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A STUDY OF SELF-PERCEIVED CURRENT AND DESIRED CAREER
STAGES OF FEDERAL GOVERNMENT ENGINEERS AND
PUBLIC SCHOOL EDUCATORS IN THE CENTRAL FLORIDA AREA

by

DENNIS STEPHAN DUKE

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Education in
the Department of Educational Services at
the University of Central Florida
Orlando, Florida

December 1987

Major Professor: Thomas Harrow

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by

Dennis Stephan Duke

ABSTRACT

This study investigated the perceptions of public school educators and Federal Government engineers in the Central Florida area to determine their self-perceived current and desired career stages (Dalton, Thompson and Price, 1977). The influences of age, education and tenure variables on these perceptions and on the employee's preference for a technical or managerial career track were also examined. The rationale for the study is based upon findings in the literature which indicate that both occupations are experiencing motivation and retention problems caused by the requirement to leave classrooms or technical engineering positions and enter management ranks in order to gain promotions.

Questionnaires were used to collect information on the four career stages (apprentice, colleague, mentor, sponsor), demographic data and career track preferences. The data indicated that a higher percentage of engineers than educators perceived that they work in apprentice and mentor positions in their organizations. Engineers reported a desire to ultimately achieve a mentor position while educators aspired to be colleagues. Older engineers perceived themselves as mentors while educators as a group perceived themselves as colleagues regardless of age.

Analyzed by tenure, engineers with 15 or more years experience perceived themselves in a mentor position. Educators perceived themselves as colleagues regardless of their experience after 5 years. Engineers holding a bachelor's or master's degree perceived themselves as working in and desiring higher career stages than did educators with those same credentials. Both educators and engineers who perceived themselves as working in an apprentice or colleague position indicated a preference for a technical career track. Those who perceived themselves as working in a mentor or sponsor position indicated a preference for a managerial career track.

It was recommended that additional research on career stages be undertaken in other occupations to determine if similarities exist and that practitioners begin to define and include current and desired career stage perceptions in personnel profiles to permit more effective training development and succession planning.

Dalton, G.W., Thompson, P.H., & Price, R.L. (1977). The four stages of professional careers - a new look at performance by professionals. Organizational Dynamics, 6 (1), 19-42.

To the memories of my mother, Mrs. Mary Kopchak Duke, and to my father, Mr. Steve Duke, whose support and encouragement were always only a phone call away.

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I would also like to extend sincere thanks to the following individuals who offered advice, encouragement, friendship and support throughout the entire study: Dr. Thomas Gwise who reviewed the numerous drafts of the document and provided suggestions which helped me to

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CHAPTER I

INTRODUCTION

The 1980s has brought a shift toward increased attention to the human element in organizations. Research has indicated that management within organizations is becoming more sensitive to the "growing employee awareness and activism regarding their careers" (Walker, 1976, p. 2). A general consensus exists among personnel management specialists that, although modern organizations are keenly aware of their nomothetic dimensions as defined by their statements of goals and objectives, they overlook or do not place enough emphasis on the ideographic dimensions (Getzels and Guba, 1957; Miller, 1982; Odiorne, 1985). This is especially relevant in regard to the concept of employee's career stages.

Purpose of the Study

The purpose of this study was to investigate the perceptions of public school educators and Federal Government engineers in the Central Florida area in order to determine their self-perceived current and desired career stages. The influences of age, education, and tenure variables on these perceptions, and the employee's

preference for either a technical or managerial career track in his/her organization were also explained.

The rationale for comparing educators in the public schools and engineers in the Federal Government stems from a problem identified in the literature which indicates that both of these professions are experiencing problems with motivation and retention on the job (Career Ladders in Utah, 1985; Education, 1986; Freiberg, 1985; Frisch, 1984; Hansen, 1985; Schlechty, Joslin, Leak and Hayes, 1985). While these two populations are different in terms of technical subject matter specialty and remuneration for services, they share an important similarity in their career development paths within their respective organizations. Classroom teachers prepare for their teaching careers by majoring in a specialty area of education while in college. Similarly, engineers prepare themselves for their engineering careers by completing the degree requirements for a particular engineering specialty. Further, in both fields, to obtain economically significant promotions in their organizations, these professionals must leave their selected specialities and enter into other areas. Teachers must give up the classroom in favor of educational administration while engineers must vacate their specialized technical positions and move into the engineering management ranks. Research

indicates that this choice between pursuing a career as a technical specialist or transitioning into management creates confusion and ambivalence in individuals (Zelevnik, Dalton and Barnes, 1970; Kovach, 1986).

Statement of the Problem

The problem of this study was to determine if there are differences in the self-perceived current and desired career stages and career track preferences of Federal Government engineers and public school educators even though they experience similar motivation and retention problems in their organizations. The study addressed this problem by answering the following research questions:

1. Are there differences in the perceptions of current career stage between public school educators and Federal Government engineers?
2. Are there differences in the perceptions of desired career stage between public school educators and Federal Government engineers?
3. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers of different ages?

4. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers with various years of experience?
5. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers whose highest college degree is a bachelor's degree, a master's degree, a specialist degree or a doctorate degree?
6. Are there differences with respect to preference for a technical career track or a managerial career track between public school educators and Federal Government engineers?

Background of the Problem

Glaser (1968) suggested that a major influence on employee's career motivation is the employee's awareness of career stages and their associated problems. Rush, Peacock and Milkovich (1980) wrote that "stages in one's career and (a study of these stages) can help us understand worker behavior and attitudes. However, the theoretical framework and its testable hypothesis need to be more fully explicated" (p. 358). Schein (1986) added that, due to organizational pressure, people often select a career stage

for all the wrong reasons. Subsequently, they find a dichotomy in their responses to the work environment which is wholly incompatible with their true values. This dichotomy often produces uneasiness, which in turn promotes dissatisfaction and decreased productivity. Research studies support this contention, indicating that in many cases formal criteria for success, such as attaining a middle management rank, may not correspond at all with what the career aspirants desire or regard as successful (Bray, 1982; Bray, Campbell and Grant, 1974; Schein in Hall, 1986). This dissatisfaction with a career choice often occurs with technical employees such as engineers who are employed in organizations where rapid and pervasive technical changes are a real concern (Orpen, 1985; Schein, 1978). It also occurs with teachers in the public school system where social change affects daily operations (Miller, 1982; Olivero, 1976). As a result, this dissatisfaction with career choice may affect motivation and productivity of both engineers and teachers.

Steiner and Farr (1986) studied the effect of Vroom's expectancy theory (1964) on engineer's career choices and found that "...the motivation for technically updating and remaining an engineer is low when individuals believe that being technically up-to-date has little effect on the work-related outcomes and rewards they receive. Another career

(management) would be more highly valued by the individual if it is perceived as resulting in more favorable work outcomes" (p. 14). However, as Hribar (1985) maintains "...not every engineer will aspire to become a manager" (p. 37). This creates a conflict in the engineers due to incongruencies between the personal values of the engineers and their work roles (Zaleznik et al., 1970).

Similarly, in the field of education, Ortiz (1982) writes that "the strongest indicator of success in school organizations is the acquisition of an administrative position" (p. 7). It has been found that teachers generally enter the field of education because they enjoy working with children. Once they become teachers, most prefer to stay in the classroom during their educational career (Innerst, 1987). However, if the

"teachers aspire to enjoy expanded opportunities to apply advanced skills, have a broader scope of influence, or receive recognition for professional growth, they have few options. They can become department or grade level chairpersons...or they can abandon teaching as the major focus of effort and become curriculum coordinators or administrators. Or they can leave teaching" (Hart and Murphy, 1986, p. 23).

Schlechty and Vance (1981) suggest that a large percentage of the most academically able new teachers choose to leave the profession within the first five years of their teaching careers. They contend that this exodus primarily

results from lack of promotional opportunities or job dissatisfaction.

Significance of the Problem

Traditionally the "route to corporate success" in both education and engineering organizations has been viewed by many as moving along in a career and ultimately ending up in administration or management. The importance of this study lies in the employee perceptions and desires relative to their own movements along this career path. A knowledge of career profiles in the workforce may help management improve overall productivity by "...determining which job assignments are best for developing an employee's career at various points in his or her professional development" (Thompson, Baker, and Smallwood, 1986, p. 54).

Many engineers in the Federal Government and teachers in the public schools are not adequately challenged or evaluated. They work their entire careers "under the same performance expectations, are evaluated on the same basic criteria, and are supervised in the same way" (Hart and Murphy, 1986, p. 23). Hart and Murphy contend that many professionals are thus precluded from any occasion "to enjoy expanded opportunities to apply advanced skills, have a broader scope of influence or receive recognition for professional growth" (p. 23). This lack of professional

development has an effect on both the organization and the individual.

Organizationally, the employee may be promoted to a position where he or she cannot adequately handle the required responsibilities and thus becomes counter-productive to the organization's goals. When the employee has acquired tenure and/or seniority, the organization cannot easily remove him or her from the new position. At this point, the employee exceeds his or her level of competence when his or her wages exceed the contribution he or she makes to the organization (Schaefer, Massey and Hermanson, 1979).

Individually, because a career change often places an individual into a position with different types of duties and responsibilities and which require different skills, the affected individual may experience increased stress and/or boredom. As a result, motivation, job satisfaction and productivity may decline. O'Toole (1985) studied several highly successful organizations and concluded that what sets the successful organizations apart is their dedication to meeting the changing needs of their employees. Therefore, if the Federal Government is to improve the productivity of their engineers and public school systems are to improve the productivity of their

educators, steps must be taken to satisfy the changing needs of their employees.

Drohe (1983) wrote "organizational attention to stages of career development is imperative for developing appropriate responses to employee's changing needs and stage transitions" (p. 35). Such attention helps to determine if there exists a balance between the nomothetic (organizational) and idiographic (individual) need dimensions of the employee. Once obtained, this information may be used to help facilitate the employee's organizational efficiency (Kovach, 1986). Identifying employee career stage perceptions and desires is one of the first steps that should be taken in order to achieve this balance. This study was designed to take this first step and identify the career stage perceptions and desires of public school educators and Federal Government engineers.

Limitations of the Study

This study was limited as follows:

1. The populations studied consisted of individuals employed by the Orange County, Florida, School District and the Naval Training Systems Center, Orlando, Florida. A stratified systematic sampling technique was used when surveying the two populations. The results that were obtained may be able to be generalized to other analogous institutions which

exhibit similar characteristics since, as Tuckman (1972) maintains "a study has external validity if the results obtained would apply in the real world to other similar programs and approaches" (p. 4).

2. The lack of commonly accepted terminology and the lack of commonly agreed upon concepts limits, in some cases, precise definitions of a career stage.
3. The researcher was employed by the Naval Training Systems Center, therefore non-deliberate bias may have occurred. The researcher has made every effort to preclude this occurrence.
4. There was a low return rate (37%) from the public school educators, however, there was no follow-up study done on the non-respondents.

Assumptions of the Study

Each of the respondents participating in the study were assured confidentiality of their responses. Therefore, it was assumed that the respondents answered honestly. It was further assumed that the systematically selected individuals, in the sample of public school educators were representative of public school educators in the Orange County School District and that the non-respondents did not differ from the respondents on any variables that impacted the findings of the study.

The following assumptions also apply directly to this study and are based upon a review of the literature:

1. Individuals in the work place progress through the following stages in their professional careers:
 - a. Apprentice, establishment or trial stage.
 - b. Colleague or stabilization stage.
 - c. Mentor or maintenance stage.
 - d. Sponsor, executive or director stage.
2. Career stage research conducted in several performance fields indicates that career development opportunities are a major influence on employee's motivation.
3. The concept of career stages is a legitimate developmental entity.

Definition of Terms

Career stages. Career stages are phases that every individual proceeds through during the course of his or her professional career. For the purpose of this study, there are four career stages. The stages were those proposed by Dalton, Thompson and Price (1977). For the purposes of this study, each subject was classified as being in one of four current career stages, and one of four desired career stages, as determined by his or her responses on the questionnaire entitled "A Study of Career Development in an Organization." The career stages are conceptually defined as follows:

The apprentice stage. In this initial, or entry-level stage, an individual new to the organization performs most of the detail or routine work on assigned projects. He or she is closely overseen by a more senior professional.

Engineers in this stage perform detailed calculations, determine technical findings and prepare reports on repetitive assignments. Their supervisors who are senior engineers (mentors) review their reports, designs or specifications in detail for technical accuracy of conclusions, clarity and format of presentation.

Educators in this stage have less than one year of classroom teaching experience and are considered beginning teachers. They are responsible for preparing and conducting instruction in their own speciality areas or classes. They may receive assistance, as needed, from "master teachers" who are experienced instructors (mentors). The beginning teachers are closely supervised and regularly evaluated regarding their professional teaching competencies (Florida Coalition for the Development of a Performance Measurement System, 1984).

The colleague stage. In the second stage, the individual possesses a sufficient amount of knowledge and confidence to independently direct a significant work element. He or she relies only partially on his or her

supervisor to provide resources necessary to complete work assignments.

Engineers in this stage are given assignments by their supervisors in terms of objectives, limits of the assignment, suggested overall plans of work and types of results expected. Stage two engineers independently initiate the necessary work relationships needed to exchange ideas or information concerning assignments and to insure compatibility with other applicable projects. They make experienced judgements in modifying, adapting and making compromises within standard guidelines for the assignment. Their work is reviewed by supervisors for validity of results and their recommendations and findings are often used as a basis for action by others.

Educators at this stage are assigned by their supervisors to teach a specific grade or subject matter class. Their assignments are made in terms of general objectives and limitations as well as a description of the types of results expected. They are expected to formulate their own lesson plans and methodologies for teaching a particular class or subject area. Generally, they work independently of others and their work is reviewed periodically by classroom observations made by the principal of the school.

The mentor stage. In the third stage, an individual spends a great deal of time coordinating and integrating projects within the organization. Such an individual has developed an in-depth technical knowledge and expertise in a particular subject field, and shares this knowledge with those employees in stages one and two. A major direct responsibility of stage three employees is their involvement in the development of subordinates. They are evaluated as much on this responsibility as they are on their own technical performance.

Engineers in this stage serve as senior technical experts on the limitations of proven concepts and practices of a broad and complex subject matter field or functional area. Their assignments require the ability to anticipate and take positive action on technical and personnel problems which, if not identified in their early stages, would likely lead to serious consequences. Individuals at this stage serve as reliable sources of information on the location, availability, applicability and adequacy of various guides needed to accomplish a task. They maintain frequent contacts with their co-workers and subordinates to render advice, consultation and assistance. They are assigned work in terms of broad, general objectives and boundaries, and the limits of their assignments are mutually discussed with their supervisors. While receiving

no direct technical assistance from their supervisors, stage three engineers do receive assistance with administrative matters such as funds, personnel and organizational procedures. Their work is reviewed primarily to insure adequate achievement of objectives and compliance with organizational policy.

Educators in this stage function primarily as subject matter experts in their speciality area or as entry-level administrators. They are knowledgeable of the most recent trends and developments in their areas. Further, they are reliable sources of information on both subject matter and various school district policies and regulations. They often serve as department coordinators and maintain frequent contact with teachers and upper-level administrators in their building. Like the engineer, educator assignments are broad, and their work is reviewed primarily to insure achievement of objectives and compliance with organizational policies.

The sponsor stage. In the fourth stage, an individual is classified as a manager or administrator and is responsible for various aspects of organizational long-range planning. He or she is deeply involved in developing overall organizational strategy. Decisions generally required from this individual are those which will influence the organization's future direction.

Engineers in this stage act as expert consultants in a specialty field. They represent their organizations on technical committees and often develop general plans and procedures for carrying out research and experimental projects. Engineers at this stage generally operate under administrative supervision only. Guidance from higher levels is restricted to matters of broad policy, program objectives and budget limitations.

Educators in this stage are classified as administrators and have duties, responsibilities and supervisory guidance which are very similar to the above-mentioned engineering managers. This group of stage four educators is generally represented by building principals and assistant principals as well as those employed in higher administrative positions in the school district office.

Federal Government Engineer. A Federal Government engineer is an individual who has attained at least a bachelor's degree in a technical engineering field (i.e., aerospace, civil, electrical, mechanical, etc.) from an accredited institution of higher education and who is currently employed by the Federal Government in a position titled "general" or "specialty" engineer.

Public School Educator. A public school educator is an individual who has either attained at least a bachelor's degree in some specialty area of education (i.e., exceptional education, elementary education, secondary education, etc.) from an accredited institution of higher learning or has accumulated an appropriate amount of educational credits in addition to having attained a bachelor's degree in a discipline other than education and who is currently employed by the public school system in a position titled "teacher" or "administrator."

Age of the respondent - For purposes of this study, the age of the respondent was his or her actual chronological age as reported when the survey instrument was administered.

Education level of the respondent - For purposes of this study, the education level of the respondent was his or her self-reported measure of the highest degree that he or she held.

Tenure in occupational field - For purposes of this study, the respondent's tenure in his or her occupational field is the self-reported measure of the amount of time he or she has been employed in any position(s) which requires specialized talents to carry out the occupational duties and responsibilities of his or her specific subject matter discipline. An engineer's tenure in his or her

occupational field is the length of time he or she has been employed in an engineering or engineering management position; an educator's tenure in his or her occupational field is the length of time he or she has been employed in a teaching, training or educational administration position.

Tenure in current position - For purposes of this study, the respondent's tenure in his or her current position is his or her self-reported measure of the number of months/years he or she has been working in his or her current position.

Technical career track - A technical career track is a career progression that allows employees to advance from entry level positions to specialty level positions to executive positions in their organizations while continuing to work in their technical disciplines. For purposes of this study, the respondent's preference for a technical career track was determined from his or her response to a question on the survey instrument which specifically asked what type of career track did he or she desired to pursue.

Managerial career track - A managerial career track is a career progression that allows personnel to advance from entry level positions to mid-management positions to top level executive positions as engineering managers or educational administrators in their organizations. For

purposes of this study, the respondent's preference for a technical career track was determined from his or her response to a question on the survey instrument which specifically asked what type of career track he or she desired to pursue.

CHAPTER II

REVIEW OF THE LITERATURE

A review of the literature relating to the stages or "passages" (Sheehy, 1976) that people undergo in their development with an organization revealed a wealth of information. This review of the literature provides a background on the concept of career stages and cites research done in various occupational fields. Definitions and interpretations of various career stage theories and working characteristics of both educators and engineers in each stage are then presented.

The Concept of Career Stages

Drake (1983) maintained that every individual encounters three basic cycles during his or her lifetime: a personal cycle of changing individual needs and desires; a family cycle of changing spouse and children demands; and a career cycle of changing work-related tasks, capabilities and involvements. As these cycles evolve, they make demands with varying degrees of intensity upon the individual.

There have been numerous life cycle models which describe an individual's progression from birth to death (Erickson, 1963; Gould, 1978; Levinson et al., 1978, 1986; Lowenthal, Thurnher and Cheriboga, 1978; Vallant 1977).

All of these life cycle models demonstrate that, as the cycles evolve, they make varying demands upon the individual. For individuals to attain their maximum potential on the job, it is imperative that they be able to establish the proper balance between their professional and personal demands (Miller, 1982).

When studying one's career in an organization it is necessary to consider the organization's needs, expectations and constraints in addition to the personal constraints of the individual, for these are not mutually exclusive and have a reciprocative effect on each other (Stumpf in Gysbers, 1984). Getzels and Guba (1957) wrote that these organizational and individual demands

...are at once conceptually independent and interactive. There are first, the institutions with certain roles and expectations that will fulfill the goals of the system. Second, inhabiting the system are the individuals with certain personalities and need dispositions, whose interactions comprise what we generally call "social behaviors..."
...to understand the behavior of specific role incumbents in an institution, we must know both the role expectations and the need-dispositions. Indeed, needs and expectations may both be thought of as motives for behavior, the one deriving from personal propensities, the other from institutional requirements...a given act is conceived as deriving simultaneously from both the nomothetic (organizational) and the ideographic (personal) dimensions (p. 157).

Recently, research in vocational behavior has investigated cyclical relationships between organizational and personal dimensions in an individual's work career

(Mount, 1984). The basic premise of this area of career stage research is that an individual's perception and desires change as they progress through distinct occupational phases in their organizational career. Unlike the life stage models, the career stage models (Arnold and Fieldman, 1986; Dalton, Thompson and Price, 1977; Dalton and Thompson, 1986; Derr, 1980; Gould, 1972, 1978; Hall and Nougaim, 1968; Miller and Form, 1951; Schein, 1978; Super and Bohn, 1970; Super, Crites, Hummel, Moser, Overstreet and Warnath, 1957), concentrate specifically upon an individual's progression through his or her professional work career. Although the models may identify the various career stages by different names, the characteristics and progression sequence of each stage are similar.

The initial stage which individuals encounter upon entry into a career field provides an indoctrination period during which they work as apprentices for or with senior employees. This gives them an opportunity to prove themselves to the organization and get to know how the organization operates. The second stage offers employees a chance to further prove themselves to the organization by building their credibility and establishing their worth to the organization. The third stage places employees in a position to lead and help others. This stage provides

individuals with both limited organizational decision making power and additional power over and responsibility for subordinate employees. The last stage requires employees to use the skills which were accumulated throughout their careers in order to make executive decisions which often affect the direction of the organization. An illustration of some of the various career stage models is provided in Appendix A.

Numerous research studies have investigated employee perceptions of career stages in various occupations and the effect of these perceptions on work variables. Adler and Aranya (1984) developed a questionnaire using Hall's (1976) career stage model to examine the occupational needs, attitudes, and preferences of Certified Public Accountants at different career stages. They found that the accountants differed significantly in work needs, attitudes and salient vocational preferences from stage to stage. Gould and Hawkins (1978) developed a questionnaire to study the relationship between job satisfaction and performance of public service employees at various career stages. Using Van Maanen and Katz's (1976) career stage model along with a shortened version of a Job Description Index (Smith, Kendall and Hulin, 1969), Gould and Hawkins found that there are different need relationships and involvements which individuals develop and discard as their careers

unfold. Rush, Peacock and Milkovich (1980) also used a questionnaire to determine public service employees' job satisfaction levels at various career stages. They employed the Levinson et al. career stage model (1978) and found that there were different attitudinal and behavioral differences among employees in different stages. Blackburn and Fox (1983) developed a survey instrument which was used to guide a study of value salience at various career stages using the Levinson, Darrow, Kelin, Levinson and McKee (1978) model. This study indicated that stress and prestige dissatisfaction varied among employees in different stages. Another questionnaire developed by Stumpf and Rabinowitz (1981), employed the Hall and Nougaim (1968) model to study the career stage development of business school faculty members. The study results indicated that faculty members exhibited different job satisfaction, performance and role relationships at different career stages. Lance, Buckley and Deetz (1984) designed a questionnaire to assist the Eastern Communication Association in investigating the career paths of speech communication faculty. These researchers found that speech faculty members at different stages also exhibited different job satisfaction and role relationships.

The studies that were conducted identified the importance of employees' perception of their career stages and advocated the need for further study in different occupations. The literature also suggested that different occupations be compared with respect to identifying anomalies in career stage preferences and desires of various professionals.

STAGE 1

The Apprentice Stage

Entry into an occupation or organization requires a commitment from both the individual and the organization. Such a commitment signals the active beginning of stage one in the career cycle (Drake, 1983, p. 28). This first stage is referred to as the establishment (Hall and Nougaim, 1968; Super, 1957); trial (Slocum and Cron, 1985) or apprentice (Dalton, Thompson, and Price, 1977) stage.

Stage 1 encompasses all of the learning that occurs before the recruit enters the organization (Van Maanen, 1975; Clausen, 1968; Brim and Wheeler, 1966). The new employee's activity in this stage is generally characterized by the development of competencies and gaining acceptance among peers and professionals (Feldman, 1976; Schein, 1978). New employees in this stage are concerned with their own security and must concentrate on gaining recognition and establishing themselves in the profession or organization (Hall and Nougaim, 1968). This "establishing oneself" requires many things. The most important task of new employees is to be able to develop competence in their organizational role as well as to be accepted socially (Feldman, 1976; Schein, 1961). Kram and

Isabella (1985) maintain that at this stage individuals, who are usually in their twenties, develop a concern for their professional identity in order to define who they are as professionals. They also experience a desire to develop self-confidence and demonstrate competence in their organizational or professional role. While in stage one, individuals are expected to "...demonstrate assertiveness, initiative and innovativeness while developing a special area of skill which can contribute to the organization or occupation" (Drake, 1983). Simultaneously, individuals must learn to work as subordinates, doing routine work and realizing that most assignments will usually only consist of a part of a large project directed by a senior professional (Dalton and Thompson, 1986a, b; Dalton et al., 1977).

Webber (1982) wrote that young people entering into an organization must often prove themselves on small, often boring, tasks before being assigned more important jobs. Drucker (1985) reiterated this concept and indicated that giving new employees a major assignment only compounds risks for the organization. Drucker advocated that even a high-level newcomer should be first put into an established position where the expectations are known and help is available.

Feldman (1976) maintains that employees at this stage are responsible for establishing new interpersonal relationships with co-workers in order to clarify their role in the organization, learn new tasks, and evaluate their progress. The employees must learn how to get things done, using both formal and informal channels of communication. This must be done while being closely observed for indications of competence and future potential. In other words, the new employees must begin by helping someone else do the work for which no supervisor is responsible (Dalton et al., 1977). The ability to accept this subordinate role while simultaneously demonstrating initiative to seek out more challenging assignments is a key to success in stage one (Dalton, Graves and Thompson, 1976; Dalton and Thompson, 1976a, b; Dalton, et al., 1977; Drake, 1983; Schein, 1978).

