Nancy Myrick. She graduated from I. C. Norcom High School in 1968, Norfolk State University with a Bachelors Degree in Business Administration in 1973, Golden Gate University with a Masters of Public Administration in 1977, and from Old Dominion University with a Ph.D. in May 1974.

Dr. McKenzie began her professional career at the National Aeronautics and Space Administration's Langley Research Center in 1971. At the present time, she is an Employee Development Specialist in the Employee Development Branch, Office of Human Resources.

She is a member of and Trustee for the First Baptist Church-Lincoln Park; member of Alpha Kappa Alpha Sorority and Phi Kappa Phi Honor Society; and active in numerous community organizations.