During stage one, many new employees, including educators and engineers, often become highly disillusioned and see little fit between their recent college training and the organization's requirements (Dalton and Thompson, 1986; Fuery, 1986). While jobs may be highly challenging, new employees may be unaware of the available choices open to them to solve problems. When the new recruit is presented with little formal structure or with few clear organizational expectations on the first job, he or she

often interprets this lack of structure as a lack of challenge. If the job does not present a perceived challenge to the new worker's qualifications, he or she is not apt to get excited about the work and will probably be less successful than he or she would have been with a more demanding initial position (Berlew and Hall, 1966). Unfortunately, very few entry-level jobs offer individuals an opportunity to be exposed to assignments which provide challenging work or intrinsic rewards (Dalton and Thompson, 1986a, b). Because of this, many newcomers experience reality shock during their first year of work (Hall, 1976 and Hall in Dyer, 1976). Usually right out of college and supposedly free of professor demands, the new employees cannot accept the fact that they are "freshmen" once more. Research indicates that those who cope most successfully with this initial insecurity and uncertainty tend to be more successful in later years (Hall and Nougaim, 1968). These individuals establish the concept of cumulative advantage, known as the Matthew Effect (Allison and Stewart, 1974; Gaston, 1973; Merton, 1973) which states that an impressive start in a job leads to feedback that later brings greater recognition and resources to the individual. This tends to lead to increased motivational commitment to the individual's work, thus increasing the individual's productivity (Goldberg and Shenhaw, 1984).

Ideally, individuals working in the apprentice stage will team with a mentor "...learning from observation and from trial and correction the approaches, the organizational savvy and the judgment that no one has yet been able to incorporate into textbooks" (Dalton et al., 1977, p. 24). Baird and Kram (1983) wrote that the superior/subordinate relationship developed with the mentor in the apprentice stage is likely to be very important to development, because an employee depends on the mentor for the learning, support and guidance which are necessary for advancement to stage 2. Unless extensive preparation and training is given in the initial job, personal commitment to an occupation will be low and progression to stage two will be prolonged (Cron, 1984).

STAGE 2

The Colleague Stage

Individuals make the transition to the second stage of the career cycle when they assume a stable legitimate role in the organization. This stage is referred to as the stabilization (Super, 1957), advancement (Hall and Nougaim, 1968) or colleague (Dalton et al., 1977) stage. The primary theme of the second stage is independence. Individuals who successfully transition to this stage have proven to their peers and superiors that they are technically competent and can work independently to produce significant results (Dalton and Thompson, 1986a). Research indicates that approximately 50 percent of engineers and other technical and knowledge employees are categorized by their supervisors as being in this stage (Dalton and Thompson, 1986a).

The transition into this stage is not automatic. According to Dalton et al., (1977), employees in this stage remain subordinates, but rely less on their supervisors or mentors for direction. Employees must be able to develop their own ideas about what is needed for a particular situation. Above all, they must be able to develop confidence in their own judgment (Dalton and Thompson,

1986a). This is the most difficult aspect of what must be attained in this stage because "...by age 25, most [individuals] have had a great deal of training in being dependent but precious little preparation for real independence. From the first grade through graduate school, the student's task is to find out what the teacher wants, then do it. On the first job the game is practically unchanged" (Dalton and Thompson, 1986a, p. 49).

Individuals entering into this second stage must transcend the dependence practiced in school and in their first job assignment into independence; further they must develop a feeling of confidence in this newly acquired independence. It is this confidence factor which has been the underlying topic of numerous research reports dealing with job satisfaction and stress on the job (Alderfer and Guzzo, 1979; Gould and Hawkins, 1978; Veiga, 1983).

Individuals in stage two generally select and develop a specialty area in which they can become experts and then continue on in that area to gain a reputation based upon the competent use of their acquired skills. As individuals become established in their chosen profession and begin to internalize feelings of competence and mastery, certain needs and concerns associated with advancement in the organization or in the profession take on new importance (Hall, 1976; Schein, 1978; Super, 1957). The individual's

major concern then switches from "establishing oneself in the organization" to "being promoted" (Bray, Campbell, and Grant, 1974; Glaser, 1964). This places many additional occupational and personal demands upon the individuals. They must often resolve the psychological issue of role conflict between the demands placed upon them by their family and the demands placed upon them by the organization (Feldman, 1976; Levinson, Darrow, Klein, Levinson, and McKee, 1978). This role conflict greatly increases the pressure on individuals in this stage.

Baird and Kram (1983) have suggested that while coaching and instructing are still needed, subordinates in this stage have a greater need for career counseling, role models to emulate, and friendship. Peer relationships are especially important during this stage. These peer relationships can "provide information that enable individual[s] to create opportunities for future advancement through increased knowledge of the organization as well as through increased visibility to those who make promotional decisions" (Kram and Isabella, 1985, p. 126). Exposure to higher management is extremely important at this stage because it relates directly to getting promoted (Cron, 1984).

Recent research indicates that individuals are not spending enough time in the colleague stage and it is creating serious problems in American companies (Thompson, Kirkham and Dixon, 1985; Kovach, 1986). This "fast tracking" which is taking place in many large organizations in America does not enable young professionals to develop and demonstrate solid competence in a particular specialty area. The time spent in the colleague stage must be long enough for the individual to obtain a thorough understanding of the technical subject matter with which his or her organization is dealing. Without a strong technical base, opportunities for successful advancement into stage three will be slim due to peer perceptions of professional incompetence and general lack of technical credibility (Graves, Dalton and Thompson in Derr, 1980; Kovach, 1986; Thompson, Kirkham and Dixon, 1985).

There is nothing wrong with remaining in this stage. Many individuals remain in the colleague stage throughout their careers, contributing substantially to the organization. However, if individuals are forced into career plateaus before they have an opportunity to develop their full potential, then their performance will tend to diminish over time (Near, 1980). In order for the organization to fully benefit from these employees'

expertise, it must provide them with opportunities to attain both professional and personal goals.

STAGE 3

The Mentor Stage

The movement from stage two to stage three requires a "...fundamental though often subtle shift in one's activities and relationships on one's project to a much broader perspective of understanding the needs of the organization" (Dalton and Thompson, 1986a, p. 74). Stage three is considered the maintenance (Super, 1957; Hall and Nougaim, 1968) or mentor (Dalton et al., 1977) stage. Three central characteristics, descriptive of activities occurring in this stage, have been posited by Dalton and Thompson (1986a). They maintain that initially, individuals in this stage use their previously developed skills and competence in their area of technical expertise as a base to make contributions, judgments and evaluations relative to a much broader area of work. Secondly, individuals in this stage serve as an interface with upper-level management, with professionals in other organizations, and with other important outsiders. Usually, this interface serves to represent their organizations and is seldom for their own interest alone. The final, and perhaps the most important change that individuals moving into this stage must make is the

assumption of greater responsibilities for subordinate's work and welfare. This coaching responsibility prompted Dalton, Thompson and Price (1977) to name stage three the mentor stage.

The mentoring role assumed by individuals in stage three is "an intense, lasting and professionally centered relationship between two individuals in which the more experienced and powerful individual, the mentor, guides, advises and assists in any number of ways the career of the less experienced, often younger, upwardly mobile protege" (Moore and Salimbene, 1981, p. 52). Levinson et al. (1978) maintained that a mentor is one of the most influential figures a person can have in early adulthood. He went on to write that the mentor

...may act as a teacher to enhance the young man's [or woman's] skills and intellectual development. ...he [she] (the mentor) may use his [her] influence to facilitate the young man's [woman's] entry and advancement. He [she] may be a host and guide, welcoming the initiate into a new occupational and social world and acquainting him [her] with its values, customs, resources, and cast of characters. Through his [her] own virtues, achievements, and way of living, the mentor may be an exemplar that the protege can admire and seek to emulate. He [she] may provide counsel and moral support in time of stress (p. 98).

Research indicates that many individuals, both male and female, have been helped to advance in their careers by the interest and personal guidance of a mentor (Kram, 1983; DeWine, Casbolt and Bentley, 1983; Farren, Gray and Kaye,

1984; Leibowitz and Schlossberg, 1982; McNeer, 1983; Roche, 1979).

The mentor role undertaken by individuals in stage three is as helpful to the mentors as it is to the proteges. Psychologically, entering into a developmental relationship with a young adult provides an opportunity for individuals at midlife to redirect their energies into creative and productive action. Mentoring often helps the stage three individual to reassess and reappraise past accomplishments in light of new challenges and future dreams (Gould, 1978; Levinson et al., 1978; Neugarten, 1968, Super, 1957; Vallant, 1977). As Bova and Phillips (1984) and Kram (1983) point out, Erickson's (1963) concept of "generativity versus stagnation" may be illustrative of the mentor relationship. When a mentor assumes additional responsibility of caring for adults and attempts to foster their growth and development, he or she demonstrates a successful resolution of generativity versus stagnation. This choice may also increase the probability of positive outcome in Erickson's last stage "ego integrity versus despair."

Mentoring also helps individuals to build a reputation for developing employees. This helps the mentors create a lasting power source through mutually beneficial

relationships with the employees they have helped (Orth, Wilkinson and Benfari, 1987).

Competence, compatibility and mentorship contribute significantly to the development of influential organizational networks. These networks provide the mentor with the additional resources and skills he or she requires to undertake highly visible assignments. Such assignments, when successfully completed, gain the mentor favorable exposure and facilitate his or her entry into stage four (Dalton and Thompson, 1986a).

STAGE 4

The Sponsor Stage

For those individuals who have proven successful in accurately assessing and dealing with environmental trends and their effects on the organization (both internal and external), a fourth stage, the sponsor, executive or director stage (Thompson and Dalton, 1976a, b; Dalton, Graves, and Thompson, 1976; Dalton, Thompson and Price, 1977; Dalton and Thompson, 1986a, b) becomes open. This stage is, for many, the ultimate in self-actualization in that it satisfies their "...tendency to become more and more of what one is, to become everything that one is capable of becoming" (Maslow, 1954, p. 16).

The individuals in stage four are comprised of "dominant coalitions" (Thompson, 1967) "...who have an understanding of the technical complexities (of the organization), the organization's capacities and needs, and the power to influence organizational decisions by making informed judgments that are consistent with, and contribute to the organization's strategy" (Dalton and Thompson, 1986a, b, p. 269). Dalton (1959) and Thompson (1967) add that individuals in this stage possess the qualities of being able to successfully deal with major uncertainties and ambiguities as they relate to their organizations.

organizations. Kovach (1986) adds that managers at this level must acquire and use the personal power accumulated and developed in the mentor stage to influence and motivate large groups of people and to influence organizational directions.

Only a select few individuals reach this stage in an organization. Most individuals who have reached this stage have worked for only one or two organizations and normally come up through the ranks of their own organization (Dalton and Thompson, 1986a; Kotter, 1982). Personnel at this level have established their credibility among the employees and management of the organization prior to attaining this position. It is these high-level executives who help "to formulate and define the purposes, objectives and ends, of the organization" (Barnard, 1958, p. 231).

Several writers (Bennis, 1984; Dalton and Thompson, 1986a; Derr, 1980; Drake, 1983; Kanter, 1983) propose that individuals in stage four interchangeably play three important roles. The first role is that of idea innovator responsible for bringing new work to the organization. The second role is internal entrepreneur responsible for organizing people, resources, and money to pursue ideas and accomplish objectives. The third role is upper-level manager responsible for taking an active role in formulating policy, approving programs and undertaking

long-range planning. Dalton and Thompson (1986a) maintain that although an individual in the sponsor stage has the responsibility of providing direction to the organization, the most important roles in this stage involve representing the organization to outside entities and effectively exercising power. The long-range planning function involves the responsibility for selecting competent people and placing them in key positions where they will make decisions affecting the organization's future. Josefowitz (1980) distinguished between a stage four sponsor and a stage three mentor when he wrote:

The difference between sponsor and mentor is one of function. A mentor will teach you a skill or provide you with the knowledge necessary to perform an identifiable task. Mentoring is focused in the present. A mentor teaches you what you need to know now. A mentor may or may not be able to influence your career and need not have any particular clout in the organization. A sponsor may have very little to teach you about your job but can help your career by speaking for you and by taking you along on assignments. A sponsor focuses on your future and must have influence in the organization (p. 93).

Once an employee reaches stage four he or she no longer has direct responsibility for personally helping individuals in the organization, but rather has the responsibility of managing the process by which decisions affecting the total organization are made. This is a high-level self-actualizing function that the employee fulfills until retirement from the organization.

Educators in Stage 1

Educators starting a career in the public schools exhibit most of the behaviors identified in the literature as being characteristic of the employee in stage one. Generally, educators begin their careers with a teaching assignment. Research studies indicate that educators who begin as teachers in a classroom expect a great deal of support during their first few months in the profession. However, these expectations significantly diminish over time (Irvine, 1985, p. 123). This is consistent with much of the overall career stage literature and seems to indicate that new employees experience an initial lack of self-confidence when confronted with their new positions (Kram and Isabella, 1985). Irvine found that beginning educators who assumed initial teaching assignments "...wanted master teachers to share information about students, books and professional journals, new ideas and innovations and classroom management" (p. 128). This desire of beginning teachers to acquaint themselves with the system indicates that there seems to be an early concern in the public schools about "establishing oneself" (Hall and Nougaim, 1968). In addition, it was found that successful beginning educators in initial teaching assignments wanted master teachers "...to observe their teaching and evaluate their progress, to hold scheduled

conferences with them, and to be available before and after school" (Irvine, 1985, p. 128).

Legislation recently enacted on educational career ladders appears to support the above-mentioned duties and feelings. The Tennessee Master Teacher Program proposes that

the apprenticeship period is intended to give the new educator extensive on-the-job experience in the classroom. During this period, the apprentice educator is regularly observed, evaluated and counseled by experienced senior and master teachers, by the school principal and by other supervisors. Knowledge gaps [are] closed, weaknesses corrected and skills improved through appropriate in-service education (Better Schools Program, 1983, p. 2).

The State of Utah mandates that each school district prepare a career ladder plan for educational personnel (HB-110-Teacher Career Ladders; SB-291-School Finance Act Amendments; SB-14-Career Ladder Amendments). Individual Utah school districts have developed career ladder plans which propose specific duties and requirements for professional employees. For example, Utah's Provo School District has four stages of career development. The initial stage is "the certificated teaching period" (Provo City Schools Career Ladder Model, 1986). This stage requires beginning educators in Provo schools to "further develop and refine their teaching skills with the assistance of at least two professionals who are trained as clinical supervisors" (p. 6). The plan states that:

...the certificated teacher will be assisted to achieve proficiency in the following pedagogical skills: instructional planning to achieve clearly specified learning objectives, classroom management skills, presentation skills, diagnosis and evaluation skills, demonstrated knowledge of content area(s), effective use of class time, plus effective teaching skills. Certificated teachers will also be expected to become skilled in the following areas of human relations: group processes, cooperative attitude toward fellow teachers, parents, and administrators, ability to work well with other adults (p. 6).

Utah's Logan School District's career ladder plan is similar, stating that "the first year is a time for new staff members to further develop and refine their teaching skills and human relations skills. Assistance to them will be provided from the district by a cadre of professional teachers, specialists, coordinators" (Logan, Utah, Career Ladder Plan, 1986, p. 18).

Educators In Stage 2

A large majority of the classroom educators employed in the public schools today are colleagues with equal responsibilities (Career Ladders in Utah, 1985). In many school systems individuals in this stage are called "staff" teachers. They are "fully trained, experienced educators capable of handling multigrouped students; knowledgeable of the trends within their field, new materials and practices; and capable of preparing materials, guides and objectives for classroom implementation of the total curriculum" (Freiberg, 1985, p. 17).

In Utah, educators in stage two should be "...proficient in the skills of effective teaching such as instructional planning, classroom management, diagnosis and evaluation and lesson design. They have a thorough knowledge and understanding of the content areas they teach. They are skilled in working with others to achieve mutual goals and to solve problems" (Provo, p. 7).

In Florida, an educator in stage two is referred to as a peer teacher. This individual provides support to the beginning teacher "...making formative observations in order to help the beginning teacher identify strengths and areas in need of improvement" (Florida Coalition for the Development of a Performance Measurement System, 1984, p. 9). The North Carolina State Teacher Development Plan requires educators in stage two to "...demonstrate self-initiated, independent, and continued professional development" (The State's Career Development Plan, 1984, p. 18). Generally, educators in stage two have sole responsibility for their own actions which usually take place in the classroom. They are not directly responsible to any one supervisor although yearly performance appraisals may be done by the principal or other first line supervisor.

Educators In Stage 3

Historically, educators have been able to reach stage three only by leaving the classroom and pursuing a career in educational administration. According to Ortiz, (1982) the entry-level position into educational administration is the vice-principalship. This is not a permanent administrative position but rather a trial slot "which may terminate at the principal's pleasure" (Ortiz, 1982, p. 9). The vice-principalship offers an individual an opportunity to broaden his or her area of concentration as well as extend interpersonal communication networks (Charters, 1964). In stage three the teacher role,

... "characterized by demands arising primarily out of interactions with an immediate set of students is exchanged for the administrator role which is characterized by demands originating from teachers, other administrators, and parents" (Blood, 1966, p. 35).

Individuals generally move from the vice-principalship to the principalship position. However, depending upon the type of principalship that is involved, this movement may be construed as an elevation to stage four or a continuation of stage three. The elementary principalship is sometimes considered a stage three position because it is the lowest line administrative position in the hierarchy of school administration and is generally permanent since elementary principals are usually content to stay in that position (Gross and Trask, 1976; Covell, 1977; Walcott,

1973). Elementary principals tend to view the duties required by their position as being centrally focused on their school and have little or no desire to make decisions about the operation of the school district as an organization (Ortiz, 1982). Movement to the elementary principalship may be construed as remaining in stage three since elementary principals will tend to run only their particular schoolhouse and will generally not concern themselves with making decisions that affect the organization (school district) as a whole.

The creation of career ladders in education has offered classroom teachers an opportunity to move into stage three while staying in their chosen profession of teaching. Career ladders in education is an attempt to

redefine teaching by providing a system of ordered ranks or promotional positions for teachers. It (career ladders) attempts to make the teaching profession more compatible with the individual's need for growth, recognition, and advancement, and the institutional need to retain talented, able teachers and attract academically able individuals to the career of teaching by providing them with visible opportunities (Hart and Murphy, 1986, p. 23).

During the mid 1960s and early 1970s, the concept of career ladders was of great interest in the field of education and was embedded in a model for school reform known as differentiated staffing (Caldwell, 1973; Frieberg, 1985). Recent national reports such as A Nation at Risk (1983) and the Twentieth Century Fund Task Force (Wood,

1983) have rekindled an interest in career ladders (also known as the master teacher concept), at the highest political levels. Secretary of Education Terrell Bell stated:

"We're not attracting the desired numbers of bright and talented people into the teaching profession. We don't have anything in our system beyond the single salary schedule, and we don't have a method of rewarding our truly outstanding teachers" ("Bell asks," 1983, p. 518).

In response to this, Bell advocated the appointment of senior or master teachers who would serve as mentors to less experienced teachers and who would in return "earn significantly more than other teachers" ("Bell asks," 1983, p. 518). Opportunities for obtaining additional rewards while continuing to teach in the classroom is one of the basic premises of a master teacher program or technical career track in education.

Freiberg (1985) wrote that master or senior teachers in stage three "demonstrated superior teaching abilities and possessed leadership capabilities. They taught about 60 percent of the time and devoted the remainder to leadership activities such as conducting inservice programs, micro-teaching demonstrations, guiding the implementation of innovations in curriculum areas and teaching strategies, and generally facilitating change" (p. 17).

Logan's (Utah) Career Ladder Plan (1986) defines master teachers who have reached stage three as those

...who have achieved in their teaching an unusually high level of teaching skill. They are distinguished not only by their teaching effectiveness in the classroom but by their ability to model outstanding teaching for other teachers as well. Their status as teacher leaders is based on their excellent teaching skills and their ability to help other teachers improve their teaching effectiveness. The primary focus of the work of teacher leaders is to teach on a regular basis and to improve the quality of teaching in the school to which they are assigned and/or the district as a whole. They are to teach and to help others improve the quality of their teaching by modeling, coaching, improving curriculum, and giving instruction in the skills of effective teaching to other teachers (p. 21).

This definition of a master teacher is illustrative of the stage three mentor roles which include confidant, teacher, role model, developer of talent, opener of doors, protector and successful leader (Schein, 1978).

Research indicates that mentor relationships are present in numerous schools even though a formal "master" teacher program or career ladder has not been instituted (Gehrke and Kay, 1984). A majority of teachers involved in studies on mentorship indicated that having a mentor was extremely important to developing a successful teaching career (Gehrke and Kay, 1984; Krupp, 1984; Lambert, 1985; Little, Galagaran and O'Neal, 1984; Nelson, 1986). Beginning teachers surveyed were most favorable toward the mentor-protege relationship indicating that their mentors were particularly helpful to them in gaining self-confidence, learning the technical aspects of teaching, and

understanding the school's administration (Fagan and Walter, 1982). This occurred even though, as Lortie (1975) pointed out, mentorship assistance is not as critical for teachers as it may be in business and industry because of the nature of teaching.

Master teachers also found the mentor-protege relationship beneficial. Most master teachers surveyed thought that the advantages outweigh the disadvantages citing such things as "their enhanced status as a master teacher, feelings of gratification from assisting others, and even improved teaching skills in their own classroom" (Irvine, 1985, p. 129). Galvez-Hjornevik (1986) notes that the experienced teacher, especially if older, encounters a choice between "generativity versus stagnation" (Erikson, 1963) and in choosing generativity actually improves his or her own teaching.

The duties required of master teachers, such as curriculum development and preparation of district-wide training workshops, offer exposure to the administrative network. This exposure helps open advancement opportunities for master teachers. Thus, the network established by the individual in stage three, regardless of whether a technical or managerial career track is chosen,

provides an avenue for advancement to stage four. This is consistent with the career stage theory literature.

Educators In Stage 4

In the field of education, individuals who have reached stage four are generally referred to as administrators rather than teachers. These are the people who have a comprehensive understanding of school district operations and thus have the ability and power to get things done (Kanter, 1983). These individuals are principals in the larger secondary schools and administrative personnel who are decision makers in the central office.

The principals of the district's larger high schools can be considered to be in a level four stage because their "...functions are not only related to the building site, but expand across the school district" (Ortiz, 1982, p. 16). The high school principalship is one of the few positions in the school district which moves the individual towards the core of the organization and provides a direct link to the superintendent (Ortiz, 1982).

The positions in the central office consist of two groups of people. The first group is composed of administrative personnel directly below the superintendent. They are the individuals in the district who deal primarily with the superintendent and board of education. The second

group is composed of staff members who support the first group and deal with principals and instructors (Ortiz, 1982). According to McGevney and Haught, (1972) this:

...major subgroup interacts on a daily basis and in the weekly administrative staff meetings led by the superintendent; and its significant other is the board of education (p. 25).

Hierarchially in the school district organization, these individuals as a group are directly below the superintendent. Since they are in this hierarchial position, they are aware of the long- and short-term strategies of the school district, and thus are able to exert great influences in the establishment of school policy (Ortiz, 1982; McGevney and Haught, 1972).

Educational administrators in this stage are idea innovators who are able to mobilize resources to set and accomplish school district-wide objectives (Ortiz, 1982, p. 22). As upper-level managers, administrators must view the organization from a managerial perspective (Innerst, 1986). As managers, they realize that decisions incur risks and that their decisions are highly visible to the general public. Their decisions are based upon a knowledge of the school district gained through personal experience working in the various schools.

Administrators in this stage also act as sponsors by identifying aspiring candidates to assume administrative positions to carry on the mission of the organization.

Walcott (1973) illustrates how individuals in stage four must have the ability to select and develop good people to perform key tasks and play key roles for the organization. He explains how

...He [the sponsor] had conspired with one teacher at this school to get the young man an administrative position. Their strategy was for each of them to take every opportunity to keep the sponsoree's name 'in the fore' by having him named on committees and by giving him assignments that would constantly increase his visibility to central office personnel and school board members (p. 194).

Admission to stage four is acquired by only a few persons who are sponsored to ascend through the hierarchial scale of the organization. Once an individual reaches the superintendency, which is the pinnacle of stage four, the career ladder does not necessarily end. Superintendents, once they reach stage four, tend to move horizontally rather than vertically (Carlson, 1970). This means individuals climbing to the top of a small or medium sized school district normally remain in that size district, while those in large districts remain in large districts (Ortiz, 1982, p. 53). However, the opportunity to move from a small district to a large district may be considered an advancement in one's career ladder.

Engineers in Stage 1

Research indicates that engineers in stage one exhibit the general indicators of the stage one employee reported in the career stage development literature. Beginning

engineers generally work as apprentices in collaboration with and under the guidance of more senior researchers or formal supervisors. The assignments given to beginning engineers are never entirely their own. They constitute a portion of a larger project or activity which involves most of the detailed and routine work (Graves, Dalton and Thompson in Derr, 1980, p. 27). At this stage "...management observes how the engineer performs on the job, how he is able to handle the problems that arise, and where he might fit into the company's structure" (Dalton, Thompson and Wilson in Bolz, 1976, p. 9-6). The apprentice stage is extremely important to young engineers for it is here that they must initially make the transition from the theoretical side of engineering which was presented at the university to solving practical engineering problems required by the job (Dalton et al., 1976). Beginning engineers must also demonstrate to management and other experienced engineers that they have basic engineering technical credibility, potential, and the ability to work in a cooperative environment.

However, young engineers often do not know how to take advantage of this developmental period in their career (Dalton et al., 1976). They often have difficulty communicating with others in their organization because:

We have failed to train (engineering) students in the study of social situations; we have taught that first-class technical training was sufficient in a modern

and mechanical age. As a consequence we are technically competent as no other age in history has been; and we combine this with our utter social incompetence (Mayo, 1945, p. 120).

Many new engineers fail to realize the importance of working with an experienced engineer or mentor. Mentors, who are often highly regarded and experienced technical engineers or formal supervisors, help new engineers learn about the formal and informal workings of the organization and show new employees how to get noticed by superiors. Mentors are instrumental in helping new engineers develop their technical skills and learn the practical side of engineering (Dalton et al., 1976; Dalton and Thompson, 1986a, b). Research indicates that most top performing engineers are those who had the opportunity of working under the direction of a good mentor (Kantor, 1979; Phillips, 1977).

It is often a mentor's responsibility to insure that new employees can psychologically adjust and exhibit the dependence required by their role as subordinates while concurrently exhibiting the initiative that will lead to the opportunity to do independent work (Graves, Dalton, and Thompson in Derr, 1980, p. 27). Unfortunately, as Dalton and Thompson (1986a, b) maintain, some engineers cannot make the transition into stage two because they cannot learn to work independently, which is a primary characteristic of stage two.

Engineers in Stage 2

Research indicates that approximately 50 percent of engineering professionals may be categorized as currently working in stage two (Dalton and Thompson, 1986a). Engineers working as independent contributors in this stage must demonstrate that they can successfully function without continual specific direction from their superiors. This involves assuming responsibility for "developing original ideas, setting individual standards of performance and for relying on one's own personal judgement in decision making" (Dalton and Thompson, 1986a, p. 49). Often engineers find this transition into stage two difficult because they have not been adequately prepared to assume independent responsibility for their actions (Dalton and Thompson, 1986a). Attaining such on-the-job independence requires initiative and the development of self-confidence by the young engineer. He or she must also establish a professional identity and image which comes from supervisor and peer perceptions relative to his or her demonstration of competence, confidence and independence on the job (Dalton and Thompson, 1986a).

Once engineers make a successful transition to stage two, they are faced with the decision to become specialists or generalists. Specialists learn as much as possible about one segment of their discipline and become experts by

working on projects in only a narrow area of expertise (Zaleznick, Dalton and Barnes, 1970). Working as a specialist enables the engineer to keep up with state-of-the-art technology in a single discipline while continuing to perform engineering functions. Engineers who choose the technical specialist route often view assignments as interesting because they are able to obtain information needed to publish papers and make technical presentations. However, specializing in a single technical area is not necessarily the most promising route to promotion in the organization (Goldberg and Shrenhav, 1984; Hall, 1986; Dalton and Thompson, 1986a, b). Hall (1986) found that purely technical specialists felt that their increased specialization tended to act as a deterrent to their promotion. Engineers who are specialists on a particular project often become so involved with one particular area that they lose contact with other developments and advancements outside their immediate discipline (Dalton, Thompson and Wilson in Bolz, 1976). This degrades their competence in related but equally important fields, thus making them less desirable as organizational leaders.

Research indicates that engineers who elect to become generalists often aspire to the management career track (Dalton et al., 1977; Dalton, Thompson and Wilson in Bolz, 1976; Hall, 1986). These engineering generalists feel that

it is more important to possess a broad background so that they can understand and integrate the work of other engineers into a single project. This broad knowledge often results in the most flexibility and job security (Dalton, Thompson, and Wilson in Bolz, 1976). Regardless of selection of the technical career track or the managerial career track, engineers in stage two must demonstrate technical competence, and the ability to work independently.

Engineers In Stage 3

Once engineers have demonstrated to the organization that they are competent, are compatible with their fellow workers and can work independently without constant supervision, they may be selected to enter into career stage three. In this stage engineers may have two options -- the technical career track of senior project engineer or the managerial career track of supervision or project management (NAVTRASYSCENINST 12412.1, July 1986).

Entry by engineers into the "mentor" stage, regardless of what type of career track they select, requires that they be able to broaden their interest and capabilities, begin to deal with those outside their departments or organizations and take responsibility for influencing, guiding, directing and developing other engineers (Dalton, Thompson, and Price, 1977). Engineers in this stage must

have the ability to get work done through the efforts of other people (Dalton, Thompson, and Wilson in Bolz, 1976). This means they must be able to assume some degree of managerial responsibility.

Bailyn (1980) found that engineers usually stay in a strictly technical position for five to ten years and then make a concerted effort to move into a position which requires some type of management skills. Research indicates that many engineers place great importance upon making this type of move from a strictly working level technical position into a position with some managerial responsibilities (Gould, 1966; Lebold, Perrucci, and Howland, 1966; Kaufman, 1975; Ritti, 1971; Steger, 1985; Steiner and Farr, 1986). The predominant reason cited for making a move into management is the reward system of the organization (Kaufman, 1975).

Unfortunately, as Giegold (1982) found

...most engineers and scientists who accept management positions...do so without a full understanding of the nature and demands of the management job. Their work experience up to that point has had a highly technical orientation, their interest and the knowledge explosion have limited their self-study to the area of their technical specialties, and the work itself, while requiring less frequent team activities, has been largely individual in nature (p. 94).

Thus, engineers in general are poorly prepared for management positions since they have had little, if any, management responsibilities or management training. In

addition, they have been primarily rewarded for individual work efforts only, but not for any management skills (Golson, 1985).

When engineers begin to broaden their technical approach, a change arises in their relationship with others. They assume increased responsibilities and must delegate or share more of their work and ideas. This tends to redirect their knowledge and experience toward stimulating and developing others in the organization or generating ideas for other groups of people (Dalton, Thompson and Wilson in Bolz, 1976).

Engineers in Stage 4

Engineers in stage four are usually upper-level managers and sometimes middle-level managers. Stage four engineers are able to view a technical project or situation from the perspective of the total organization rather than a specific portion of the project or organization only. They are faced with decisions which may have a significant influence over the future direction of the organization or a major part of the organization. Within the organization, the engineer-manager "must be able to operate in a multi-disciplinary environment which requires dealing effectively with a variety of interfaces and support personnel" (Thamhain, 1983, p. 231). The engineering manager becomes an entrepreneur (Pinchot, 1985) within the organization.

For those engineers who elect the managerial route, stage four duties and responsibilities become primarily administrative (Dalton, Thompson and Wilson in Bolz, 1976). Engineering managers must be concerned with profits, budgets, personnel matters and long-range planning. Marketing skills are also imperative at this stage, since the outside contacts that are made result in new or increased business by the organization.

Some organizations offer engineers the opportunity to enter this stage while remaining in a technical career track (Duke, 1985; Harris, n.d.). Dalton, Thompson and Wilson, (1976), found that 25 percent of the engineers in this stage did not hold management positions. Technical experts in this stage work on the development of new ideas or products that may lead the organization into new areas of work. Their technical background provides them with the perspective required to determine the resources and marketing that are needed in order to promote their ideas or products (Peters and Waterman, 1982).

It has been advocated by some (Dalton, Thompson and Wilson in Bolz, 1976; Graves, Dalton and Thompson in Derr, 1980; Thamhain, 1983) that the challenges encountered in this stage could be the most interesting and productive in an engineer's career. However, it is imperative that regardless of career track, the engineering manager must

have "an understanding of the interdependencies among organizational, human, and task variables before they can begin to identify management effectiveness issues and raise appropriate productivity questions" (Thamhain, 1983, p. 231).

Summary

This literature review presented a variety of definitions for distinct stages through which an individual passes during his or her tenure in an organization or career. Each stage contains general duties, characteristics and activities that are experienced. New employees entering into an organization act as stage one apprentices and have responsibilities to indoctrinate themselves and prove their worth to the organization. Having successfully accomplished this, they move to the colleague stage where they build their credibility and further demonstrate their worth to the organization. Once they establish their credibility, they enter the third career stage and become mentors. In this third stage, in addition to their own responsibilities, they take on responsibilities for subordinate employees and represent the organization to significant others on the outside. If extremely successful in this stage, they may be given the opportunity to move into the sponsor stage where they

assume the responsibility for making decisions which will guide the whole organization.

Career stage models can provide an insightful profile of an organizational work force because they consider more than formal titles and pay scales (Thompson, Baker and Smallwood, 1986). As Glaser (1968) suggested, career stage perceptions and desires are one of the major influences on one's career motivation. Research indicates that if management placed greater developmental focus on the various career stage indicators of individuals in their organization they could generate greater creativity and energy from their employees. This would serve to increase both motivation and productivity (Davis and Gould, 1981).

CHAPTER III

METHODS AND PROCEDURES

Purpose of the Study

The purpose of this study was to investigate the perceptions of public school educators and Federal Government engineers in the Central Florida area in order to determine their self-perceived current and desired career stages; the influences of age, education and tenure variables on these perceptions and their preference for either a technical or managerial career track in their organizations.

Endorsement of the Study

Endorsement of the study was obtained from the Technical Director of the Naval Training Systems Center, Orlando, Florida. Permission to survey the public school educators in Orange County, Florida, was obtained from the Orange County School Board. Permission to survey the Federal Government engineers of the Naval Training Systems Center was obtained from the Consolidated Civilian Personnel Office, Naval Training Center, Orlando, Florida.

Procedures Used in Reviewing the Literature

A review of the literature was conducted in order to obtain information for this study. Literature was located

via a variety of sources. A computer search was done of the following data bases: ABI/Inform, ERIC, Management Contents, PSYCHINFO, and Sociological Abstracts. A computer search of the library holdings at both the University of Central Florida and the Brigham Young University was also undertaken. Manual searches of Dissertation Abstracts, the George Washington University library holdings and the University of Pittsburgh library holdings were done. A manual search of the bibliographies contained in several key documents was also undertaken. Interlibrary loan services, the Defense Technical Information Service and the sales service of University Microfilms International were utilized to obtain copies of dissertations, necessary reports, journals and periodicals which were not available in any library in the Central Florida area. A visit was made to the Utah State Board of Education office in Salt Lake City, Utah, to obtain specific information about state-mandated career ladder programs in Utah public schools. Telephone conversations and personal meetings were held in order to obtain information and materials from Drs. Paul Thompson and Gene Dalton at the School of Management, Brigham Young University, Provo, Utah, in August 1986 and November 1986. A trip was made to San Francisco, California, in order to

attend a professional workshop on "A New Approach for Managing Professionals" conducted by Dr. Paul Thompson, in September 1986.

Design of the Study

Descriptive research methodology was used to collect and analyze the data required to test the study questions. Initially, a review of the literature was undertaken in order to obtain a description of the career stages through which one proceeds during his/her tenure in an organization. A survey instrument was then designed based upon information obtained from previous studies and concepts identified in the literature. The survey instrument was distributed to sample groups in order to obtain respondent's self-perceptions about current and desired career stages and their preference for pursuing a managerial or technical career track. The information obtained was then analyzed and conclusions and recommendations were presented.

Population and Sample Selection

The two populations for this study consisted of public school educators who were employed by the Orange County, Florida, Public School District and Federal Government engineers who were employed by the Naval Training Systems Center, Orlando, Florida. The study populations were

segmented by three employee categories: (a) engineering managers and educational administrators; (b) technical engineers and classroom teachers; and (c) beginning engineers and beginning classroom teachers who have been engaged in their specialty occupation for one year or less. The personnel offices of the Orange County School Board and the Naval Training Systems Center provided, upon request, an annotated listing of employees grouped alphabetically by the three strata. Copies of the letters which were used to request the mailing lists are contained in Appendix B.

The total engineering population (N=296) at the Naval Training Systems Center was sampled. This was done to obtain a data pool from Federal Government engineers which contained enough respondent data to perform statistical analyses tests.

In order to obtain a proportional stratified sample of public school educators which was similar to the stratified sample of Federal Government engineers, it was decided that the sample population of public school educators should be comprised of 6.71% administrators, 85.03% classroom teachers and 7.90% beginning teachers. This ratio was obtained by dividing the total population of educators by the desired total sample (5526 divided by 300 = 18.42). Then, starting with number 18 on the administrator strata

list and continuing through the classroom teacher and beginning teacher strata lists, every eighteenth individual was selected for the sample. Thus, a proportional stratified systematic sample (Bailey, 1982) was obtained. Each survey instrument was then assigned a designator identifying the questionnaire as being sent to: (a) an engineering manager or public school administrator; (b) a technical engineer or classroom teacher; or (c) a beginning engineer or beginning teacher who had been employed in their occupational field for one year or less. The survey instruments were then mailed to the engineers and to the educators.

Design of the Survey Instrument

The survey instrument (see Appendix C), a questionnaire entitled "A Study of Career Development in an Organization," was developed specifically for this study. There were two versions of the questionnaire. One version was developed specifically for public school educators, the other version was developed for Federal Government engineers. The versions of the questionnaire contained the same exact questions, however, the response options differed according to the duties and responsibilities indicative of the various career stages in the different occupations. The numbering sequence was also slightly altered due to spacing requirements on the questionnaire.

The goals of the questionnaire were to determine the self-perceptions of public school educators and Federal Government engineers relative to their current activities on the job; the types of activities they would like to be doing on the job and their preferences toward a managerial career track or a technical career track in their organizations.

The direction for the development of this survey instrument evolved from an extensive review of the literature, and discussions with individuals who have either been active in the area of career development for technical and educational professionals in their organizations or have done extensive research in the area of career development in organizations. Professors Paul Thompson and Gene Dalton of Brigham Young University, developers of the Four Stage Career Development Model upon which this study is based, were personally contacted regarding suggestions about specific questions to use in the questionnaire, as well as questionnaire format.

The survey instrument consisted of two sections. The first section was designed to collect demographic data; the second section was designed to obtain information about respondents' perspectives about the activity in their current occupational position, their desired activities in

a future position and their preference for either a technical or managerial career track.

The first section of the survey instrument was designed to provide demographic information about the respondents, and both versions were exactly the same. The first six questions in this section asked for specific information about the questionnaire respondents. Questions 1 and 2 asked about the length of time each respondent spent in his or her occupational field and his or her current position. Question 3 asked about the respondent's age. Questions 4, 5 and 6 asked for information concerning the respondent's educational background. The information provided by this section was intended to serve two purposes: first, the information defined the respondent sample; and second, the information was needed to answer the research questions.

The second section of the survey obtained information needed to determine the self-perceived current and desired career stages of public school educators and Federal Government engineers. This section was also used to determine the respondents preference for a technical or managerial career track. Items 7, 8, 9, 10 and 11 on both versions of the questionnaire yielded data required to determine the self-perceptions of each respondent's current job activity. These survey items addressed each

respondent's self-perceived central activity on the job; the respondent's primary relationships with close co-workers on the job; the respondent's level of authority and responsibility on the job; the perspective with which the respondent felt others viewed him or her on the job and the title which best described the respondent's current position.

Items 12, 13, 14, 15 and 16 on the version for public school educators and items 12, 14, 15, 16 and 17 on the version for Federal Government engineers provided data required to determine the type of activity on the job that the respondent desired. These survey items addressed the respondent's desired central activity on the job; the respondent's desired relationship with co-workers on the job; the respondent's desired level of authority and responsibility on the job; the perspective from which the respondent desired others to view him or her on the job and the job title which the respondent desired to attain in five years.

Item 17 on the version for public school educators and item 13 on the version for Federal Government engineers yielded specific data concerning the respondent's preference for pursuing a technical career track or a managerial career track. Item 18 on both versions of the questionnaire presented four general statements, each

representative of activities performed in a specific career stage. Each respondent was asked to estimate the percentage of time he or she spent doing each type of activity in their current position during the past month.

Pilot Test and Review of the Survey Instrument

The questionnaire was originally pilot tested using a graduate class of teachers and educational administrators at the College of Education, University of Central Florida, and a graduate class of engineers and engineering managers at the Graduate School of Business, Florida Institute of Technology. Respondents were asked to complete the survey and comment on clarity of the concepts; readability; time and effort required to complete the survey and any other bias or noticeable flaws with the instrument such as grammar and format.

The instrument was revised and comments from Dr. Paul Thompson, developer of the Four Stage Career Model, the dissertation committee chairperson and select faculty members in the College of Education at the University of Central Florida were included.

The revised questionnaire was then re-administered to a different graduate class of teachers and educational administrators at the College of Education, University of Central Florida, and a different graduate class of engineers and engineering managers at the Graduate School

of Business, Florida Institute of Technology. The respondents were given the same directions and asked to comment on the same topics as was the first pilot study sample. The feedback indicated that some minor revisions were required. These revisions were made and the final survey was printed and mailed to the sample survey.

Instrument Validity

"The validity of a measure is how well it fulfills the function for which it is being used" (Hopkins and Stanley, 1981, p. 76). This study required face validity and content validity. Face validity, as defined by Anastasi, (1954)

...refers, not to what the test necessarily measures, but to what it appears to measure... does it seem to be relevant to its objectives, when reviewed by the subjects who take it, the administrators who adopt it, or anyone else who might judge it? (p. 12)

Content validity assesses the degree to which the items on an instrument represent an accurate sample of the content universe being assessed (Hopkins and Stanley, 1981, p. 76).

Face validity and content validity were established using the following methods. Initially items were checked for validity by Professor Paul Thompson one of the developers of the Career Stage Model, which this survey instrument purports to measure. A pilot study was then conducted using selected respondents from the survey

sample. The pilot study groups were asked to critique the survey's domain representativeness, comprehensiveness, format and clarity. Lastly, experts from the academic community were asked to review the instrument for face and content validity. The comments that were received from Dr. Paul Thompson indicated that the survey questions adequately described the activities that generally occurred in each of the career stages. Selected Federal Government engineers and public school educators who were asked to comment on the survey instrument did not indicate any difficulty in understanding the various activities which distinguished the different career stages. Although they commented that the survey was somewhat lengthy in that it required a substantial amount of reading, everyone agreed that it was the most appropriate way to present information which described different career stage activities.

Instrument Reliability

According to Bailey, (1982) "...while a measuring instrument can be reliable but not valid, the converse is not true ...if a measure is valid it will be accurate every time, and thus must be reliable also." (p. 57). Although some contend that a study which is descriptive in nature, such as this one is, does not readily lend itself to formal reliability measures, the test-retest method was used to determine the reliability of the survey instrument.

The questionnaire was initially administered to ten respondents, six engineers and four educators.

Reliability data were collected by administering the survey to the same ten respondents for a second time approximately one month after receipt of the respondent's initial response returns. Reliability was assessed by constructing contingency tables for each pair of responses dealing with self-perceived current career stage, desired career stage and preference for either a technical or managerial career ladder. An analysis of the contingency tables indicated a response homogeneity in 80 percent of the survey questions pertaining to current perceived career stage and desired career stage and a 100 percent response homogeneity for preference for a technical or managerial career track.

Instrument Distribution

Data for the study were collected through the use of a questionnaire mailed to 300 public school educators in Orange County, Florida, and 296 Federal Government engineers at the Naval Training Systems Center, Orlando, Florida. Each questionnaire contained a coded information number placed in the upper left-hand corner. The identification numbers were used to identify the respondent's strata group, the non-respondents, and to generate a second and third mailing. Each questionnaire

was accompanied with a cover letter which explained the purpose and importance of the research and instructions for completing and returning the questionnaire. A memorandum from the Technical Director of the Naval Training Systems Center, who endorsed the study, was also included with the questionnaire and cover letter which was sent to all Federal Government engineers. Copies of the letters mailed to the survey sample are contained in Appendix D.

Questionnaires were mailed to Federal Government engineers on October 28, 1986. A response date of November 14, 1986 was requested. A total of 170 useable questionnaires were received for a response rate of 57.4 percent.

Questionnaires were initially mailed to public school educators on November 17, 1986. A response date of November 26, 1986 was requested. A total of 63 useable questionnaires were received. Due to the low response rate from the public school educators in the first mailing, two additional mailings were necessary. Each mailing included a cover letter which contained the same basic information as the cover letter which was sent in the first mailing although the letter formats were slightly different. A second mailing was sent on December 9, 1986 to public school educators. A response date of December 16, 1986, was requested. A total of 28 usable questionnaires were

received from the second mailing. A final mailing to public school educators was sent on February 10, 1987. A response date of February 25, 1987, was requested. A total of 22 usable questionnaires were received from the third mailing. A total of 113 responses were received from the public school educators for a response rate of 37.6 percent. Table 1 provides a summary of the responses.

TABLE 1
SURVEY RETURNS (a)

Group	Number Sent	Number	Number	Number	Total Number Returned	Percentage Returned
		Returned First Mailing	Returned Second Mailing	Returned Third Mailing		
Federal Govt. Engineers	296	170	-	-	170	57.4
Public School Educators	300	63	28	22	113	37.6

(a) The number of returns indicate the number of useful questionnaires which were returned. The sample group of Federal Government engineers returned a total of 181 questionnaires and the public school educators returned a total of 129 questionnaires. Due to reasons such as incomplete answers, multiple answers for the same question, blank returns or inconsistent answers, 27 of the returned questionnaires could not be included in the analysis.

Description of Analysis Procedures Used
for the Survey Instrument

Despite questions on the survey instruments being identical for Federal Government engineers and public school educators, the options were slightly modified in order to compensate for the differences in the type of work performed by each.

The survey instrument consisted of two sections. The first section contained six items of a demographic nature. Four of these items asked respondents to provide information on the length of time they had been active in their occupational field, the length of time they had been working in their current position, their age, and the educational degrees they hold. The remaining two items asked respondents to provide information about their current enrollment in graduate college courses. The second section contained twelve statements about career stages. Eleven of these items were multiple choice type questions and one was a completion type question. Every multiple choice question had four possible responses. Each response contained a descriptive statement of duties, responsibilities or status associated with one of the four different career stages. The respondents were asked to choose one response for each question. Five multiple choice questions dealt with the respondent's self-perception of current activity on the job and five multiple

choice questions dealt with the respondent's desired activity on the job. The second section also contained a question which asked the respondent to estimate a percentage of the time he or she spent performing various types of activities on the job during the past month. Blank spaces were provided for responses on this question.

Responses from both sections were numerically coded for computer analysis. The responses to both sections of the instrument were analyzed for the total set of useable respondents ($N = 283$) as well as for the set of useable public school educator respondents ($N = 113$) and the set of useable Federal Government engineer respondents ($N = 170$).

Descriptive statistical techniques, frequency distributions, cross-tabulations, and Chi-square tests were used to analyze the data. The statistical procedures used were programs included in the Statistical Package for Social Sciences -SPSS/PC+ (Norusis, 1986) and the SCSS Conversational System (Nie, Hull, Franklin, Jenkins, Sours, Norusis and Beadle, 1980).

CHAPTER IV

ANALYSIS OF THE DATA

This purpose of this study was to investigate the perceptions of public school educators and Federal Government engineers in the Central Florida area in order to determine their self-perceived current and desired career stages; the influences of age, education and tenure variables on these perceptions, and their preference for either a technical or managerial career track in their organizations.

Survey data were collected by mailing a survey instrument to a proportional stratified systematic sample of 300 public school educators and a population of 296 Federal Government engineers in the Central Florida area. One-hundred and seventy useable survey instruments were returned by the Federal Government engineers, a response rate of 57.4 percent and 113 useable survey instruments were returned by the public school educators, a response rate of 37.6 percent.

This chapter consists of two sections. The first section reports the analysis of the demographic data obtained from the first six questions on both versions of the survey instrument. The second section reports the data

collected on the self-perceptions of the respondents regarding their current and desired career stages and their preferences for a technical or managerial career track.

Demographic Data Analysis

The first section of the survey instrument was intended to collect demographic information. It contained six items. Each item was analyzed separately. The results of these analyses are reported below by their respective survey item numbers.

Item 1

Respondent's Length of Time in Occupational Field. Item 1 was completed by 297 respondents. However, only 283 useable survey instruments were used in the analysis of which 113 were from public school educators and 170 were from Federal Government engineers. Data are presented in Table 2. A histogram illustrating the respondents' length of time in occupational field is presented in Appendix E, Figure 1.

TABLE 2

FREQUENCY OF RESPONDENTS REPORTED LENGTH OF
TIME IN OCCUPATIONAL FIELD

Length of Time In Occupational Field	Federal Government Engineers		Public School Educators		Total (a)	
	Freq.	%	Freq.	%	Freq.	%
0-5 years	58	34.1	24	21.2	82	29.0
6-9 years	25	14.8	13	11.6	38	13.4
10-14 years	14	8.2	30	26.5	44	15.5
15-19 years	16	9.4	22	19.5	38	13.4
20 years and over	57	33.5	24	21.2	81	28.6
range		36.0		31.1		36.0
mean		13.3		13.1		13.2
medium		10.0		12.0		12.0
mode		20.0		13.0		20.0
N		170		113		283

(a) Fourteen respondents or 4% of the total returned surveys did not provide background information or provided contradictory information on the length of time they spent in their occupational field and were not included in the data analysis.

Item 2

Respondents Length of Time in Current Position. Item 2 was completed by 296 respondents. However, only 283 useful questionnaires were used for analysis of which 113 were from public school educators and 170 were from Federal Government engineers. The largest percentage of respondents (65.4) reported that they had been working in their current position for less than five years. The data are displayed in Table 3. A histogram illustrating the respondents' length of time in current position is presented in Appendix E, Figure 2.

TABLE 3

FREQUENCY OF RESPONDENTS REPORTED LENGTH OF
TIME IN CURRENT POSITION

Length of Time in Current Position	Federal Govt. Engineers		Public School Educators		Total (a)	
	Freq.	%	Freq.	%	Freq.	%
0-5 years	129	75.9	56	49.6	185	65.4
6-9 years	19	11.2	17	15.0	36	12.7
10-14 years	10	5.9	19	16.8	29	10.1
15-19 years	4	2.4	16	14.2	20	7.1
20 + over years	8	4.7	5	4.4	13	4.6
range		25.3		29.1		29.3
mean		4.4		7.5		5.6
median		2.4		5.5		3.7
mode		1.1		.5		1.7
N		170		113		283

(a) Thirteen respondents or 4% of the total returned surveys did not give background information or gave contradictory information on the length of time they spent in their current position and were not included in the data analysis.

Item 3

Respondent's Age. Item three was completed by 292 respondents. However, only 283 useful questionnaires were used for analysis of which 113 were from public school educators and 170 were from Federal Government engineers. The largest percentage of Federal Government engineers fell in the 25-34 year old age group while the largest percentage of public school educators fell in the 35-44 year old age group. The data are displayed in Table 4. A histogram illustrating the respondents' age is presented in Appendix E, Figure 3.

TABLE 4
FREQUENCY OF RESPONDENTS BY AGE

Age	Federal Govt. Engineers		Public School Education		Total (a)	
	Freq.	%	Freq.	%	Freq.	%
<25	15	8.8	8	7.1	23	8.1
25-34	56	33.0	27	23.9	83	29.4
35-44	47	27.6	49	43.3	96	33.9
45-54	33	19.4	22	19.5	55	19.5
55 and over	19	11.2	7	6.2	26	9.2
range		46.0		43.0		46.0
mean		38.7		39.3		39.0
median		38.0		39.0		38.0
mode		24.0		39.0		39.0
N		170		113		283

(a) Nine respondents, or 3% of the total of the returned surveys did not provide background information or provided contradictory information on their age and were not included in the data analysis.

Item 4

Respondent's Educational Background. Item 4 was completed by 292 respondents. However, only 283 useful questionnaires were used for analysis of which 113 were from public school educators and 170 were from Federal

Government engineers. The bachelor's degree was the highest degree reported by a majority of respondents in both groups. These data are displayed in Table 5. A histogram illustrating the respondents' educational background is presented in Appendix E, Figure 4.

TABLE 5
FREQUENCY OF RESPONDENTS BY HIGHEST DEGREE HELD

Degree	Federal Govt. Engineers		Public School Educators		Total	
	Freq.	%	Freq.	%	Freq. (c)	%
Bachelors ^(a)	113	66.5	53	46.9	166	58.7
Masters ^(a)	47	27.7	48	42.5	95	33.5
Specialist ^(b)	8	4.6	8	7.1	16	5.7
Doctorate	2	1.2	4	3.5	6	2.1

(a) Survey responses which indicated courses taken beyond a bachelor's degree, but not receiving a master's degree were combined into the category "bachelor's degree." Similarly, responses which indicated courses taken beyond a master's degree but not receiving a specialist degree were combined into the category of master's degree.

(b) Attainment of a second master's degree was considered equivalent to attaining a specialist degree.

(c) Nine respondents, or 3% of the total returned surveys, did not give background information or gave contradictory information on education and were not included in the data analysis.

Items 5 and 6

Respondent's Current Enrollment in Graduate Courses and Purpose of Enrollment. Item 5 which was a "yes" or "no" response question, asked respondents if they were currently enrolled in any type of graduate course(s). Item 6 asked respondents if they were pursuing an advanced degree or meeting certification requirements. Items 5 and 6 were completed by 61 respondents, of whom 19 were public school educators and 42 were Federal Government engineers. These data are displayed in Table 6. However, the low frequency of responses precluded any meaningful analysis of these items, therefore, these data were not used.

TABLE 6
 FREQUENCY OF RESPONDENTS BY CURRENT
 ENROLLMENT OF RESPONDENTS IN GRADUATE COURSES

Reason for Enrollment	Federal Govt. Engineers		Public School Educators		Total	
	Freq.	%	Freq.	%	Freq.	%
Master's degree	29	17.1	9	8.0	38	13.4
Certification	1	0.6	6	5.3	7	2.5
Specialist degree	0	0.0	1	0.9	1	0.4
Doctorate	4	2.4	3	2.7	7	2.5
Personal Enrich.	8	4.7	0	0.0	8	2.8

Analysis of Self-Perceived and Desired Career Stage of
 The Respondents and Respondent's Preferences for a
 Technical or Managerial Career Track

The second section of the survey instrument consisted of 11 multiple choice items. Five items dealt with the respondent's self-perceived current career stage; five items dealt with the respondent's desired career stage and one item dealt with the respondent's preference for pursuing either a technical career track or a managerial career track in his or her respective organization (see Appendix C).

Each multiple choice item contained four choices, each of which represented one of the career stages in the Four Stage Career Model (Dalton, Thompson and Price, 1977). For items 7, 8, 9, 10 and 11 the respondents were instructed to choose the one response which best described the general type of activities they performed in their current position. For items 12, 13, 14, 15 and 16 on the questionnaire sent to public school educators and items 12, 14, 15, 16 and 17 on the questionnaire sent to Federal Government engineers, the respondents were instructed to choose the one response which best described the general type of activities which the respondent desired to perform in a future position.

All respondents were presented with five different topic areas which addressed: the respondent's current and desired relationship with others with whom he or she worked the closest on the job; the respondent's current and desired level of authority and responsibility on the job; the respondent's perception of the way others perceived him or her on the job and how he or she would desire to be perceived on the job; and the respondent's current and desired position title. These topic areas are representative of activities, relationships or status one would normally associate with any position or job.

A "Career Stage Index" was then developed in order to accomplish the data analyses. The index was established in the following manner. Each question dealing with perceived current career stage (questions 7, 8, 9, 10 and 11 on both versions of the survey instrument) and desired career stage (questions 12, 13, 14, 15 and 16 on the public school educator's version of the survey instrument and questions 12, 14, 15, 16 and 17 on the Federal Government engineer's version of the survey instrument) had four possible responses. Each response was equivalent to an activity characteristic of one of four possible stages in the Four Stage Career Model (Dalton, Thompson and Price, 1977). The respondent was asked to choose one answer which best depicted his or her self-perceived current career stage and desired stage.

A response indicating a current or desired activity which was characteristic of a career stage 1 position received a point value of 1; a response indicating a current or desired activity which was characteristic of a career stage 2 position received a point value of 2; a response indicating a current or desired activity which was characteristic of a career stage 3 type position received a point value of 3, and a response indicating a current or desired activity which was characteristic of a career stage 4 type position received a point value of 4. The point

values for the questions dealing with the respondent's self-perceived current career stage were then totaled for each respondent. The resulting sum determined the current career stage for that respondent according to the index in Table 7. The point values for the questions dealing with the respondent's desired career stage were similarly totaled for each respondent. The respondent's desired career stage was also determined according to the index in Table 7.

Table 7 illustrates the range of points required for each current and desired career stage after totaling the respondent's answers to the questions pertaining to current career stage and those pertaining to desired career stage.

TABLE 7

CAREER INDEX POINT DISTRIBUTION FOR CURRENT
CAREER STAGE AND DESIRED CAREER STAGE

<u>Career Stage</u>	<u>Cumulative Point Value Range</u>
1	5-7
2	8-12
3	13-17
4	18-20

This cumulative point value system for determining the career stage index was used because, as Dalton and Thompson (1986a) maintain, an individual undertakes, at different points of time during the work day, various tasks and

responsibilities which are representative of one stage below or above his or her normal work duties. The career stage index accommodates for this variance in work activity by establishing a range of scores based upon cut-off scores which have a 40% variance above the straight numerical sum of career stage choices indicated by the respondent.

Research Question 1

Research Question 1 was designed to determine if there are any differences in the perceptions of current career stage between public school educators and Federal Government engineers. Table 8 illustrates the frequency and percentage of respondents within each category which were considered in the analysis.

TABLE 8
FREQUENCY OF RESPONDENTS BY OCCUPATION

Occupation	Frequency	Percent
Federal Govt. Engineers	170	60
Public School Educators	113	40

A Chi-square test was administered and the perceptions of public school educators and Federal Government engineers regarding current career stage were found to have differences at the .05 level of significance. There were 59% of all respondents, who perceived their major current

work activities as being characteristic of a career stage 2 (colleague) position. However, a larger percentage of public school educators than Federal Government engineers perceived themselves as currently working in a career stage 2 type of position (see Table 9). A histogram illustrating the respondents' self-perceptions of current career stage is presented in Appendix E, Figure 5.

TABLE 9

CHI-SQUARE TEST RESULTS
RESPONDENTS SELF-PERCEPTIONS OF CURRENT CAREER STAGE

Occupation	Stage 1	Stage 2	Stage 3	Stage 4	Total
Federal Govt. Engineers	28 16.5	82 48.2	54 31.8	6 3.5	170. 100.0
Public School Educators	7 6.2	85 75.2	8 7.1	13 11.5	113 100.0

n = 283

df = 3

p < .0000

$\chi^2 = 39.48303$

Research Question 2

Research Question 2 was designed to determine if there are differences in the perceptions of desired career stage between public school educators and Federal Government engineers. A Chi-square test was administered and the perceptions of public school educators and Federal Government engineers regarding desired career stage were found to be different at the .05 level of significance.

There were 44.5 percent of the total respondents who indicated a desire to work in a career stage 3 (mentor) position. A larger percentage of Federal Government engineers than public school educators indicated a desire to work in a position requiring mentor duties and responsibilities (career stage 3). A larger percentage of public school educators than Federal Government engineers indicated a desire to work in a career stage 2 (colleague) capacity (see Table 10). A histogram illustrating the respondents' reported desired future career stage is presented in Appendix E, Figure 6.

TABLE 10

CHI-SQUARE TEST RESULTS
RESPONDENTS DESIRED CAREER STAGE

Occupation	Stage 2	Stage 3	Stage 4	Total
Federal Govt. Engineers	42 24.7	96 56.5	32 18.8	170 100.0
Public School Educators	56 49.6	30 26.5	27 23.9	113 100.0

n = 283

df = 2

p < .0000

 $\chi^2 = 26.59342$

Research Question 3

Research Question 3 was designed to determine if there are differences in the perceptions of current career stages and desired career stages among public school educators and Federal Government engineers of different ages. Table 4 (page 87) illustrates the frequency and percentage of respondents within each age category who were considered in the data analysis. To provide an answer to this question, the frequency and percentage of the public school educators' and Federal Government engineers' responses relative to their self-perceived current career stages and their desired career stages were analyzed according to the age of the respondent.

When analyzed by perceived current career stage, the highest percentage of Federal Government engineers who perceived themselves as currently working in a stage 1 (apprentice) position were under the age of 25. The highest percentage of those engineers who perceived themselves as working in a stage 2 (colleague) position fell into the 25-34 year old and 35-44 year old age groups. Those engineers who perceived themselves as working in a stage 3 (mentor) position generally were the oldest as indicated by the majority of respondents falling into the 45-54 year old and 55 year old and over age groups.

The highest percentage of public school educators who perceived themselves as currently working in a stage 1 (apprentice) position also were under the age of twenty-five. However, the results indicated that the highest percentage of public school educators in all age groups over twenty-five years old perceived themselves to be working in a stage 2 (colleague) position. Figure 7 presents the number and percentage of responses to survey questions relating to perceived current career stage which were reported by the Federal Government engineers and public school educators. Histograms illustrating the results of the Federal Government engineers and public school educators current career stage perceptions analyzed by their age are presented in Appendix E, Figures 8, 9, 10 and 11.

When analyzed by desired stage of the respondent the highest percentage of Federal Government engineers who desired a stage 2 (colleague) position fell into the under 25 year old age group. The results indicated that the largest percentages of those engineers who indicated a desire to attain a stage 3 (mentor) position fell into the 25-34 year old, 35-44 year old, 45-54 year old and 55 years old and over age groups. However, a substantial percentage of engineers in both the 45-54 year old and 55 years old

TOTAL SAMPLE

		Current career stage				
AGE	1	2	3	4	Total	
<25	17	5	1	0	23	73.9%:21.7%:4.3%:0.0%:99.9%
25-34	15	60	8	0	83	18.0%:72.2%:9.6%:0.0%:99.8%
35-44	3	65	20	8	96	3.1%:67.7%:20.8%:8.3%:99.9%
45-54	0	27	20	8	55	0.0%:49.0%:36.6%:14.5%:100.1%
55&OVER	0	10	13	3	26	0.0%:38.4%:50.0%:11.5%:99.9%

FEDERAL GOVERNMENT ENGINEERS

		Current career stage				
AGE	1	2	3	4	Total	
<25	12	2	1	0	15	80.0%:13.3%:6.6%:0.0%:99.9%
25-34	13	35	8	0	56	23.2%:62.5%:14.2%:0.0%:99.9%
35-44	3	30	12	2	47	6.3%:63.8%:25.5%:4.2%:99.8%
45-54	0	10	20	3	33	0.0%:30.3%:60.6%:9.0%:99.9%
55&OVER	0	5	13	1	19	0.0%:26.3%:68.4%:5.2%:99.9%

PUBLIC SCHOOL EDUCATORS

		Current career stage				
AGE	1	2	3	4	Total	
<25	5	3	0	0	8	62.5%:37.5%:0.0%:0.0%:100.0%
25-34	2	25	0	0	27	7.4%:92.5%:0.0%:0.0%:99.9%
35-44	0	35	8	6	49	0.0%:71.4%:16.3%:12.2%:99.9%
45-54	0	17	0	5	22	0.0%:77.2%:0.0%:22.7%:99.9%
55&OVER	0	5	0	2	7	0.0%:71.4%:0.0%:28.5%:99.9%

Figure 7. Frequency and Percentage of Respondents Self-Perceived Current Career Stage - Analyzed by Age of the Respondent

and over age group indicated a desire to attain a stage four (sponsor) position.

The public school educators under 25 years of age were evenly split in their desires for a stage 2 (colleague) and stage 3 (mentor) position. The largest percentages of those educators who fell into the 25-34 year old, 35-44 year old, 45-54 year old and 55 years old and over age group indicated a desire to attain a stage 2 (colleague) position. However, a substantial percentage of educators in the 55 years old and over age group also indicated a desire to attain either a stage 3 (mentor) or a stage 4 (colleague) position.

Figure 12 presents the number and percentage of responses to survey questions relating to the desired career stage of the Federal Government engineers and public school educators. The responses are grouped according to the age of the respondent. Histograms illustrating the results of the Federal Government engineers' and public school educators' desired career stages analyzed by their age is presented in Appendix E, Figures 13, 14 and 15.

Research Question 4

Research Question 4 was designed to determine if there are differences in the perceptions of current career stage and desired career stage among public school educators and Federal Government engineers with various years of

TOTAL SAMPLE					
Desired career stage					
AGE	1	2	3	4	Total
<25	0	12	10	1	23
	0.0%	52.1%	43.4%	4.3%	99.8%
25-34	0	27	50	6	83
	0.0%	32.5%	60.2%	7.2%	99.9%
35-44	0	34	36	26	96
	0.0%	35.4%	37.5%	27.0%	99.9%
45-54	0	18	19	18	55
	0.0%	32.7%	34.5%	32.7%	99.9%
55&OVER	0	7	11	8	26
	0.0%	26.9%	42.3%	30.7%	99.9%

FEDERAL GOVERNMENT ENGINEERS					
Desired career stage					
AGE	1	2	3	4	Total
<25	0	8	6	1	15
	0.0%	53.3%	40.0%	6.6%	99.9%
25-34	0	14	40	2	56
	0.0%	25.0%	71.4%	3.5%	99.9%
35-44	0	12	24	11	47
	0.0%	25.5%	51.0%	23.4%	99.9%
45-54	0	4	17	12	33
	0.0%	12.1%	51.5%	36.3%	99.9%
55&OVER	0	4	9	6	19
	0.0%	21.0%	47.3%	31.5%	99.8%

PUBLIC SCHOOL EDUCATORS					
Desired career stage					
AGE	1	2	3	4	Total
<25	0	4	4	0	8
	0.0%	50.0%	50.0%	0.0%	100.0%
25-34	0	13	10	4	27
	0.0%	48.1%	37.0%	14.8%	99.9%
35-44	0	22	12	15	49
	0.0%	44.8%	24.4%	30.6%	99.8%
45-54	0	14	2	6	22
	0.0%	63.6%	9.0%	27.2%	99.8%
55&OVER	0	3	2	2	7
	0.0%	42.8%	28.5%	28.5%	99.8%

Figure 12. Frequency and Percentage of Respondents Desired Career Stage Analyzed by Age of the Respondent

experience. Data analysis were conducted on "years of experience in occupational field" and "years of experience in current position." Table 2 (page 84) and Table 3 (page 86) illustrates the frequency and percentage of respondents within each category who were considered in the data analysis.

When analyzed by "years of experience in occupational field" the highest percentage of Federal Government engineers with 0-5 years experience in their occupational field perceived themselves to be currently working in a stage 2 (colleague) position although a high percentage of respondents in this age group indicated they perceived themselves to be working in a stage 1 (apprentice) position. The highest percentage of engineers who perceived themselves to be working in a stage 2 (colleague) position reported they had 6-9 years experience in their occupational field, 10-14 years experience in their occupational field, or 15-19 years experience in their occupational field. However, a high percentage of those engineers with 10-14 years experience in their occupational field and 15-19 years experience in their occupational field indicated they perceived themselves to be currently working in a stage 3 (mentor) position. The largest percentage of engineers with 20 or more years experience in

their occupational field felt they were currently working in a stage 3 (mentor) position.

When analyzed by "years of experience in occupational field," the highest percentage of public school educators in all groups of "years of experience in occupational field" indicated that they perceived themselves as currently working in a stage 2 (colleague) position. However, a high percentage of educators with 15-19 years experience in their occupational field and 20 or more years experience in their occupational field indicated that they perceived themselves as currently working in a stage 4 (sponsor) position.

Figure 16 presents the number and percentage of responses to survey questions relating to perceived current career stage which were reported by the respondents. Histograms illustrating the results of the Federal Government engineers' and public school educators' perceived current career stages analyzed according to their years of experience in their occupational field are presented in Appendix E, Figures 17, 18, 19 and 20.

When analyzed by desired career stage of the respondent the highest percentage of Federal Government engineers in all groups of "years of experience in their occupational field" reported a desire to work in a career stage 3 (mentor) position within five years. However, a

YEARS :		TOTAL SAMPLE				
EXPERIENCE :						
OCCUPATION :		Current career stage				
FIELD :	1	2	3	4	Total	
0-5	32	46	4	0	82	
	39.0%	56.0%	4.8%	0.0%	99.8%	
6-9	2	28	8	0	38	
	5.2%	73.6%	21.0%	0.0%	99.8%	
10-14	0	34	10	0	44	
	0.0%	77.2%	22.7%	0.0%	99.9%	
15-19	1	23	7	7	38	
	2.6%	60.5%	18.4%	18.4%	99.9%	
20&OVER	0	36	33	12	81	
	0.0%	44.4%	40.7%	14.8%	99.9%	

YEARS :		FEDERAL GOVERNMENT ENGINEERS				
EXPERIENCE :						
OCCUPATION :		Current career stage				
FIELD :	1	2	3	4	Total	
0-5	25	29	4	0	58	
	43.1%	50.0%	6.8%	0.0%	99.9%	
6-9	2	16	7	0	25	
	8.0%	64.0%	28.0%	0.0%	100.0%	
10-14	0	8	6	0	14	
	0.0%	57.1%	42.8%	0.0%	99.9%	
15-19	1	9	5	1	16	
	6.2%	56.2%	31.2%	6.2%	99.8%	
20&OVER	0	20	32	5	57	
	0.0%	35.0%	56.1%	8.7%	99.8%	

YEARS :		PUBLIC SCHOOL EDUCATORS				
EXPERIENCE :						
OCCUPATION :		Current career stage				
FIELD :	1	2	3	4	Total	
0-5	7	17	0	0	24	
	29.1%	70.8%	0.0%	0.0%	99.9%	
6-9	0	12	1	0	13	
	0.0%	92.3%	7.6%	0.0%	99.9%	
10-14	0	26	4	0	30	
	0.0%	86.6%	13.3%	0.0%	99.9%	
15-19	0	14	2	6	22	
	0.0%	63.6%	9.0%	27.2%	99.8%	
20&OVER	0	16	1	7	24	
	0.0%	66.6%	4.1%	29.1%	99.8%	

Figure 16. Frequency and Percentage of Respondents Self-Perceived Current Career Stage - Analyzed by Years of Experience in Occupational Field

high percentage of engineers with 0-5 years experience in their occupational field indicated a desire to work in a stage 2 (colleague) position while a high percentage of engineers with 15-19 years experience in their occupational field and 20 or more years experience in their occupational field indicated a desire to attain a stage 4 (sponsor) position.

When analyzed by desired stage, the highest percentage of public school educators in all groups of "years of experience in their occupational field" reported a desire to work in a career stage 2 (colleague) position. However, a high percentage of educators with 0-5 years of experience in their occupational field, 6-9 years experience in their occupational field and 15-19 years experience in their occupational field indicated a desire to work in a stage 3 (mentor) position. The results also revealed that a high percentage of public school educators with 10-14 years experience in their occupational field, 15-19 years experience in their occupational field and 20 or more years experience in their occupational field reported that they had a desire to attain a career stage 4 (sponsor) position. Figure 21 presents the number and percentage of responses to survey questions relating to desired career stage which were reported by the respondents. Histograms illustrating the Federal

YEARS :	TOTAL SAMPLE				
EXPERIENCE :					
OCCUPATION :	Desired career stage				
FIELD :	1	2	3	4	Total
0-5	0	34	42	6	82
	0.0%	41.4%	51.2%	7.3%	99.9%
6-9	0	13	22	3	38
	0.0%	34.2%	57.8%	7.8%	99.8%
10-14	0	16	17	11	44
	0.0%	36.3%	38.6%	25.0%	99.9%
15-19	0	11	15	12	38
	0.0%	28.9%	39.4%	31.5%	99.8%
20&OVER	0	24	30	27	81
	0.0%	29.6%	37.0%	33.3%	99.9%

YEARS :	FEDERAL GOVERNMENT ENGINEERS				
EXPERIENCE :					
OCCUPATION :	Desired career stage				
FIELD :	1	2	3	4	Total
0-5	0	20	33	5	58
	0.0%	34.4%	56.8%	8.6%	99.8%
6-9	0	7	17	1	25
	0.0%	28.0%	68.0%	4.0%	100.0%
10-14	0	2	10	2	14
	0.0%	14.2%	71.4%	14.2%	99.8%
15-19	0	3	8	5	16
	0.0%	18.7%	50.0%	31.2%	99.9%
20&OVER	0	10	28	19	57
	0.0%	17.5%	49.1%	33.3%	99.9%

YEARS :	PUBLIC SCHOOL EDUCATORS				
EXPERIENCE :					
OCCUPATION :	Desired career stage				
FIELD :	1	2	3	4	Total
0-5	0	14	9	1	24
	0.0%	58.3%	37.5%	4.1%	99.9%
6-9	0	6	5	2	13
	0.0%	46.1%	38.4%	15.3%	99.8%
10-14	0	14	7	9	30
	0.0%	46.6%	23.3%	30.0%	99.9%
15-19	0	8	7	7	22
	0.0%	36.3%	31.8%	31.8%	99.9%
20&OVER	0	14	2	8	24
	0.0%	58.3%	8.3%	33.3%	99.9%

Figure 21: Frequency and Percentage of Respondents Desired Career Stage - Analyzed by Years Of Experience in Occupational Field

Government engineers' and public school educators' desired career stages analyzed by their years of experience in their occupational field are presented in Appendix E, figures 22, 23 and 24.

When analyzed by "years of experience in current position" the highest percentage of Federal Government engineers with 0-5 years experience in their current position, 6-9 years experience in their current position and 10-14 years experience in their current position indicated they perceived themselves to be working in a stage 2 (colleague) position. The highest percentage of engineers with 15-19 years experience in their current position indicated they perceived themselves to be working in a stage 3 (mentor) position. Responses from the Federal Government engineers with 20 or more years experience in their current position were evenly split in their perceptions of current career stage with one-half indicating that they perceived themselves as currently working in a stage 2 (colleague) position and one-half indicating that they perceived themselves as currently working in a stage 3 (mentor) position.

When analyzing the public school educators by "years of experience in current position" the results indicated that the highest percentage in all groups of "years of

experience in current position" perceived themselves as currently working in a stage 2 (colleague) position. Figure 25 presents the number and percentage of responses to survey questions relating to perceived current career stage which were reported by the respondents. Histograms illustrating the results of the Federal Government engineers' and public school educators' perceived current career stage analyzed by years of experience in their current position are presented in Appendix E, figures 26, 27, 28, and 29.

When analyzed by desired career stage, the highest percentage of Federal Government engineers in all groups of "years of experience in their current position" reported a desire to work in a career stage 3 (mentor) position.

When analyzed by desired career stage, the highest percentage of public school educators with 0-5 years of experience in their current position, 6-9 years of experience in their current position, 15-19 years of experience in their current position and 20 or more years of experience in their current position reported a desire to work in a career stage 2 (colleague) position. There was a bimodal distribution of educators with 10-14 years experience in their current position. Forty-two percent of the educators indicated a desire to attain a career stage 2

YEARS : EXPERIENCE:	TOTAL SAMPLE				
	CURRENT: Current career stage				
	POSITION: 1	2	3	4	Total
0-5	35	104	37	9	185
	18.9%	56.2%	20.0%	4.8%	99.9%
6-9	0	23	9	4	36
	0.0%	63.8%	25.0%	11.1%	99.9%
10-14	0	20	6	3	29
	0.0%	68.9%	20.6%	10.3%	99.8%
15-19	0	11	6	3	20
	0.0%	55.0%	30.0%	15.0%	100.0%
20&OVER	0	9	4	0	13
	0.0%	69.2%	30.7%	0.0%	99.9%

YEARS : EXPERIENCE:	FEDERAL GOVERNMENT ENGINEERS				
	CURRENT: Current career stage				
	POSITION: 1	2	3	4	Total
0-5	28	60	35	6	129
	21.7%	46.5%	27.1%	4.6%	99.9%
6-9	0	11	8	0	19
	0.0%	57.8%	42.1%	0.0%	99.9%
10-14	0	6	4	0	10
	0.0%	60.0%	40.0%	0.0%	100.0%
15-19	0	1	3	0	4
	0.0%	25.0%	75.0%	0.0%	100.0%
20&OVER	0	4	4	0	8
	0.0%	50.0%	50.0%	0.0%	100.0%

YEARS : EXPERIENCE:	PUBLIC SCHOOL EDUCATORS				
	CURRENT: Current career stage				
	POSITION: 1	2	3	4	Total
0-5	7	44	2	3	56
	12.5%	78.5%	3.5%	5.3%	99.8%
6-9	0	12	1	4	17
	0.0%	70.5%	5.8%	23.5%	99.8%
10-14	0	14	2	3	19
	0.0%	73.6%	10.5%	15.7%	99.8%
15-19	0	10	3	3	16
	0.0%	62.5%	18.7%	18.7%	99.9%
20&OVER	0	5	0	0	5
	0.0%	99.9%	0.0%	0.0%	99.9%

Figure 25. Frequency and Percentage of Respondents Self-Perceived Current Career Stage - Analyzed by Years of Experience in Current Position

(colleague) position and forty-two percent indicated a desire to attain career stage 4 (sponsor) position. Figure 30 presents the number and percentage of responses to survey questions relating to desired career stage which were reported by the respondents. Histograms illustrating the results of the Federal Government engineers' and public school educators' desired career stages analyzed by their years of experience in their current position are presented in Appendix E, figures 31, 32, and 33.

YEARS :	TOTAL SAMPLE				
	EXPERIENCE:				
CURRENT:	Desired career stage				Total
POSITION:	1	2	3	4	
0-5	0	62	86	37	185
	0.0%	33.5%	46.4%	20.0%	99.9%
6-9	0	14	14	8	36
	0.0%	38.8%	38.8%	22.2%	99.8%
10-14	0	9	11	9	29
	0.0%	31.0%	37.9%	31.0%	99.9%
15-19	0	8	8	4	20
	0.0%	40.0%	40.0%	20.0%	100.0%
20&OVER	0	5	7	1	13
	0.0%	38.4%	53.8%	7.6%	99.8%

YEARS :	FEDERAL GOVERNMENT ENGINEERS				
	EXPERIENCE:				
CURRENT:	Desired career stage				Total
POSITION:	1	2	3	4	
0-5	0	34	68	27	129
	0.0%	26.3%	52.7%	20.9%	99.9%
6-9	0	5	11	3	19
	0.0%	26.3%	57.8%	15.7%	99.8%
10-14	0	1	8	1	10
	0.0%	10.0%	80.0%	10.0%	100.0%
15-19	0	0	3	1	4
	0.0%	0.0%	75.0%	25.0%	100.0%
20&OVER	0	2	6	0	8
	0.0%	25.0%	75.0%	0.0%	100.0%

YEARS :	PUBLIC SCHOOL EDUCATORS				
	EXPERIENCE:				
CURRENT:	Desired career stage				Total
POSITION:	1	2	3	4	
0-5	0	28	18	10	56
	0.0%	50.0%	32.1%	17.8%	99.9%
6-9	0	9	3	5	17
	0.0%	52.9%	17.6%	29.4%	99.9%
10-14	0	8	3	8	19
	0.0%	42.1%	15.7%	42.1%	99.9%
15-19	0	8	5	3	16
	0.0%	50.0%	31.2%	18.7%	99.9%
20&OVER	0	3	1	1	5
	0.0%	60.0%	20.0%	20.0%	100.0%

Figure 30. Frequency and Percentage of Respondents Desired Career Stage - Analyzed by Years Of Experience in Current Position

Research Question 5

Research Question 5 was designed to determine if there are differences in the perceptions of current career stage and desired career stage among public school educators and Federal Government engineers whose highest college degree is a bachelor's degree, a master's degree, a specialist degree or a doctorate degree. Table 11, illustrates the frequency and percentage of respondents within each category who were considered in the original data analysis.

TABLE 11

FREQUENCY OF RESPONDENTS BY HIGHEST
DEGREE HELD ORIGINAL DATA ANALYSIS

Highest Degree Held	Federal Govt. Engineers		Public School Education		Total (a)	
	Freq.	%	Freq.	%	Freq.	%
Bachelor's degree	92	54.1	52	46.0%	144	50.9
Bachelor's degree plus	21	12.4	1	.9%	22	7.8
Master's degree	38	22.4	45	39.8%	83	29.3
Master's degree plus	9	5.3	3	2.7%	12	4.2
Specialist	8	4.7	8	7.1%	16	5.7
Doctorate degree	2	1.3	4	3.5%	6	2.1

(a) Nine respondents, or 3% of the total sample, did not give background information on the degrees they held, current career stage, desired career stage or provided contradictory information on education and were not included in the data analysis.

Due to the low frequency count that was received, the six groups in Table 11 were combined to form three new groups. The first group, was called the "bachelor's degree" group, and included any respondent who reported that they had taken graduate course work above a bachelor's

degree but did not earn a master's degree. The second group consisted of those respondents who reported that they had earned a master's degree. The third group consisted of those respondents who reported that they had taken graduate courses above the master's degree. This group also included those respondents who had earned a specialist degree or a doctorate degree. Table 12 shows the frequency and percentage of respondents in the three groups used for the second data analysis.

TABLE 12

FREQUENCY OF RESPONDENTS BY HIGHEST
DEGREE HELD SECOND DATA ANALYSIS

Highest Degree Held	Federal Govt. Engineers		Public School Education		Total	
	Freq.	%	Freq.	%	Freq.	%
Bachelor's degree	113	66.5	53	46.9%	166	58.7
Master's degree	38	22.4	45	39.8%	83	29.3
Master's degree plus	19	11.2	15	13.3	34	12.0

When analyzed by perceived current career stage, the highest percentage of Federal Government engineers who held either a bachelor's or master's degree reported that they perceived themselves as currently working in a career stage

2 (colleague) position. However, a high percentage of those engineers who held master's degrees reported that they perceived themselves as currently working in a stage 3 (mentor) position. Engineers who were in the master's plus group were evenly split in their perceptions of working in a career stage 2 or 3 position. Thirty-seven percent indicated that they perceived themselves as currently working in a stage 2 (colleague) position and thirty-seven percent perceived themselves as currently working in a stage 3 (mentor) position.

When analyzed by perceived current career stage, the highest percentage of public school educators who held either a bachelor's or master's degree reported that they perceived themselves as currently working in a career stage 2 (colleague) position. The highest percentage of those educators who fell in the master's plus group perceived themselves as currently working in a career stage 4 (sponsor) position, although a high percentage of educators in the master's plus group perceived themselves as currently working in a career stage 2 (colleague) position. Figure 34 presents the number and percentage of responses to survey questions relating to perceived current career stage reported by the respondents. Histograms illustrating the results of the Federal Government engineers' and public school educators' current career stage perceptions analyzed

TOTAL SAMPLE

EDUCATION LEVEL	Current career stage				Total
	1	2	3	4	
BACHELORS	32	97	34	3	166
	19.2%	58.4%	20.4%	1.8%	99.8%
MASTERS	0	57	20	6	83
	0.0%	68.6%	24.0%	7.2%	99.8%
MASTERS+	3	13	8	10	34
	8.8%	38.2%	23.5%	29.4%	99.9%

FEDERAL GOVERNMENT ENGINEERS

EDUCATION LEVEL	Current career stage				Total
	1	2	3	4	
BACHELORS	25	54	31	3	113
	22.1%	47.7%	27.4%	2.6%	99.8%
MASTERS	0	21	16	1	38
	0.0%	55.2%	42.1%	2.6%	99.9%
MASTERS+	3	7	7	2	19
	15.7%	36.8%	36.8%	10.5%	99.8%

PUBLIC SCHOOL EDUCATORS

EDUCATION LEVEL	Current career stage				Total
	1	2	3	4	
BACHELORS	7	43	3	0	53
	13.2%	81.1%	5.6%	0.0%	99.9%
MASTERS	0	36	4	5	45
	0.0%	80.0%	8.8%	11.1%	99.9%
MASTERS+	0	6	1	8	15
	0.0%	40.0%	6.6%	53.3%	99.9%

Figure 34. Frequency and Percentage of Respondents Self-Perceived Current Career Stage - Analyzed by Highest Degree Held by the Respondent

by their highest degree held are presented in Appendix E, figures 35, 36, 37, and 38.

When analyzed by desired career stage, the highest percentage of Federal Government engineers, in the bachelor's, master's and master's plus groups indicated a desire to attain a career stage 3 (mentor) position in five years. A high percentage of engineers in the master's plus group indicated a desire to attain a career stage 4 (sponsor) position.

When analyzed by desired career stage, the highest percentage of public school educators in the bachelor's and master's group indicated a desire to work a career stage 2 (colleague) position although a high percentage of those with a master's degree indicated that they desired a career stage 3 (mentor) position. The highest percentage of those educators in the master's plus group indicated a desire to attain a career stage 4 (sponsor) position. Figure 39 presents the number and percentage of responses to survey questions relating to desired career stage reported by the respondents. Histograms illustrating the results of the Federal Government engineers' and public school educators' desired career stages analyzed by their highest degree held are presented in Appendix E, figures 40, 41, and 42.

TOTAL SAMPLE					
EDUCATION:	Desired career stage				
LEVEL	1	2	3	4	Total
BACHELORS:	0	65	80	21	166
	0.0%	39.1%	48.1%	12.6%	99.8%
MASTERS	0	28	35	20	83
	0.0%	33.7%	42.1%	24.0%	99.8%
MASTERS+	0	5	11	18	34
	0.0%	14.7%	32.3%	52.9%	99.9%

FEDERAL GOVERNMENT ENGINEERS					
EDUCATION:	Desired career stage				
LEVEL	1	2	3	4	Total
BACHELORS:	0	28	68	17	113
	0.0%	24.7%	60.1%	15.0%	99.8%
MASTERS	0	9	20	9	38
	0.0%	23.6%	52.6%	23.6%	99.8%
MASTERS+	0	5	8	6	19
	0.0%	26.3%	42.1%	31.5%	99.9%

PUBLIC SCHOOL EDUCATORS					
EDUCATION:	Desired career stage				
LEVEL	1	2	3	4	Total
BACHELORS:	0	37	12	4	53
	0.0%	69.6%	22.6%	7.5%	99.7%
MASTERS	0	19	15	11	45
	0.0%	42.2%	33.3%	24.4%	99.9%
MASTERS+	0	0	3	12	15
	0.0%	0.0%	20.0%	80.0%	100.0%

Figure 39. Frequency and Percentage of Respondents Desired Career Stage - Analyzed by Highest Degree Held by the Respondent

Research Question 6

Research Question 6 was designed to determine if there are differences with respect for preference toward a technical career track or a managerial career track among public school educators and Federal Government engineers. Table 13 illustrates the frequency and percentage of respondents within each category who were considered in the data analysis.

TABLE 13

FREQUENCY OF RESPONDENTS PREFERENCE FOR A
TECHNICAL CAREER TRACK OR A
MANAGERIAL CAREER TRACK

Preference For:	Federal Government Eng.		Public School Educ.		Totals	
	Freq.	%	Freq.	%	Freq.	%
Technical Career Track	102	60.0	76	67.2	178	62.9
Managerial Career Track	68	40.0	37	32.8	105	37.1

There were two separate subgroups which were used in this analysis. The subgroups were: (1) Federal Government engineers and public school educators who indicated a preference to pursue a technical career track in their organizations, and (2) Federal Government engineers and public school educators who indicated a preference to pursue a managerial career track in their organizations. A Chi-square test was administered using "career track preference" as a dependent variable. The perceptions and

desires of Federal Government engineers and public school educators who indicated a preference to pursue a technical career track or a managerial career track were found to have differences at the .05 level of significance.

Respondents who perceived themselves as currently working in a career stage 1 (apprentice) or career stage 2 (colleague) position indicated a preference for pursuing a technical career track. Respondents who perceived themselves in a position which already includes some managerial duties and responsibilities (career stages 3 and 4) indicated a preference for pursuing a managerial career track (see Table 14 and Appendix E, figures 43 and 44). Histograms illustrating the responses of the Federal Government engineers and public school educators who comprised the technical career track group and the Federal Government engineers and public school educators who comprised the managerial career track group analyzed by perceived current career stage are presented in Appendix E, figures 43 and 44.

TABLE 14
 CHI-SQUARE TEST RESULTS-TOTAL RESPONDENTS
 CAREER TRACK PREFERENCES
 ANALYZED BY PERCEIVED CURRENT
 CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical Career Track	24 13.5	124 69.7	30 16.9	0 0.0	178 62.8
Managerial Career Track	11 10.5	43 41.0	32 30.5	19 18.1	105 37.2

n = 283

df = 3

p < .0000

$\chi^2 = 47.51146$

When analyzed according to desired career stage, a higher percentage of total respondents who indicated a desire to work in a career stage 2 (colleague) position reported a preference for a technical career track. A higher percentage of total respondents who indicated a desire to work in a career stage 4 (sponsor) position reported a preference for a managerial career track. The percentage of respondents who indicated a desire to attain a career stage 3 (mentor) position were equally mixed between a preference to pursue a technical career track and a managerial career track, (see Table 15 and Appendix E, figures 45 and 46).

TABLE 15
 CHI-SQUARE TEST RESULTS
 TOTAL RESPONDENTS' CAREER TRACK PREFERENCES
 ANALYZED BY DESIRED CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical Career Track	0 0.0	92 51.7	81 45.5	5 2.8	178 62.9
Managerial Career Track	0 0.0	6 5.7	45 42.9	54 51.4	105 37.1

n = 283

df = 2

p < .0000

$\chi^2 = 115.29092$

When further analyzing the engineers and educators who comprised the technical career track group and the managerial career track group it was found that a higher percentage of Federal Government engineers who perceived themselves as currently working in a career stage 1 or 2 position indicated a preference for continuing in a technical career track. A higher percentage of those engineers who perceived themselves in a position which includes some managerial duties and responsibilities (career stage 3 or 4) indicated a preference for a managerial career track (see Table 16 and Appendix E, figures 43 and 44).

TABLE 16
 CHI-SQUARE TEST RESULTS
 FEDERAL GOVERNMENT ENGINEERS CAREER TRACK PREFERENCES
 ANALYZED BY PERCEIVED CURRENT CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical Career Track	19 18.6	59 57.8	24 23.5	0 0.0	102 100.0
Managerial Career Track	9 13.2	23 33.8	30 44.1	6 8.8	68 100.0

n = 170

df = 3

p < .0002

$\chi^2 = 20.04476$

A higher percentage of Federal Government engineers who indicated a desire to attain a career stage 2 (colleague) position reported a desire to pursue a technical career track. Expressed as a percentage those engineers who indicated a desire to attain a career stage 4 (sponsor) position reported a desire to pursue a managerial career track. Engineers who aspired to a career stage 3 (mentor) position were mixed with respect to career track preference although the results indicated that a higher percentage of the engineering respondents who aspired to this stage had a desire to pursue the technical career track (see Table 17 and Appendix E, figures 45 and 46).

TABLE 17
 CHI-SQUARE TEST RESULTS
 FEDERAL GOVERNMENT ENGINEERS CAREER TRACK PREFERENCES
 ANALYZED BY DESIRED CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical Career Track	0 0.0	38 37.3	62 60.8	2 2.0	102 60.0
Managerial Career Track	0 0.0	4 5.9	34 50.0	30 44.1	68 40.0

n = 170

df = 2

p < .0000

$\chi^2 = 55.61508$

The highest percentage of public school educators who perceived themselves as currently working in a career stage 1, 2 or 3 position indicated a preference for a technical career track. A higher percentage of those who perceived themselves in a career stage 4 (sponsor) position, reported their preferences as toward a managerial career ladder (see Table 18 and Appendix E, figures 43 and 44).

TABLE 18
 CHI-SQUARE TEST RESULTS
 PUBLIC SCHOOL EDUCATORS CAREER TRACK PREFERENCES
 ANALYZED BY PERCEIVED CURRENT CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical	5	65	6	0	76
Career Track	6.6	85.5	7.9	0.0	67.3
Managerial	2	20	2	13	37
Career Track	5.4	54.1	5.4	35.1	32.7

n = 113

df = 3

p < .0000

$\chi^2 = 30.25266$

A higher percentage of public school educators who indicated a desire to attain a career stage 2 (colleague) position reported a desire to pursue a technical career track. A higher percentage of those educators who indicated a desire to attain a career stage 4 (sponsor) position reported a desire to pursue a managerial career track. The results obtained from public school educators who desired stage 1, 2 or 4 position were similar to the results obtained for the Federal Government engineers. However, the results indicated that a slightly higher percentage of educators who aspired to a career stage 3 (mentor) position, reported a desire to pursue the managerial career track rather than the technical career

track as was reported by the Federal Government engineers (see Table 19 and Appendix E, figures 45 and 46).

TABLE 19

CHI-SQUARE TEST RESULTS
PUBLIC SCHOOL EDUCATORS CAREER TRACK PREFERENCES
ANALYZED BY DESIRED CAREER STAGE

Preference for	Stage 1	Stage 2	Stage 3	Stage 4	Total
Technical Career Track	0 0.0	54 71.7	19 25.0	3 3.9	76 67.3
Managerial Career Track	0 0.0	2 5.4	11 29.7	24 64.9	37 32.7

n = 113

df = 2

p < .0000

$\chi^2 = 60.49859$

CHAPTER V

SUMMARY

This chapter includes a summary of the study and presents the conclusions which were drawn. Recommendations for the practitioner and the researcher are also provided.

Restatement of the Purpose of the Study

The purpose of this study was to investigate the perceptions of public school educators and Federal Government engineers in the Central Florida area in order to determine their self-perceived current and desired career stages. The influences of age, education, and tenure variables on these perceptions, and the employee's preference for either a technical or managerial career track in their organizations were also explained.

Background of the Study

A review of the literature indicated that educators in the public schools and engineers in the Federal Government are experiencing problems with motivation and retention on the job (Career Ladders in Utah, 1980; Education, 1986; Freiberg, 1985; Frisch, 1984; Hansen, 1985; Schlechty, Joslin, Leak and Hayes, 1985). While the populations of educators and engineers are different in terms of technical subject matter specialty and remuneration for services,

they share an important similarity in their career development paths within their respective organizations. Classroom teachers prepare for their teaching careers by majoring in a specialty area of education while in college. Similarly, engineers prepare themselves for their engineering careers by completing the degree requirements for a particular engineering specialty. However, in order to obtain economically significant promotions in their organizations, these educators and engineers must leave their selected careers and enter into other areas. Teachers must give up the classroom in favor of educational administration while engineers must vacate their specialized technical positions and move into the engineering management ranks. Making a choice between pursuing a career as a technical specialist or transitioning into management often creates confusion and ambivalence in many professionals in today's workforce.

The intention of this study was to determine the self-perceived current and desired career stages, as well as the technical or managerial career track preferences of Federal Government engineers and public school educators even though they experience similar motivation and retention problems in their organizations.

The study addressed the following research questions:

1. Are there differences in the perceptions of current career stage between public school educators and Federal Government engineers?
2. Are there differences in the perceptions of desired career stage between public school educators and Federal Government engineers?
3. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers of different ages?
4. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers with various years of experience?
5. Are there differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers whose highest college degree is a bachelor's degree, a master's degree, a specialist degree or a doctorate degree?

6. Are there differences with respect to preference for a technical career track or a managerial career track between public school educators and Federal Government engineers?

Methodology of the Study

The study was conducted using a proportional stratified systematic sample of public school educators in Orange County, Florida, and a total population sample of Federal Government engineers at the Naval Training Systems Center, Orlando, Florida. A total of 283 useable surveys were returned, a return rate of 47.5 percent. The public school educators returned 113 useable surveys (return rate of 37.6 percent) and the Federal Government engineers returned 170 surveys (return rate of 57.4 percent).

The descriptive study utilized a survey instrument that allowed respondents to indicate their self-perceived current career stage, their desired career stage and their preference for pursuing either a technical career track or a managerial career track in their respective organizations. The instrument also had an area to collect demographic data regarding the subjects.

Descriptive statistical techniques, to include frequency distributions, cross tabulations and Chi-square tests were used to analyze the data. The statistical procedures used SPSS/PC+ and SCSS computer programs.

Study Synopsis

Research Question 1

The first research question was designed to determine if there are any differences in the perceptions of current career stage between public school educators and Federal Government engineers. A Chi-square test was performed and the results indicated that the reported self-perceptions of public school educators and Federal Government engineers varied significantly ($p > .05$) on their perception of current career stage in their respective organizations.

The results indicated that 59% of all respondents reported that they perceived themselves as currently working in a career stage 2 (colleague) position. A greater percentage of public school educators (75.2) than Federal Government engineers (48.2) perceived their current position as being characteristic of a stage 2 activity (see Table 9).

Research Question 2

The second research question was designed to determine if there are any differences in the perceptions of desired career stage between public school educators and Federal Government engineers. A Chi-square test was performed and the results indicated that the responses of public school educators and Federal Government engineers varied significantly ($p > .05$) on their desired career stage.

The results indicated that a greater number of public school educators (49.6%) than Federal Government engineers (24.7%) desired to be working in a career stage 2 (colleague) capacity in five years. A greater number of Federal Government engineers (56.5%) than public school educators (26.5%) indicated a desire to be working in a career stage 3 (mentor) capacity in five years (see Table 10).

Research Question 3

Question 3 was designed to determine if there are differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers of different ages. When analyzed by perceived current career stage utilizing descriptive statistics, it was found that the highest percentage of Federal Government engineers under 25 years old (80%) perceived themselves as currently working in a career stage 1 (apprentice) position. As the engineers grew older (25-34 years old and 35-44 years old age groups) they perceived themselves as currently working in a career stage 2 (colleague) position reporting percentages of 63 and 64 respectively. The oldest engineers (45-54 years old and 55 years old and over age groups) indicated that they perceived themselves as currently working in a career stage

3 (mentor) position reporting percentages of 61 and 68 respectively.

The highest percentage of public school educators who were under 25 years of age (63%) indicated that they perceived themselves as working in a career stage 1 (apprentice) position. All other age groups of public school educators indicated that they perceived themselves as working in a career stage 2 (colleague) position.

When analyzed by desired stage, the highest percentage of Federal Government engineers who were under 25 years old (53%) indicated a desire to work in a career stage 2 (colleague) position. The highest percentage of engineers in all other age groups reported a desire to attain a career stage 3 (mentor) position although a high percentage (31.5%) of those in the 55 years old and older age group indicated a desire to attain a career stage 4 (sponsor) position.

Public school educators who were under age 25 were evenly split (50%) in their desires for a career stage 2 (colleague) and a career stage 3 (mentor) position. The highest percentage of educators in all other age groups reported a desire to attain a career stage 2 (colleague) position.

Research Question 4

Research Question 4 was designed to determine if there are differences in the perceptions of current career stage and desired career stage between public school educators and Federal Government engineers with various years of experience.

Data analysis for this question were conducted on "years of experience in occupational field" and "years of experience in current position" utilizing descriptive statistics.

When analyzed by "years of experience in occupational field," Federal Government engineers with 0-5 years experience in their occupational field (50%); 6-9 years experience in their occupational field (64%); 10-14 years experience in their occupational field (57.1%); and 15-19 years experience in their occupational field (56.2%) indicated that they perceived themselves as working in a career stage 2 (colleague) position when the survey was administered. Engineers with 20 or more years experience in their occupational field (56.1%) reported that they perceived themselves as working in a career stage 3 (mentor) position.

The highest percentage of public school educators in all groups of "years of experience in occupational field" responded that they perceived themselves as working in a

career stage 2 (colleague) position. However, a high percentage of educators with 15-19 years experience in their occupational field (27.2%) and 20 or more years of experience in their occupational field (29.2%) indicated that they perceived themselves as currently working in a career stage 4 (sponsor) position.

When analyzed by years of experience in current position, the highest percentage of Federal Government engineers in all groups of "years of experience in their current position" reported a desire to work in a career stage 3 (mentor) position. However, a large percentage of engineers with 15-19 years experience in their current position (25%) indicated they had a desire to work in a career stage 3 (mentor) position while those engineers with 20 or more years experience in their current position (25%) indicated a desire to attain a career stage 2 (colleague) position.

Public school educators were similar to Federal Government engineers in their desire for a career stage position. All groups of "years of experience in their current position" reported a desire to work in a career stage 2 (colleague) position. However, a large percentage of educators with 0-5 years experience in their current position (32.1%), 6-9 years experience in their current position (17.6%), and 15-19 years experience in their

current position (31.2%), indicated a desire to attain a stage 3 (mentor) position.

Research Question 5

Research Question 5 was designed to determine if there are differences in the perceptions of current career stage and desired career stage among public school educators and Federal Government engineers whose highest college degree is a bachelor's degree, a master's degree, a specialist degree or a doctorate degree. The original data analysis produced a low number of respondents who possessed a specialist or doctorate degree, therefore, the bachelor's degree group, master's degree group, specialist degree group and doctorate degree groups were combined to form three new groups: a bachelor's degree group; a master's degree group and a master's degree plus group.

When analyzed by perceived current career stage utilizing descriptive statistics, it was found that the highest percentage of Federal Government engineers who held either a bachelor's degree (47.7%) or master's degree (55.2%) perceived themselves as currently working in a career stage 2 (colleague) position. The highest percentage of engineers who fell into the master's plus group (36.8%) indicated that they perceived themselves as currently working in a career stage 3 (mentor) position.

The highest percentage of public school educators who held either a bachelor's degree (81.1%) or master's degree (80.0%) reported that they perceived themselves as currently working in a career stage 2 (colleague) position. The highest percentage of public school educators who fell into the master's plus group (53.3%) perceived themselves as currently working in a career stage 4 (sponsor) position although a high percentage of this master's plus group (40.0%) indicated they perceived themselves as currently working in a career stage 2 (colleague) position.

When analyzed by desired career stage, Federal Government engineers in all education categories indicated that they had a desire to attain a career stage 3 (mentor) position in five years. However, a high percentage of those engineers who fell into the master's plus group (31.5%) indicated that they have a desire to attain a career stage 4 (sponsor) position.

The highest percentage of public school educators who hold a bachelor's degree (69.6%) or master's degree (42.2%) indicated a desire to stay or work in a career stage 2 (colleague) position. However, a high percentage of public school educators who held a master's degree (33.3%) indicated they desired a career stage 3 (mentor) position.

The majority of those educators who fell into the master's plus group (80.0%) indicated a desire to attain a career stage 4 (sponsor) position.

Research Question 6

Research Question 6 was designed to determine if there were any differences with respect for preference toward a technical career track or a managerial career track between public school educators and Federal Government engineers. Responses to these questions were divided into two data sets: (1) preferences among Federal Government engineers and public school educators for a technical career track and (2) preferences among Federal Government engineers and public school educators for a managerial career track. A Chi-square test was performed and the results indicated that the educators and engineers varied significantly ($p > .05$) with respect to preference for a technical or managerial career track.

When analyzed by current career stage, a higher percentage of total respondents who perceived themselves as working in a career stage 1 (13.5%) or career stage 2 (69.7%) position, when the survey was administered, indicated a preference for pursuing the technical career track. A higher percentage of total respondents who perceived themselves as working in a career stage 3 (30.5%) or career stage 4 (18.1%) position when the survey

was administered, indicated a preference for pursuing the managerial career track (see Table 14).

When analyzed by desired career stage a higher percentage of total respondents who desired to work in a career stage 2 position (51.7%), indicated a preference for the technical career track. A higher percentage (51.4%) of total respondents who desired to work in a career stage 4 position, indicated a preference to pursue the managerial career track. There was slight variability in the preference for a technical (45.5%) or managerial (42.9%) career track among those total respondents who indicated a desire to occupy a career stage 3 (mentor) position in five years.

When analyzing the Federal Government engineers by current perceived career stage, it was found that those who perceived themselves as working in a career stage 1 (18.6%) or career stage 2 (57.8%) position, indicated a desire to pursue a technical career track. Federal Government engineers who perceived themselves as holding a position with some management responsibilities (career stage 3 or 4), indicated a desire to pursue a managerial career track.

A high percentage (37.3%) of Federal Government engineers who desired a career stage 2 position indicated a preference for the technical career track. A higher

percentage (94.1%) of those who desired to work in a career stage, 3 (mentor) or 4 (sponsor) position, indicated a desire to pursue the management career track.

All public school educators who indicated a preference for a technical career track perceived themselves as working in a career stage 1, 2, or 3 position when the survey was administered. The highest percentage (54.1) of those who indicated a preference for a managerial career track indicated they perceived themselves as working in a career stage 2 (colleague) position when the survey was administered (see Table 18).

The highest percentage (71.7%) of public school educators who indicated a desire to pursue a technical career track reported that they were currently working in a career stage 2 (colleague) position. A higher percentage (94.6%) of those who indicated a desire to work in a managerial career track indicated they were already working in a career stage 3 (mentor) or 4 (sponsor) position (see Table 19).

Study Conclusions

Research Question 1

Research Question 1 referred to the self-perceptions of current career stages between public school educators and Federal Government engineers. A greater number of Federal Government engineers than public school educators

perceived themselves as working in the apprentice stage. Public school educators may perceive their student teaching internship as their apprentice stage. When educators accept a job in the public school system they are usually assigned a class to teach. Their responsibilities for the conduct of that class are very similar to other tenured teachers in the school. Perhaps this causes them to view themselves as colleagues to other teachers in the organization in a relatively short period of time after initial employment. These findings are consistent with the literature on beginning teachers.

Engineers, upon accepting their first job, are often given initial assignments which consist of small parts of larger projects. According to the literature, these initial assignments are characteristic of responsibilities and duties in an apprentice position.

A greater number of Federal Government engineers than public school educators perceived themselves as working in a mentor (career stage 3) capacity. Due to the nature of project work, Federal Government engineers may have more opportunities than public school educators to act as mentors to novice employees entering into the organization. Although the literature indicates that educators informally act as mentors to newly hired teachers, the teachers in the public schools are normally relegated to duties and

responsibilities within their individual classrooms. This impedes their opportunities to work in a mentor (stage 3) capacity.

A greater percentage of public school educators than Federal Government engineers perceived themselves as currently working in an executive-sponsor (career stage 4) capacity. Educators who perceived themselves as currently working in stage 4 all had some type of "executive title" such as vice-principal or principal. This may have had an influence upon their perceptions about their current stage. Federal Government engineers are normally not given any such title. In addition, due to the loose-coupling (Weick, 1976) inherent in the educational organizational structure, individuals in vice-principal or principal positions have a greater influence than do Federal Government engineers upon the daily operations of their organizations. This may be construed as having an influence upon shaping the direction of the organization which is a primary characteristic of stage 4. Due to the restrictions and regulations inherent in the government bureaucracy, Federal Government engineers, by the nature of their position, have relatively little influence upon the decisions affecting the operation of the organization as a whole. This may have a direct impact upon their perceptions of career stage 4.

Research Question 2

Research Question 2 referred to the desired career stage of public school educators and Federal Government engineers. A greater amount of public school educators than Federal Government engineers desired to be working in a colleague (career stage 2) capacity in five years. Perhaps many educators are content with the classroom situation and do not expect to make any significant type of career move within their organizations in the next five years. However, recent master teacher programs in education may have a direct impact on this finding. Many public school educators in the central Florida area, especially teachers in the classroom, have not had a sufficient amount of experience with master teacher programs in order to evaluate any career advancement opportunities that the programs may provide.

Federal Government engineers indicated a strong desire to assume a mentor (stage 3) type of position within five years. This may be attributed to the project nature of engineering work at the Naval Training Systems Center. This desire of engineers to assume a position with some management responsibilities seems to be consistent with the literature which indicates that engineers usually stay in a strictly technical position for 5 to 10 years and then make

a concerted effort to move into some type of management (Bailyn, 1980).

Research Question 3

Research Question 3 referred to the affect of age of the respondent on their self-perceptions of current and desired career stages. The results indicated that as Federal government engineers grow older they perceived themselves as working in higher career stages. This seems to be consistent with the literature which indicates that engineers usually stay in a strictly technical position for 5 to 10 years and then make a concerted effort to move into a position which requires some type of management responsibilities (Bailyn, 1980).

The results which were obtained for the public school educators indicated that a majority of them over age 25, perceived themselves as working in a colleague (career stage 2) position. The results further indicated that a majority of the educators do not desire to go beyond the colleague (stage 2) level. This seems to indicate that there is a career plateau (Near, 1983) inherent in the public school system. This finding seems to support the contentions of the merit pay or teacher career ladder advocates who indicate that teachers in the public schools currently lack a well defined career development program which offers them economic promotion potential to the

mentor or sponsor stages while still being able to remain in their technical subject matter area.

Research Question 4

Research Question 4 referred to the affect of experience of the respondent with regard to their self-perceptions of current and desired career stages between public school educators and Federal Government engineers. The variable of "experience" was analyzed from two perspectives: (1) experience of the respondent in his or her occupational field and (2) experience of the respondent in his or her current position.

When analyzed by "years of experience in occupational field," and perceived current career stage, the results indicated that the longer Federal Government engineers are employed in their occupational field, the higher the career stage in which they perceive themselves as working and the higher the career stage in which they desire to work. This seems to be consistent with the literature which indicates that engineers use both their technical base and their organizational knowledge as they strive toward positions which require management responsibilities.

When analyzed by "years of experience in occupational field" and perceived current career stage, the results indicated that a majority of public school educators perceived that they reach a career plateau in colleague

(career stage 2) positions after working in apprentice (career stage 1) positions for up to five years. This may indicate that it takes a few years for young educators who accept positions in the public schools as teachers to perceive themselves as colleagues to their peers. The results further indicated that most educators desire to remain in a colleague (career stage 2) position throughout their careers, although there is a substantial amount of educators with various years of experience who desire to attain a mentor (career stage 3) or sponsor (career stage 4) position. This seems to support the merit pay and career ladder literature which indicates that there is a strong desire among teachers and educators for additional career development opportunities in the public schools.

When analyzed by "years of experience in current position" and perceived current career stage, the results indicated that Federal government engineers with less than 15 years experience perceived themselves to be in a career stage 2 position. Public school educators, regardless of the length of time in their present position, perceived themselves to be in a career stage 2 position. Perhaps after 15 years of experience in a particular position, engineers tend to either laterally change positions, leave the organization or become a mentor (stage 3) position. Educators perceived that they remain at a plateau in career

stage 2 positions throughout their tenure in an educational organization.

When analyzed by "years of experience in current position" and desired career stage, the Federal Government engineers, regardless of the length of time they have been working in their current position indicated a strong desire to attain a stage 3 (mentor) position. The same was not true with public school educators. Regardless of the length of time they have been working in their current position, a majority of public school educators, only desired to work in a stage 2 position. Perhaps educators feel that a career stage 2 (colleague) position is the only option available to them since many of them do not aspire to enter into management or educational administration.

Research Question 5

Research Question 5 referred to the effect of the respondent's educational degree on his or her self-perceptions of current and desired career stage. Federal Government engineers who either perceived themselves as working in a career stage 4 capacity when the survey was administered, or indicated a desire to attain a career stage 3 or career stage 4 position, held less educational degrees than public school educators in those same groups.

Public school educators cannot enter into administrative positions in the State of Florida without holding an administrative certificate. This certificate is attained by taking specified graduate courses in educational administration. Usually the individual pursuing this administrative certification goes on to earn the master's degree since it is extremely helpful to his or her career progression and associated with it are additional salary increases.

Federal Government engineers do not have to meet this education requirement prior to moving into management. Thus, it would seem logical that public school educators who currently perceive themselves as holding administrative positions, would have higher educational degrees than would Federal Government engineers. The attainment of these educational degrees is necessary for promotion in an educational organization. For this reason, a larger percentage of Federal Government engineers with less educational credentials than public school educators, would indicate a desire to assume a career stage 3 or career stage 4 position since it may be attainable to them without earning an advanced graduate degree.

Research Question 6

Research Question 6 referred to the respondent's preference for pursuing a technical career track or a

managerial career track in their respective organizations. A higher percentage of total respondents who perceived their current job assignment as being representative of a career stage 1 (apprentice) or career stage 2 (colleague) position when the survey was administered, indicated a desire to pursue a technical career track rather than a managerial career track in their organization. Similarly, a higher percentage of total respondents who perceived their job assignment when the survey was administered, as being representative of a career stage 3 (mentor) and a career stage 4 (sponsor) position indicated a desire to pursue a managerial career track rather than a technical career track in their respective organization. This trend was indicated by both Federal Government engineers and public school educators. This may support the contention that individuals tend to prefer to work in a position with which they are already familiar. Career stage 1 and career stage 2 generally constitute a technical type of assignment and career stage 3 and career stage 4 primarily require managerial responsibilities.

RECOMMENDATIONS

Based upon the review of the literature, the results produced by this study and the experience of the researcher, further study on the salient characteristics and affects of career stages in organizations is warranted. Several recommendations for future action by both practitioners and researchers are provided.

For the practitioner

1. The practitioner can undertake a study designed to evaluate the existing career development program in their organizations in order to determine if both employee and organizational needs are being satisfied.
2. The practitioner can undertake a workforce diagnosis on a periodic basis in order to determine a profile of the human resources in his or her organization. This profile should include demographic data such as age, educational level, experience, seniority, and other variables deemed germane. The profile should also include employee perceptions and desires of career stage, such as was addressed by the questionnaire used in this study. This profile can be extremely

valuable for succession planning in an organization (see Thompson, Baker & Smallwood, 1986).

3. The practitioner can design a series of training programs which provide information to various levels of employees about career development opportunities in the organization. The training programs should be designed for three types of employees: supervisors, mid-careerists, and beginning workers. The training for supervisors should concentrate on the salient characteristics of career stages and how to effectively act as a "mentor" to subordinate employees. The training programs for mid-careerists and older employees should concentrate on mentoring, preventing technical obsolescence, and pre-retirement. The training programs for newly hired apprentices should concentrate upon the function and operation of the organization and provide information about realistic career opportunities available to them in the organization. This information should include all necessary prerequisite and organizational policy requirements relating to a specific career path.

It should also include information about non-traditional movement such as lateral and even downward transfers.

For the researcher

1. The researcher can undertake studies designed to investigate occupational fields other than public school educators and Federal Government engineers in order to determine if any similarities to Federal Government engineers, public school educators or other occupations exist. These studies could serve to add to the creation of a data base of various types of employees who perceive themselves to be in different career stages or desire various career stages in different occupations. The data base can be analyzed to better define a psychological profile of individuals categorized in various career stage levels. Once the data base is created, and a descriptive profile is developed it can be made available to managers who could then utilize the career stage psychological profiles in organizational career development program planning and supervisory training. The profiles can also be used in succession planning to help meet organizational needs.

2. The researcher can conduct a study designed to investigate changes in career stage perceptions and desires of employees over time. This study could investigate reasons as to how employee career needs change and compare these career changes with organizational and personal life cycle models. The study could also attempt to discover reasons as to why an employee elects to stay at a particular career plateau.
3. The researcher could replicate this study using the same occupational fields in different parts of the country. In addition, the researcher could investigate the effect on career stage perceptions and desires by such variables as:
 - a. sex of the respondent
 - b. salary/family income of the respondent
 - c. marital status of the respondent
 - d. race of the respondent
 - e. nationality of the respondent
 - f. geographic location of the respondent
4. The researcher could replicate this study in "for-profit" organizations to determine what, if any, affect the organizational profit motive has on the perceptions of current and desired career stages of professional employees.

APPENDIX A

CAREER STAGE MODELS

APPENDIX A

AGE	(a) DALTON THOMPSON PRICE (1986)	(b) FELDMAN (1987)	SUPER (1957)	(c) LEVINSON (1978)	HALL NOUGAIM (1968)	(d) ERICKSON (1963)
0						
5						
10			Growth		Pre-work	Childhood
15						
20		Pre-career Exploration	Exploration	Early Adult Transition		Adolescence
25	Apprentice	Early Career Trial			Establishment	
30				Early Adulthood		Young Adulthood
35		Early Career Establishment	Establishment		Advancement	
40				Mid-Life Transition		
45	Mentor					
50		Middle Career Growth		Middle Adulthood	Maintenance	Adulthood
55			Maintenance			
60	Sponsor	Late Career Maintenance		Late Adult Transition	Retirement	
65						
70		Late Career Withdrawal	Decline	Late Adulthood		Maturity

- (a) Professionals in different stages varied in age. For example, Dalton & Thompson (1986) found that Stage 1 professionals ranged from 21 to 68 years old with a mean age of 38. This is an approximation of ages.
- (b) Career stages (Feldman, in Pfeiffer, 1987 p.228) based on material from Arnold and Feldman (1986) and Schein (1978).
- (c) Eras in the man's life cycle (Levinson et al, 1978, p.28).
- (d) Erickson's life stages (1963).

APPENDIX B

LETTERS REQUESTING NAMES FOR USE IN COMPLETING SAMPLE

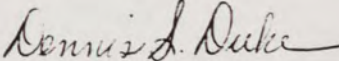
7 October 1986

From: Dennis S. Duke, NAVTRASYSSEN, Code 114
To: Code 006

Subj: List of potential survey respondents; request for

Encl: (1) Research Synopsis
(2) Proposed Survey Instrument
(3) Cover Letter
(4) Letter of Endorsement - 00TD

1. As a doctoral student in education with the University of Central Florida Ed.D. program, I am writing a dissertation which addresses the perceived and desired career stages of Federal Government engineers and public school educators in the central Florida area. Enclosure (1) presents a synopsis of the dissertation research.
2. I am planning on gathering data for this research from educational administrators and classroom teachers employed by Orange County School District as well as civilian employees of the Naval Training Systems Center who are classified as engineers in the 800 job series.
3. I request that a list of names and addresses of employees in the above mentioned job series be made available to me for administration of the survey instrument, which is attached as enclosure (2). I certify that I will not:
 - a. Attempt to sell anything to or influence anyone in any manner whatsoever.
 - b. Use (or allow to be used) either the list of names or the survey results for any commercial purpose.
 - c. Disclose the names provided to any other person.
 - d. Attempt to gather any information regarding sex, race or other demographic information that is not asked for in the survey instrument.
4. Enclosure (3), the cover letter for the survey, will be written on University of Central Florida letterhead stationary and signed by myself and Dr. Thomas Harrow, University of Central Florida who is my dissertation Committee Chairperson.
5. Enclosure (4), indicates there is a command interest in the results of the research.


Mr. Dennis S. Duke

RESEARCH SYNOPSIS

Author: Dennis S. Duke
Title: A Comparison of Perceived Current and Desired Career Stages of Federal Government Engineers and Public School Educators in Central Florida
Institution: University of Central Florida Orlando, Florida
Degree: Doctor of Education
Year: 1987

Current research indicates that personnel in the engineering profession as well as the teaching profession are experiencing problems with motivation and retention on the job. Although these two groups are totally different types of populations in terms of technical subject matter specialty, public opinion and remuneration for services, they share an important similarity in their careers which may have a direct impact on their motivation and retention in the organization. Historically, it has been true that in order for engineers to obtain promotions into the higher level grades of their organizations, they had to leave their technical specialty area of engineering and move into a management position. Likewise, classroom teachers in the public school system were also forced to change careers and enter into administrative positions in order to advance in their school systems.

This study is being conducted to analyze perceptions of current and desired career stage among engineers employed by the Federal Government and educators employed by the public schools. A survey instrument will be used to collect data related to the current career stage perceptions of engineers and teachers as well as their desired career stage aspirations. The four career stages developed by Dalton, Thompson and Price (1977) were used as categories for data interpretation. Data regarding the respondents' preferences for technical career track or managerial career track will also be analyzed.

Dalton, G. W., Thompson, P.H., & Price, R. L. (1977). The four stages of professional careers: A new look at performance by professionals. Organizational Dynamics, 6, 19-42.

2550 Tuscaloosa Trail
Maitland, Florida 32751
October 22, 1986

Ms. Jackie Still
P. O. Box 271
Station 258
Orlando, Florida 32802

Dear Ms. Still,

As I mentioned in our telephone conversation on Thursday, October 9, 1986, I am enrolled as a doctoral student in education with the University of Central Florida Ed.D. program and I am writing a dissertation which addresses the perceived and desired career stages of engineers and public school educators in the Central Florida area. Enclosure (1) presents a synopsis of my dissertation research.

I am planning on gathering data for this research from a representative sample of education administrators and classroom teachers employed by the Orange County School District as well as civilian employees of the Naval Training Systems Center who are classified engineers.

In order to conduct this research, I am requesting that a stratified list of names and addresses of employees of the Orange County School System be provided to me for the purposes of administering the survey instrument which is included in enclosure (2). The stratified listing should be comprised of the following types of professional employees:

- 1) Educational Administrators who are currently holding an executive position in the district office and principals of high schools and elementary schools in the district.
- 2) Educational Administrators who are currently holding a position such as assistant principal, dean of women/men, etc., as well as senior tenured classroom teachers who could be considered "mentors" of "master teachers" in Orange County.
- 3) Classroom teachers currently assigned to teaching a specific grade or subject matter at any level (K-12).
- 4) Beginning teachers (one year or less teaching experience in occupation) in Orange County Schools who are currently assigned to teaching a specific grade or subject matter at any level (K-12).

October 22, 1986

-2-

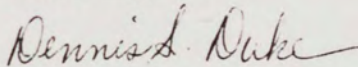
The names and addresses that are provided will be used for research purposes only. I certify that I will not:

- 1) Attempt to sell anything to or influence anyone in any manner whatsoever.
- 2) Use (or allow to be used) either the list of names or the survey results for any commercial purpose.
- 3) Disclose the names and addresses provided to any other person.
- 4) Attempt to gather any information regarding sex, age, race or other demographic information that is not asked for in the survey instrument.

Enclosure (3), the cover letter for the survey, will be written on University of Central Florida letterhead stationary and signed by myself and Dr. Thomas Harrow, University of Central Florida.

Your cooperation is sincerely appreciated. I will provide you with a copy of the final dissertation when it is complete.

Sincerely,



Mr. Dennis S. Duke

Enc. 3

DSD/nb

cc: Dr. Thomas Harrow

Submit this form and a copy of your proposal to: Department of Planning and Governmental Relations, 434 North Tampa Ave., P.O. Box 271, Orlando, Florida 32802

Orange County Public Schools
RESEARCH REQUEST FORM

Your research proposal should include: Project Title; Purpose & Research Problem; Instruments; Procedures; Proposed Data Analysis

Requester's Name: DENNIS S DUKE Date OCT. 23, 1986
 Address - Home: 2550 TUSCALOOSA TR. MAITLAND, FLA. Phone 644-8297 ←
 Business: CODE 114 NAVAL TRAINING SYSTEMS CENTER Phone 646-4426
ORLANDO, FLA.
 Project Director or Adviser DR. THOMAS HARROW Phone _____
 Address COLLEGE OF EDUCATION UNIVERSITY OF CENTRAL FLORIDA ORLANDO, FLA.

Degree Sought (check one) Associate Bachelor's Master's Specialist
 Doctor's None

Project Title A DESCRIPTIVE ANALYSIS OF THE PERCEIVED ATTITUDES OF TECHNICAL ENGINEERS AND CLASSROOM TEACHERS TOWARD CAREER STAGES IN THEIR RESPECTIVE ORGANIZATIONS

PERSONNEL/CENTERS	NUMBER	ESTIMATED INVOLVEMENT	
		AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY/DESCRIBE GRADES, SCHOOLS SPECIAL NEEDS, ETC.
Students			
Teachers	225	15 MINUTES EACH	COMPLETE + MAIL BACK QUESTIONNAIRE
Administrators	75	15 MINUTES EACH	COMPLETE + MAIL BACK QUESTIONNAIRE
Schools/Centers			
Others (specify)			

Specify possible benefits to students/school system ORANGE COUNTY WILL RECEIVE A DESCRIPTIVE ANALYSIS OF THE ASPIRATIONS OF TEACHERS AND ADMINISTRATORS TOWARD CAREER ADVANCEMENT. THIS WILL AID IN SUCCESSION PLANNING IN THE SCHOOL SYSTEM.

ASSURANCE
 Using the proposed procedures and instruments, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the proposed procedures shall be cleared through the Department of Planning and Governmental Relations. Reports and materials shall be supplied as specified.

Requester's Signature Dennis S Duke

Approval Granted Yes No Date 11 4 86

Signature of the Director of Testing and Program Evaluation Jacquelyn A Still

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form signed by the Director of Testing and Program Evaluation should be shown to the school principal.

Reference: School Board Policy 2470.1 OK 11/6/86

APPENDIX C

THE SURVEY INSTRUMENT

VERSION 1
SURVEY INSTRUMENT
FEDERAL GOVERNMENT ENGINEER

A STUDY OF CAREER DEVELOPMENT IN AN ORGANIZATION

This questionnaire is intended to obtain information to determine how classroom teachers, master teachers and educational administrators feel about their career development. It is expected that every individual will view himself/herself differently based upon his/her own experiences, personal and family situation, values, self-esteem, etc. Your responses will be kept totally confidential. You need not sign your name to this questionnaire. Please answer all questions.

1. How long have you been in your occupational field?
_____ years _____ months
2. How long have you been employed in your current position?
_____ years _____ months
3. What is your current age? _____
4. Please provide information on your educational background. List all degrees you have earned.

<u>DEGREE</u>	<u>MAJOR FIELD OF STUDY</u>	<u>YEAR EARNED/ ANTICIPATED</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Are you currently enrolled in any type of graduate college courses? (Check either yes or no)
A. YES _____ B. NO _____
6. If YES, are you working for:
 - A. Master's degree
 - B. Education Specialist degree
 - C. Doctoral degree
 - D. Professional Certification (no degree)
 - E. Professional Enrichment (no degree or certification)
 - F. Other (Define) _____

QUESTIONS 7-17 SHOULD BE ANSWERED WITH ONLY ONE RESPONSE.
PLEASE CIRCLE THE LETTER THAT CORRESPONDS TO YOUR RESPONSE.

7. In your current position, which of the following best describes your central activity on the job?
- A. Learning from other senior engineers and/or engineering managers by helping them or following their direction even though you may have responsibility for an individual project
 - B. Being an independent contributor and taking initiative to solve problems on your own receiving immediate technical direction from no one
 - C. Training junior engineers in technical subject matter areas or supervising/overseeing their work i.e., senior engineer or branch chief
 - D. Take a leading role in decision making which will set policy and/or shape the direction of the organization i.e., division chief
8. Which of the following best describes your primary relationship with those with whom you work the closest in your organization?
- A. Acting as an apprentice to a senior employees often learning about the organization from them
 - B. Acting as a colleague equal to other employees
 - C. Acting as a mentor or supervisor often giving advice to junior engineers i.e., senior engineer
 - D. Acting as an executive responsible for taking a leading role in making high level decisions regarding organizational policy
9. Which of the following best describes the level of authority and responsibility of your current position in your organization?
- A. Project engineer responsible for reporting to senior engineers and/or engineering for technical direction
 - B. Project engineer working independently on specific assignments; being responsible for a total project of your own
 - C. Senior engineer assuming responsibility for junior engineers who report to you on a project i.e., senior project engineer or branch chief
 - D. Manager responsible for making decisions which are directly concerned with establishing organizational policy

10. Those individuals with whom you work the closest would most likely view you as:
- A. An executive responsible for taking an active role in setting organizational policy
 - B. A colleague having similar duties, responsibilities as well as an equal workload
 - C. An apprentice to them often working on portions of their projects
 - D. A mentor, i.e., senior engineer, responsible for giving them guidance OR a branch chief responsible for supervising
11. What title best describes you at this point in time?
- A. Beginning Project Engineer
 - B. Project Engineer
 - C. Senior Project Engineer
 - D. Engineering Manager - Branch Chief
 - E. Engineering Manager - Division Chief
12. Which of the following best describes your desired central activity on a job you would like to have in five years.
- A. Continuing to assist senior engineers and/or managers by working on every detailed and specialized portions of their projects
 - B. Being an independent contributor and taking your own initiative to solve problems and to do things related to improving your job - receiving immediate technical direction from anyone.
 - C. Training new engineers (i.e., acting as a senior engineer or mentor) in a specific technical area and/or supervising/overseeing their work i.e., being responsible for their final products as well as your own
 - D. Taking a leading role in decision making which will set policy and/or shape the direction of the organization
13. Suppose there was an opportunity to move into a position that offered more responsibility and prestige. Would you prefer this position to be:
- A. A position requiring you to work primarily on technical matters, i.e., project work
 - B. A position requiring you to work with managerial matters, i.e., personnel matters and organizational policy and decision making

14. Which of the following best describes what you would like your primary relationship with your peers to be in five years
- A. You would like to have responsibility for only a specific portion of a larger project and report to a senior project engineer
 - B. You would like to be acting as an independent contributor carrying a responsibility and work load equal to that of your fellow engineers
 - C. You would like to be acting as a senior engineer or branch chief often giving technical and/or managerial advice to engineers as well as being responsible for their performance
 - D. You would like to be acting in a position equivalent to division chief and being responsible for taking a leading role in making high level decisions regarding organizational policy
15. Which of the following best describes the level of authority and responsibility that you would desire in a future position?
- A. Acting as a project engineer responsible for an assigned specific portion of a larger project and reporting your detailed findings to a senior project engineer
 - B. Acting as a project engineer being totally responsible for actions/decisions on your assigned project and not having to report to any other project engineers
 - C. Acting as a senior engineer who is totally responsible for a large system or project and having responsibility for other new or specialized engineers who would report to you, OR acting as a branch chief and supervising a number of subordinates
 - D. Acting in a position equivalent to a division head having responsibility for taking an active role in making decisions which are directly concerned with establishing organizational policy
16. Considering your personal qualifications, prior experience, and the political atmosphere of your organization, at what level do you expect to be in five years if you stay in your organization?
- A. Project Engineer
 - B. Senior Project Engineer
 - C. Branch Chief
 - D. Division Chief

17. Which of the following best describes how you would like those individuals with whom you work the closest to view you (your position)?
- A. You would like them to view you as an apprentice to them, periodically asking them for suggestions on technical procedures, policies, etc. and reporting to them your detailed findings on a specific task
 - B. You would like them to view you as a colleague to them having an equal amount of experience, the same type of responsibilities and an equal work load
 - C. You would like them to view you as a senior engineer or branch chief responsible for providing supervision and/or administrative guidance to them
 - D. You would like them to view you as a senior executive or division chief who is responsible for taking an active role in setting organizational policy.
18. Estimate to the best of your ability the percentage of time you felt you spent performing the following type of activities on your job during the past month.
- A. Giving directions to engineers about a technical procedures, project requirements and demands or organizational _____ %
 - B. Making your own decisions about how you would carry out a technical procedure for a project requirement and assuming responsibility for that decision _____ %
 - C. Taking an active role in determining how procedures will affect daily organizational routine _____ %
 - D. Assisting a senior engineer or engineering manager by providing him/her with specific technical details (analysis) on a portion of his/her project _____ %
- _____ %
100 %

Thank you for your cooperation. If you wish to obtain a copy of the results of this survey, please provide your name and address below so that the information may be mailed to you when available.

VERSION 2
SURVEY INSTRUMENT
PUBLIC SCHOOL EDUCATOR

A STUDY OF CAREER DEVELOPMENT IN AN ORGANIZATION

This questionnaire is intended to obtain information concerning an individual's perceptions about their career development. It is expected that every engineer will view himself/herself differently based upon his/her own experiences, personal and family situation, values, self-esteem, etc. Your responses will be kept totally confidential. You need not sign your name to this questionnaire. Please answer all questions.

1. How long have you been in your occupational field?
 _____ years _____ months
2. How long have you been employed in your current position?
 _____ years _____ months
3. What is your current age? _____

4. Please provide information on your educational background. List all degrees you have earned or anticipate to earn.

<u>DEGREE</u>	<u>MAJOR FIELD OF STUDY</u>	<u>YEAR EARNED/ ANTICIPATED</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Are you currently enrolled in any type of graduate college courses? (Check either yes or no)

- A. YES _____ B. NO _____

6. If YES, are you working for:

- A. Master's degree
- B. Education Specialist degree
- C. Doctoral degree
- D. Professional Certification (no degree)
- E. Professional Enrichment (no degree or certification)
- F. Other (Define) _____

QUESTIONS 7-17 SHOULD BE ANSWERED WITH ONLY ONE RESPONSE.
PLEASE CIRCLE THE LETTER THAT CORRESPONDS TO YOUR RESPONSE.

7. In your current position, which of the following best describes your central activity on the job?
- A. Learning from other master teachers and/or administrators by helping them or following their direction even though you may have responsibility for teaching your own class
 - B. Being an independent contributor and taking initiative to solve problems on your own receiving immediate technical direction from no one
 - C. Training beginning teachers (i.e. master teacher) in particular subject matter areas and/or classroom techniques or supervising/overseeing their work OR acting in the position of assistant principal
 - D. Taking a leading role in decision making which will set policy and/or shape the direction of the organization, i.e. principal or district administrator
8. Which of the following best describes your primary relationship with those with whom you work the closest in your organization?
- A. Acting as an apprentice to a senior teacher often learning about the organization from them
 - B. Acting as a colleague equal to other teachers in your school
 - C. Acting as a mentor or supervisor often giving advice to beginning teachers (NOT TO STUDENTS), i.e. master teacher, assistant principal, etc.
 - D. Acting as a school principal or district administrator responsible for taking a leading role in making high level decisions regarding organizational policy
9. Which of the following best describes the level of authority and responsibility of your current position in your organization?
- A. Beginning teacher responsible for reporting to master teachers and/or administrators for technical direction, i.e. classroom procedures, subject matter information, organizational policy, etc.
 - B. Working independently in your classroom
 - C. Assuming responsibility for beginning teachers, i.e. acting as master teacher, assistant principal, department chairperson, etc.
 - D. Taking an active role in making decisions which are directly concerned with establishing organizational policy

10. Those individuals with whom you work the closest would most likely view you as:
- A. An administrator responsible for taking an active role in setting organizational policy
 - B. A colleague having similar duties, responsibilities, and an equal workload
 - C. An apprentice to them, periodically asking them for information about the organization and/or suggestions about classroom procedures, subject matter, etc., i.e. a beginning teacher
 - D. A mentor, i.e. master teacher responsible for giving them guidance and providing them direction
11. What title best describes you at this point in time?
- A. A beginning classroom teacher
 - B. A classroom teacher
 - C. A master teacher
 - D. An educational administrator, i.e. assistant principal, dean of students, etc.
 - E. An educational administrator, i.e. school principal, district office administrator, etc.
12. Which of the following best describes your desired central activity on a job you would like to have in five years.
- A. Continuing to learn from master teachers and/or administrators by assisting them and following their directions while retaining responsibility for teaching your class
 - B. Being an independent contributor and taking your own initiative to solve problems and to do things related to improving your job - receiving immediate technical direction from no one.
 - C. Training beginning teachers (i.e., acting as a master teacher) in a particular subject matter area and/or supervising/overseeing their work i.e., being responsible for their final products as well as your own
 - D. Taking a leading role in decision making which will set policy and/or shape the direction of the organization

13. Which of the following best describes what you would like your primary relationship with your peers to be in five years
- A. You would like to have responsibility for your class only and report to a senior master teacher
 - B. You would like to be acting as an independent contributor carrying a responsibility and work load equal to that of your fellow teachers
 - C. You would like to be acting as a master teacher or assistant principal often giving advice to and supervising beginning teachers (NOT STUDENTS)
 - D. You would like to be acting as a principal or district administrator and taking a leading role in making high level decisions regarding organizational policy
14. Which of the following best describes the level of authority and responsibility you would desire in a future position?
- A. Acting as a classroom teacher responsible for your own classroom and reporting to a master teacher on a periodic basis
 - B. Acting as a classroom teacher being totally responsible for your classroom and having to report directly to no one
 - C. Acting as a classroom teacher being totally responsible for your classroom as well as having responsibility for other beginning teachers' actions or acting as an assistant principal being responsible for classroom teachers' actions in your school
 - D. Acting as a principal or district administrator taking an active role in making decisions which are directly concerned with establishing organizational policy
15. Which of the following best describes how you would like those individuals with whom you work the closest to view you (your position)?
- A. You would like them to view you as an apprentice to them, periodically asking them for suggestions about classroom procedures, subject matter, etc.
 - B. You would like them to view you as a colleague to them having an equal amount of experience, the same type of responsibilities and an equal work load
 - C. You would like them to view you as a master teacher or assistant principal responsible for providing supervision and/or administrative guidance to them
 - D. You would like them to view you as a principal in your school or an administrator in the district office who is responsible for taking an active role in setting organizational policy.

16. Considering your personal qualifications, prior experience, and the political atmosphere of your organization, at what level do you expect to be in five years if you stay in your organization?
- A. Classroom teacher
 - B. Master teacher
 - C. Administrator, i.e., assistant principal
 - D. Executive, i.e., a school principal or district office position
17. Suppose there was an opportunity to move into a position that offered more responsibility and prestige. Would you prefer this position to be:
- A. A position requiring you to work primarily on technical matters, i.e., classroom teaching, curriculum development, etc.
 - B. A position requiring you to work with administrative matters, i.e., personnel matters and organizational policy and decision making
18. Estimate to the best of your ability the percentage of time you felt you spent performing the following type of activities on your job during the past month.
- A. Giving directions to beginning teachers (NOT TO STUDENTS) about school operations and/or classroom procedures. _____ %
 - B. Making your own decisions about how you would carry out a classroom or curriculum procedure and not having to report to any "master teachers" _____ %
 - C. Taking an active role in setting school policy and determining how procedures will affect daily organizational routine _____ %
 - D. Learning how the school district operates and/or obtaining specific teaching "hints" from other teachers or administrators i.e., a new or beginning teacher in the district _____ %
- _____ %
100 %

Thank you for your cooperation. If you wish to obtain a copy of the results of this survey, please provide your name and address below so that the information may be mailed to you when available.

APPENDIX D

LETTERS ACCOMPANYING SURVEY INSTRUMENT

1500
Code 114
28 Oct 66

MEMORANDUM

From: Code TD
To: Code 2
Code 4
Code 7

Subj: REQUEST FOR COMPLETION OF QUESTIONNAIRE "A STUDY OF CAREER STAGES IN ORGANIZATIONS"

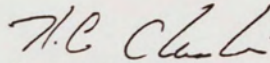
Ref: (a) NAVTRASYSCEININST 12412.1

Encl: (1) Copies of Questionnaire: A Study of Career Stages in Organizations

1. Reference (a) establishes a systematic plan by which personnel in the engineering and computer science disciplines can pursue career development from the entry level to managerial or specialty levels and to executive positions. The program provides the above mentioned personnel who are above the journeyman level with the option of pursuing either a technical or managerial career path and to advance to executive positions in either ladder.
2. Reference (a) states that career development is a voluntary program at and above the journeyman level with selection of the career ladder being a function of individual preference, NAVTRASYSCEIN need, availability of development assignments and resources, workload and the goals, interests, skills and personal commitment of the individual. Enclosure (1) is a questionnaire being used by a doctoral student to obtain information about the personal perceptions and desires of engineers toward dual career ladders and career stages. The results of this survey instrument will provide a statistical description of the individual preferences of NAVTRASYSCEIN engineering personnel. This will be helpful in long range succession planning in all divisions.
3. A statistical random sample must be used for the research; therefore, it is requested that the following actions be taken:
 - a. Each Division Head and his respective Branch Heads are to complete a questionnaire and return it to Code 114 (D. Duke).
 - b. Each Branch Head is to distribute the questionnaires to code members ranging from the beginning engineer to the most senior position and have those selected individuals complete the questionnaire and return it individually to Code 114 (D. Duke).
4. The information provided by the respondents will be reported in aggregate form only with individual identifiers completely removed. To further assure confidentiality of information, all returned questionnaires will be kept in the possession of the researcher and processed by him. The results of the statistical analysis will be provided to you when it becomes available.

Subj: REQUEST FOR COMPLETION OF QUESTIONNAIRE "A STUDY OF
CAREER STAGES IN ORGANIZATIONS"

5. All questionnaires are to be returned to Code 114 (D. Duke) no later than
26 November 1986.



H. C. OKRASKI
Acting

Copy to:

Code 2 (1 copy), 2A (1 copy), 21 (1 copy), 211 (7 copies), 212 (6 copies), 213
(5 copies), 214 (10 copies), 22 (1 copy), 221 (17 copies), 222 (19 copies), 223
(15 copies), 224 (17 copies), 23 (2 copies), 231 (13 copies), 232 (15 copies),
233 (23 copies), 234 (8 copies), 24 (1 copy), 241 (11 copies), 242 (12 copies),
243 (7 copies), 244 (13 copies), 25 (1 copy), 251 (12 copies), 252 (12 copies)
253 (9 copies), 41 (1 copy), 411 (11 copies), 412 (7 copies), 413 (1 copy), 414
(4 copies), 43 (1 copy), 73 (1 copy), 731 (5 copies), 732 (4 copies), 733 (7
copies), 74 (1 copy), 741 (6 copies), 742 (8 copies)



 UNIVERSITY OF CENTRAL FLORIDA

 COLLEGE OF EDUCATION

 ORLANDO, FLORIDA 32816

October, 1986

Dear Engineering Professional,

Historically, the only avenue for advancement into upper level career stages (GS-13, GS-14, GS-15) for engineers at the Naval Training Systems Center has been to enter into a management type of position, i.e., become a branch chief. This meant accepting a position which had a primary responsibility of dealing with administrative and personnel matters rather than concentrating on technical engineering tasks. Recently, the Naval Training Systems Center has recognized the need for technical excellence and as a result, there has been an increasing number of opportunities for engineers to compete for higher grade level positions while remaining in a technical career track. This situation has raised questions about the perceptions and desires of engineers relative to their preferences of a higher level position with a technical emphasis, a higher level position with a managerial emphasis, or neither.

What are your feelings about this issue? Would you like to hold a position which places a primary emphasis on administrative duties and managerial responsibilities or would you rather hold a position which requires you to perform technical engineering tasks? Would you please spend a few minutes to share your thoughts with us by completing the enclosed survey?

Your responses will remain totally confidential. If you would like to receive a summary of the survey results, please include your name on the survey or provide it to me by separate correspondence. If you should have any questions concerning the survey or the purposes for which the survey results are to be used, please contact myself or Dr. Thomas Harrow at the University of Central Florida.

The Technical Director's endorsement of this research indicates a command interest in finding answers to the above questions. Your opinions and the opinions of your fellow engineers at the Naval Training Systems Center are essential if answers to these questions are to be obtained. Please take the approximately 15 minutes to complete and return the survey before 26 November, 1986.

Thank you for your professional cooperation.

Dennis S. Duke
 Researcher

Dr. Thomas Harrow
 Research Director



UNIVERSITY OF CENTRAL FLORIDA

COLLEGE OF EDUCATION

ORLANDO, FLORIDA 32816

October, 1986

Dear Educator,

Historically, the only avenue for advancement into upper level career stages for public school educators was to enter into an educational administration type of position in a school district, i.e., become an assistant principal. This meant accepting a position which had a primary responsibility of dealing with administrative duties and personnel matters rather than concentrating on classroom teaching. Recently, however, there have been several moves in the education profession to recognize and reward competent classroom teachers. One of these moves is that of a dual career ladder for teachers. This has raised questions about the perceptions and desires of teachers relative to their preferences of a higher level position with a teaching emphasis, a higher level position with an administrative emphasis, or neither.

What are your feelings about this issue? Are you satisfied with or would you like to hold a position which places a primary emphasis on administrative duties and responsibilities or would you rather be in the classroom? Would you please spend a few minutes to share your thoughts with us by completing the enclosed survey?

Your responses will remain totally confidential. If you would like to receive a summary of the survey results, please include your name on the survey or provide it to me by separate correspondence. If you should have any questions concerning the survey or the purposes for which the survey results are to be used, please contact myself or Dr. Thomas Harrow at the University of Central Florida.

Your opinions and the opinions of your fellow teachers in Orange County are essential if answers to the above mentioned questions are to be obtained. Please take the approximately 15 minutes to complete and return the survey before 26 November, 1986.

Thank you for your professional cooperation.

Dennis S. Duke
Researcher

Dr. Thomas Harrow
Research Director

2550 Tuscaloosa Trail
Maitland, Florida 32751
December 9, 1986

Dear Colleague,

A few weeks ago I asked for your help in completing the enclosed survey, which is a part of the dissertation required for my Ed.D degree. I realize that with the holidays coming upon us and your normal teaching and administrative workload are keeping you very busy. You probably have many things on your mind as well as many deadlines that you must meet before Christmas.

However, remember your undergraduate days when you were required to write a term paper, or when you were collecting data that you needed for your master's thesis? Do you remember how important it was for you to collect data so that you were able to write your paper? Well, I am at the same critical milestone. I need your input so that I can complete my dissertation.

Perhaps, the earlier questionnaire I sent to you may have been inadvertently discarded with the plethora of Christmas advertising mail you have received in the past couple of weeks, therefore, for your convenience, I am sending you another survey.

Please take ten minutes and complete the form whenever you receive it. Do it now before you set it aside and forget about it. When you are through, take it to work and put it in the district courier mail addressed to:

Lynn Mosley,
Dommerich Elementary School

Please return the completed form by December 16, 1986.

Thank you for your help, and have a pleasant holiday season.

Dennis S. Duke

Dennis S. Duke
Doctoral Candidate
University of Central Florida

APPENDIX E

HISTOGRAMS

Time in Occupational Field

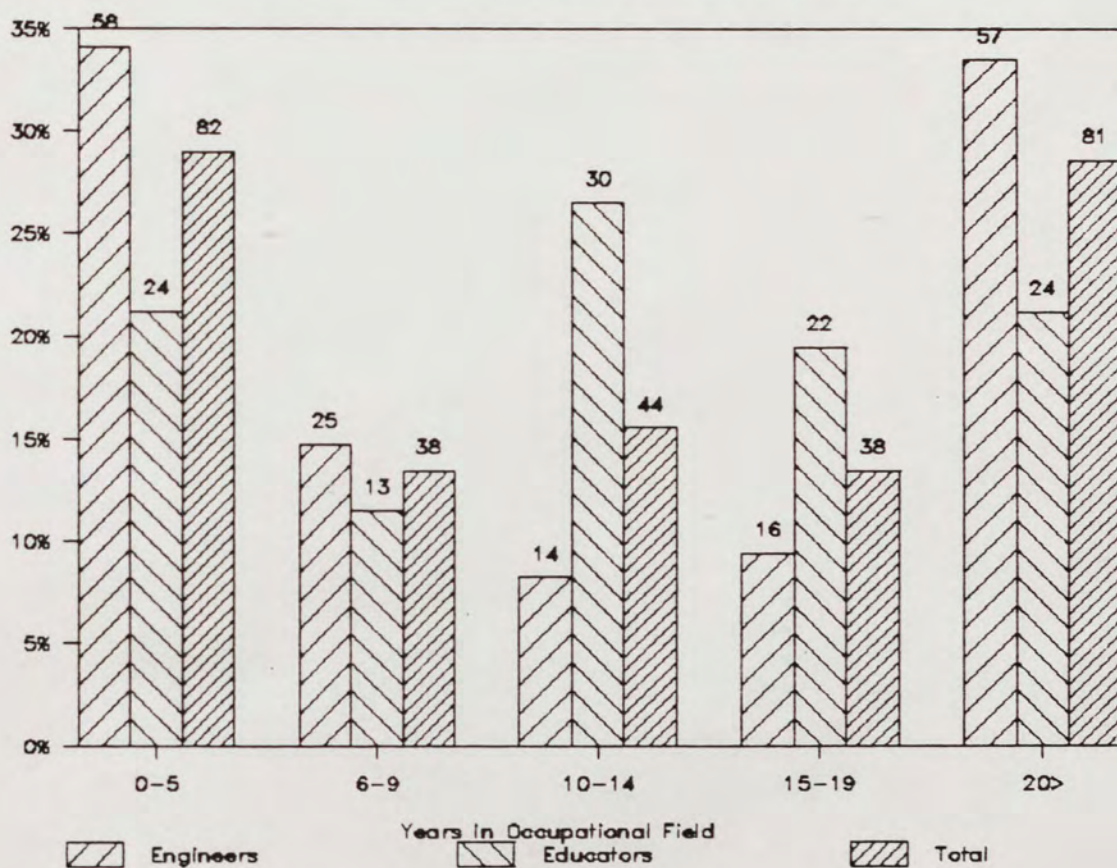


Figure 1. Frequency and Percentage of Respondents Length of Time in Occupational Field

Time in Current Position

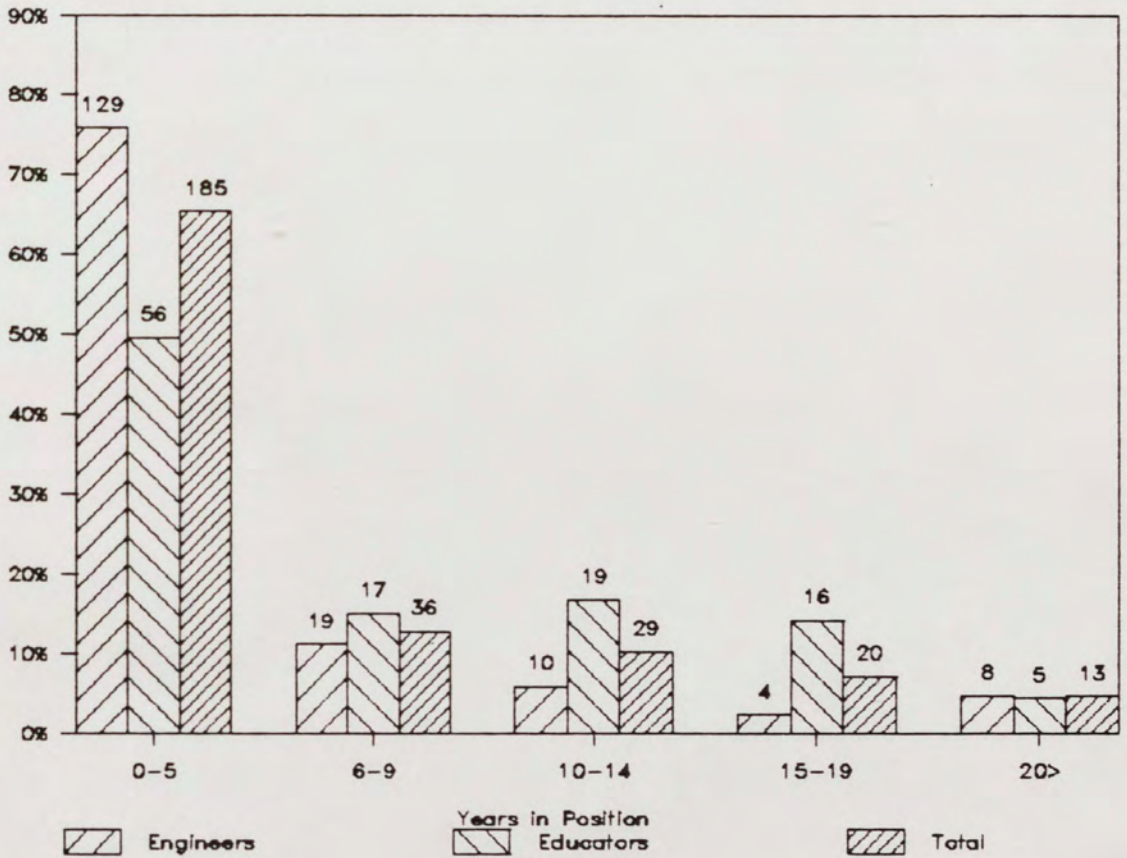


Figure 2. Frequency and Percentage of Respondents Length of Time in Current Position

Respondent's Age

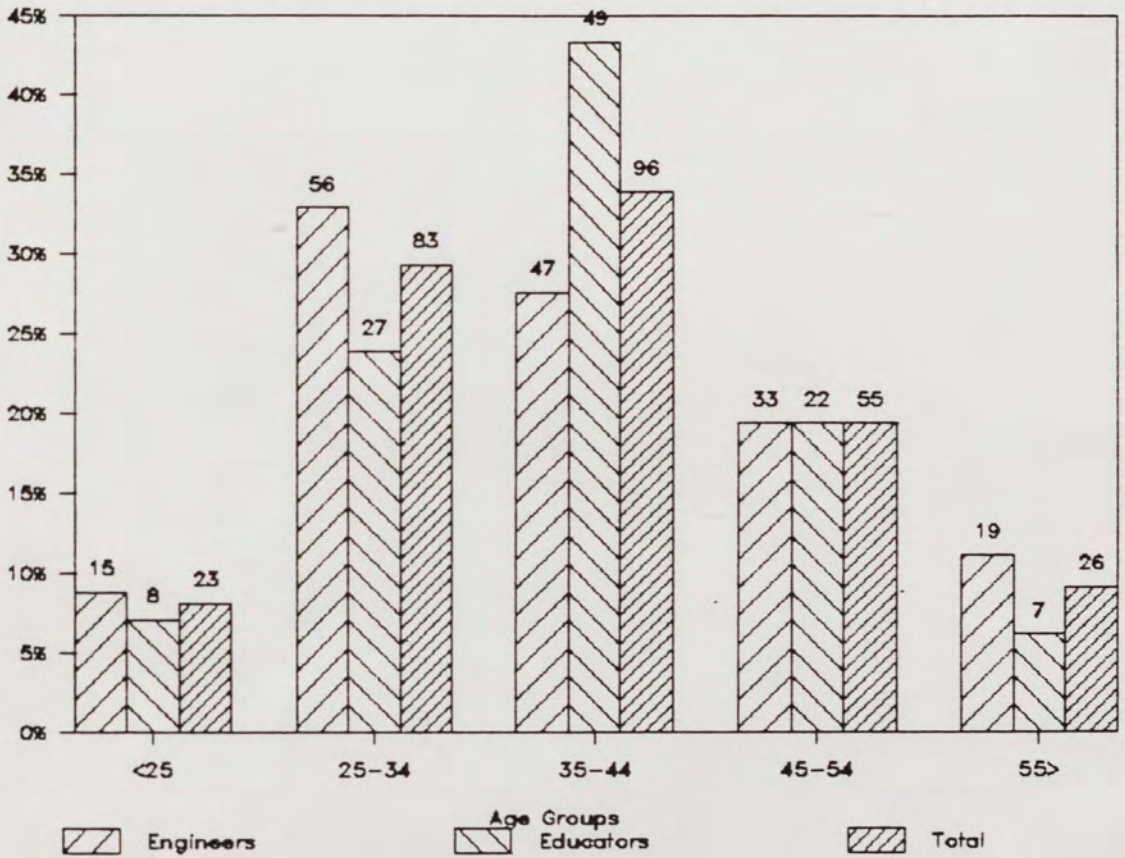


Figure 3. Frequency and Percentage of Respondents by Age

Respondent's Educational Background



Figure 4. Frequency and Percentage of Respondents by Highest Degree Held

Respondents Current Career Stage

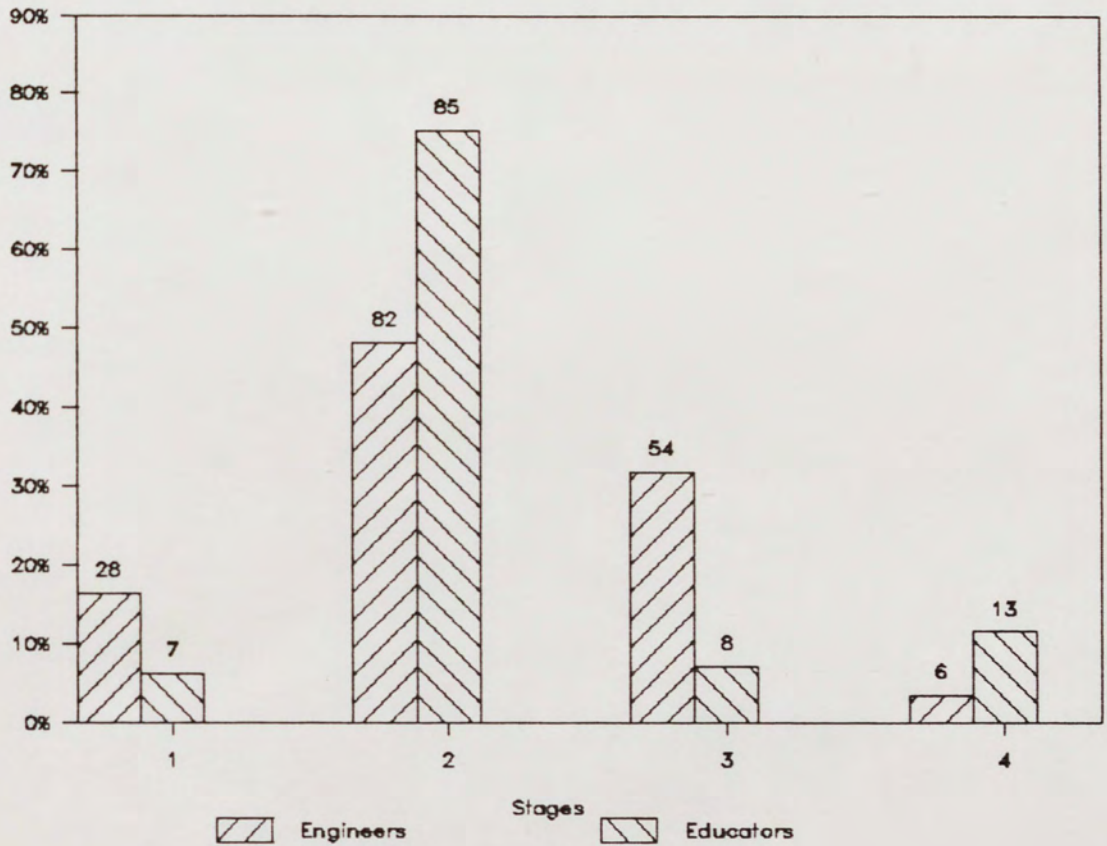


Figure 5. Frequency and Percentage of Respondents by Self-Perceptions of Current Career Stage

Respondents Desired Career Stage

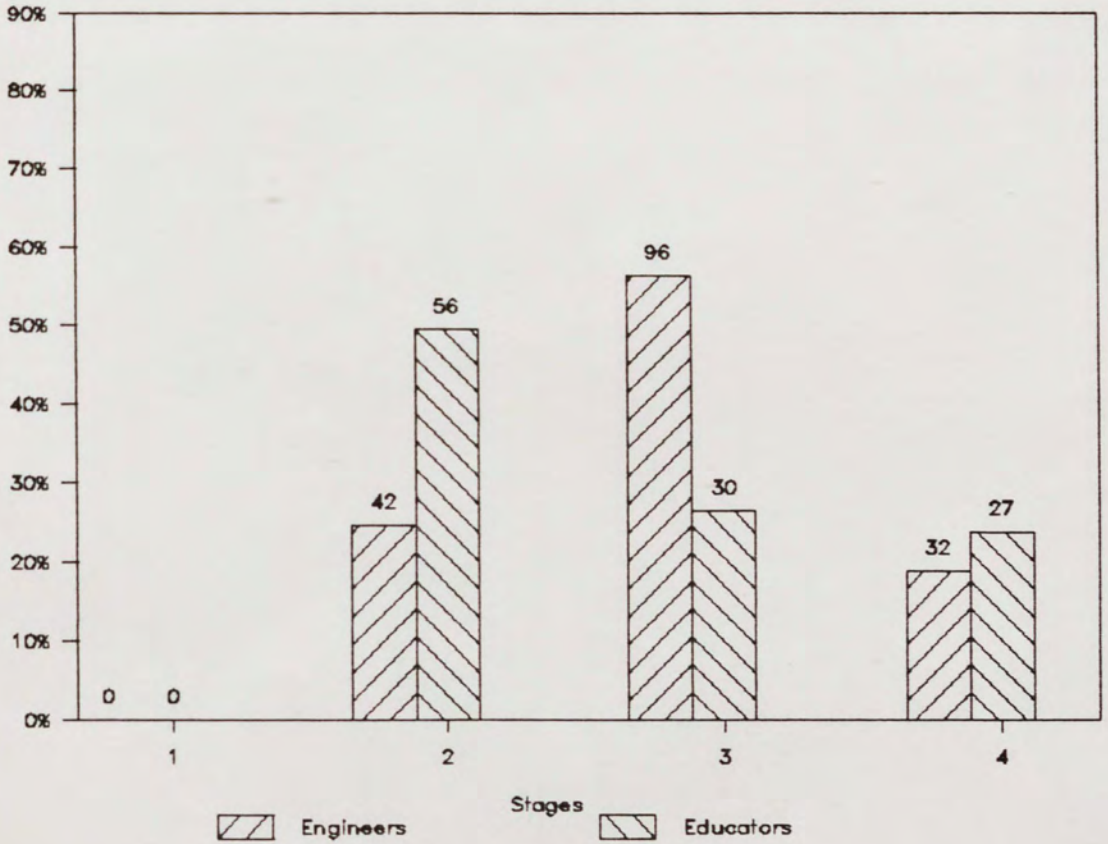


Figure 6. Frequency and Percentage of Respondents Desired Career Stage

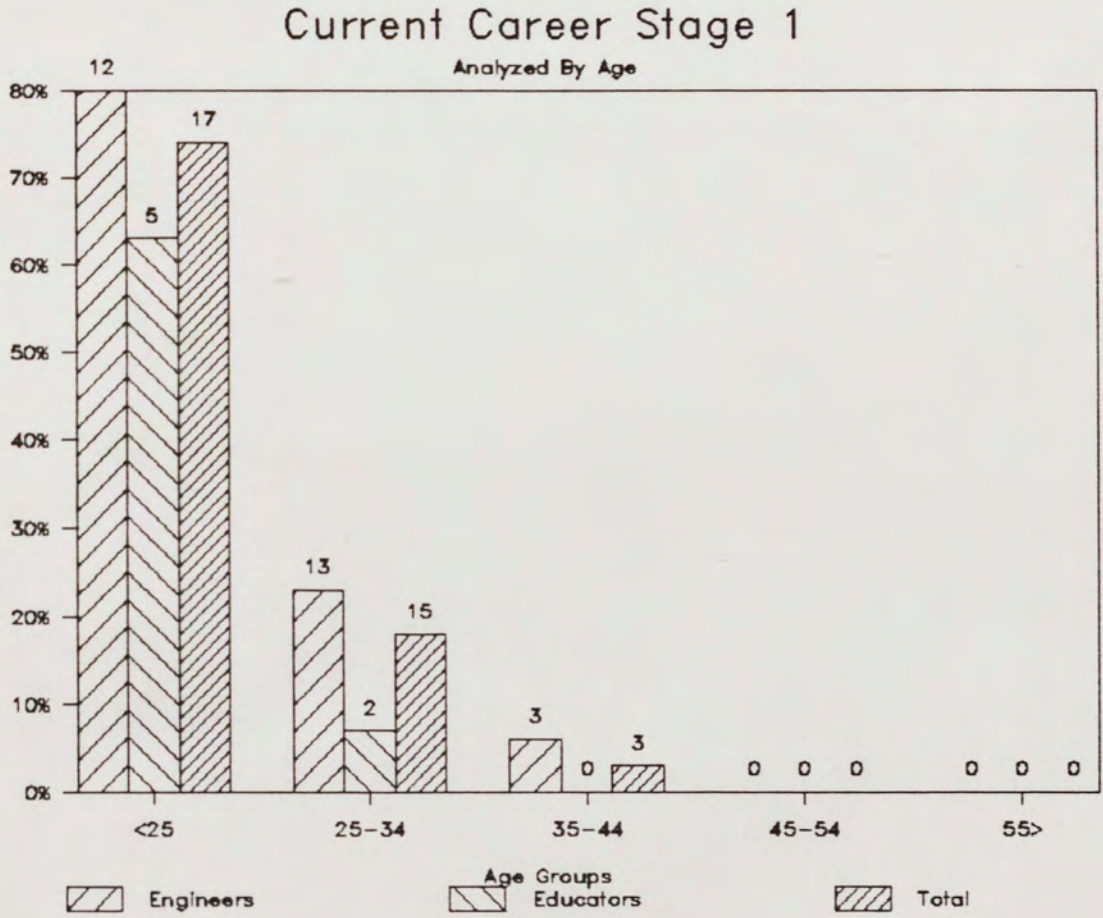


Figure 8. Respondents Who Perceived Themselves as Currently Working in a Career Stage 1 (Apprentice) Position - Analyzed by Age of the Respondent

Current Career Stage 2

Analyzed By Age

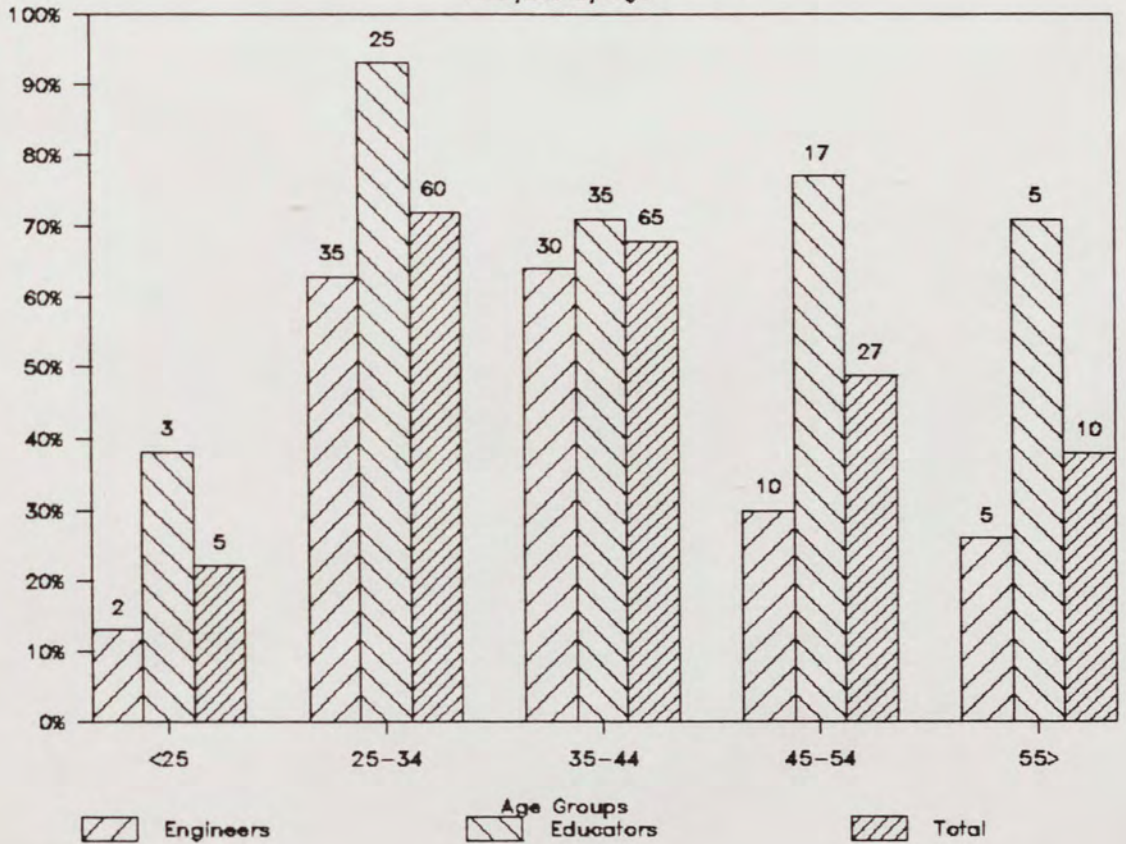


Figure 9. Respondents Who Perceived Themselves as Currently Working in a Career Stage 2 (Colleague) Position -Analyzed by Age of the Respondent

Current Career Stage 3

Analyzed By Age

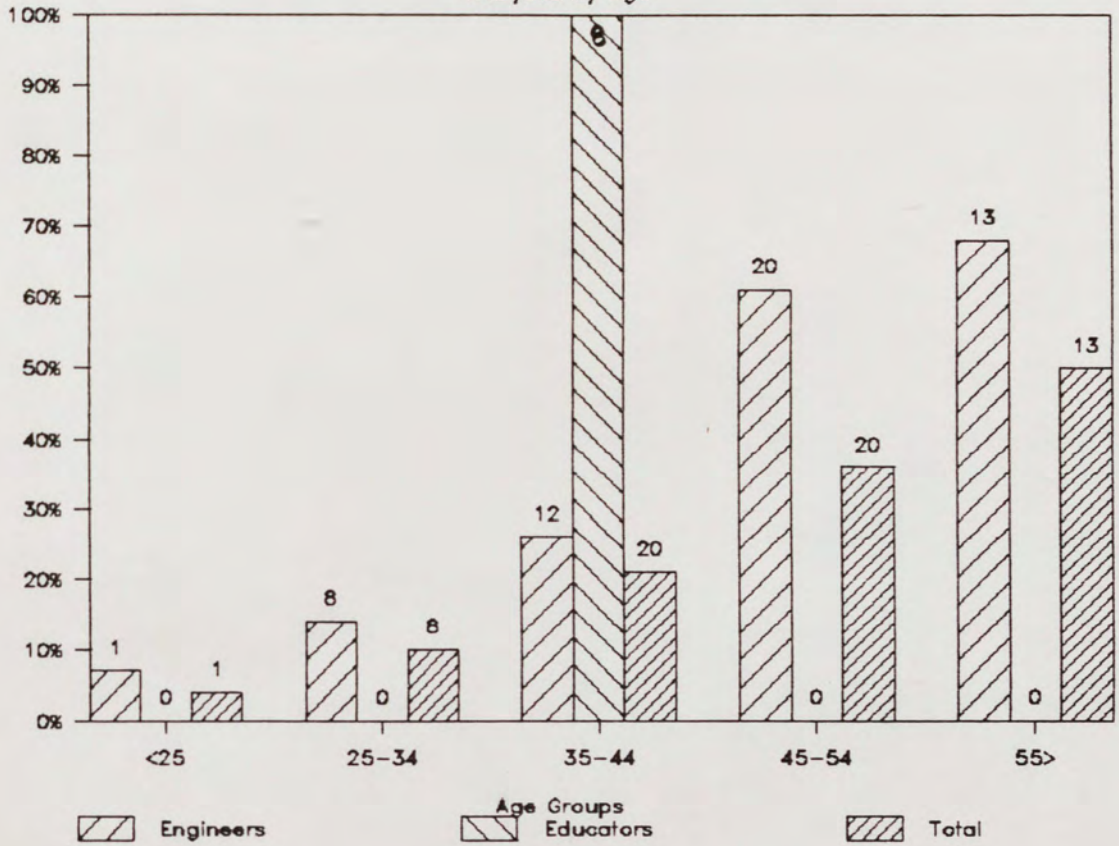


Figure 10. Respondents Who Perceived Themselves as Currently Working in a Career Stage 3 (Mentor) Position -Analyzed by Age of the Respondent

Current Career Stage 4

Analyzed By Age

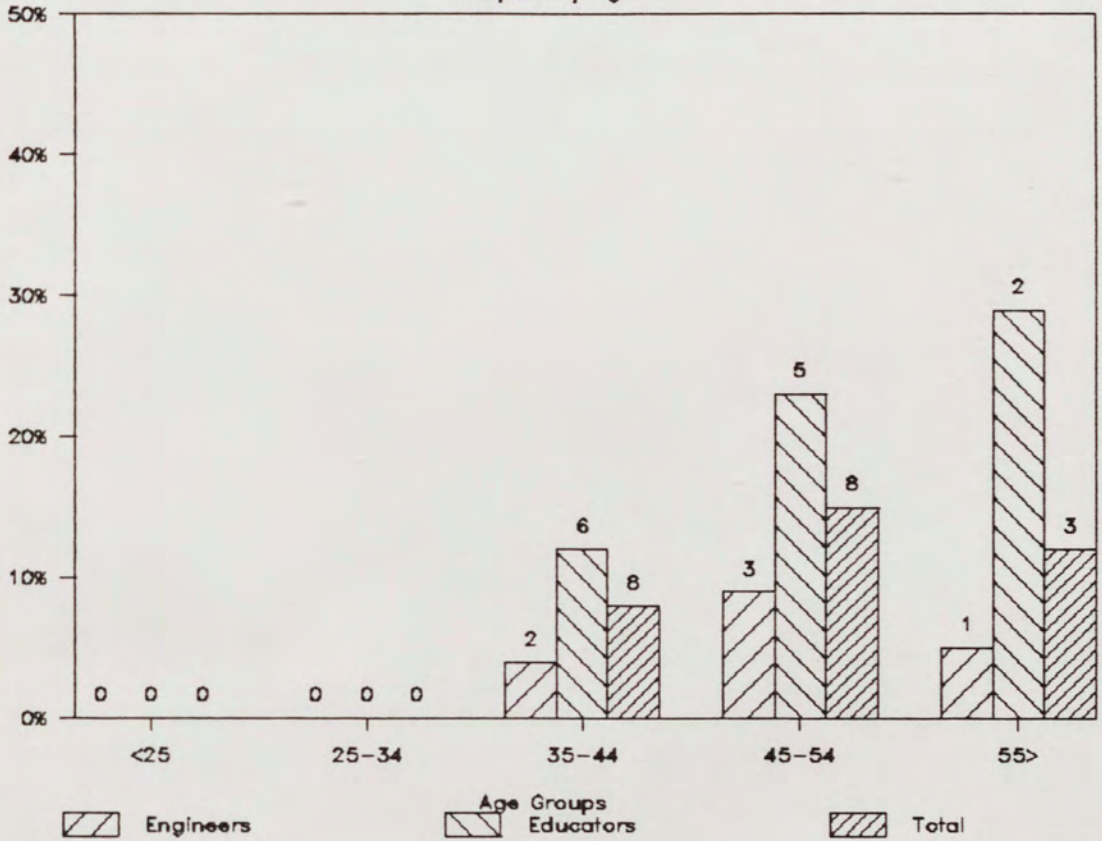


Figure 11. Respondents Who Perceived Themselves as Currently Working in a Career Stage 4 (Sponsor) Position -Analyzed by Age of the Respondent

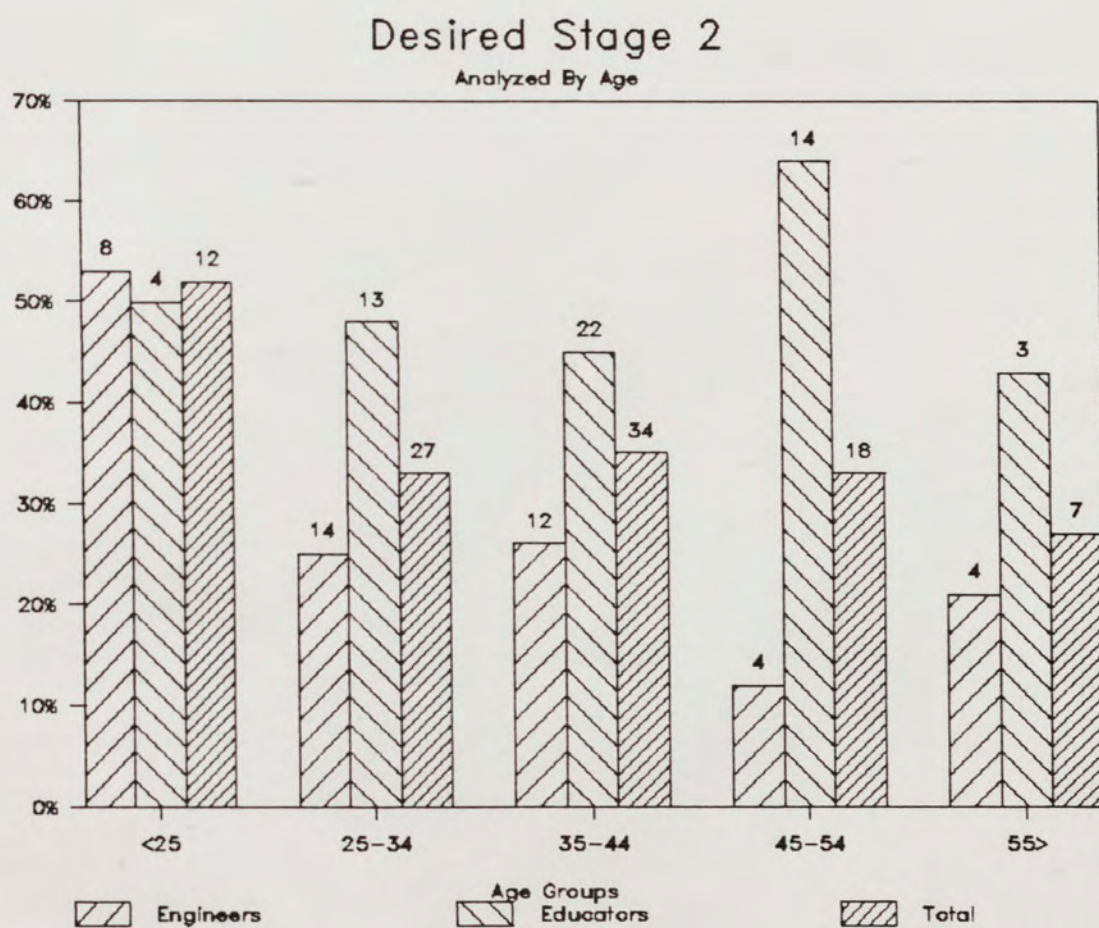


Figure 13. Respondents who Desired a Career Stage 2 (Colleague) Position - Analyzed by Age of the Respondent

Desired Stage 3

Analyzed By Age

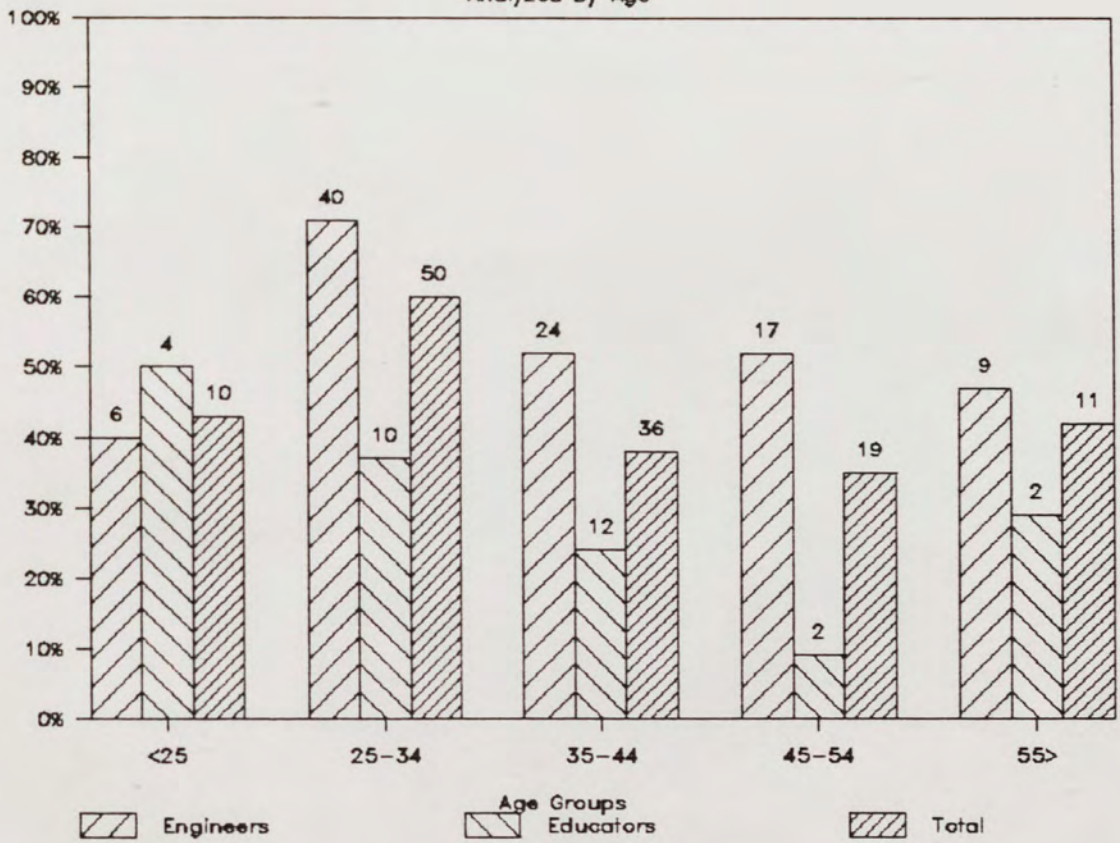


Figure 14. Respondents who Desired a Career Stage 3 (Mentor) Position - Analyzed by Age of the Respondent

Desired Career Stage 4

Analyzed By Age

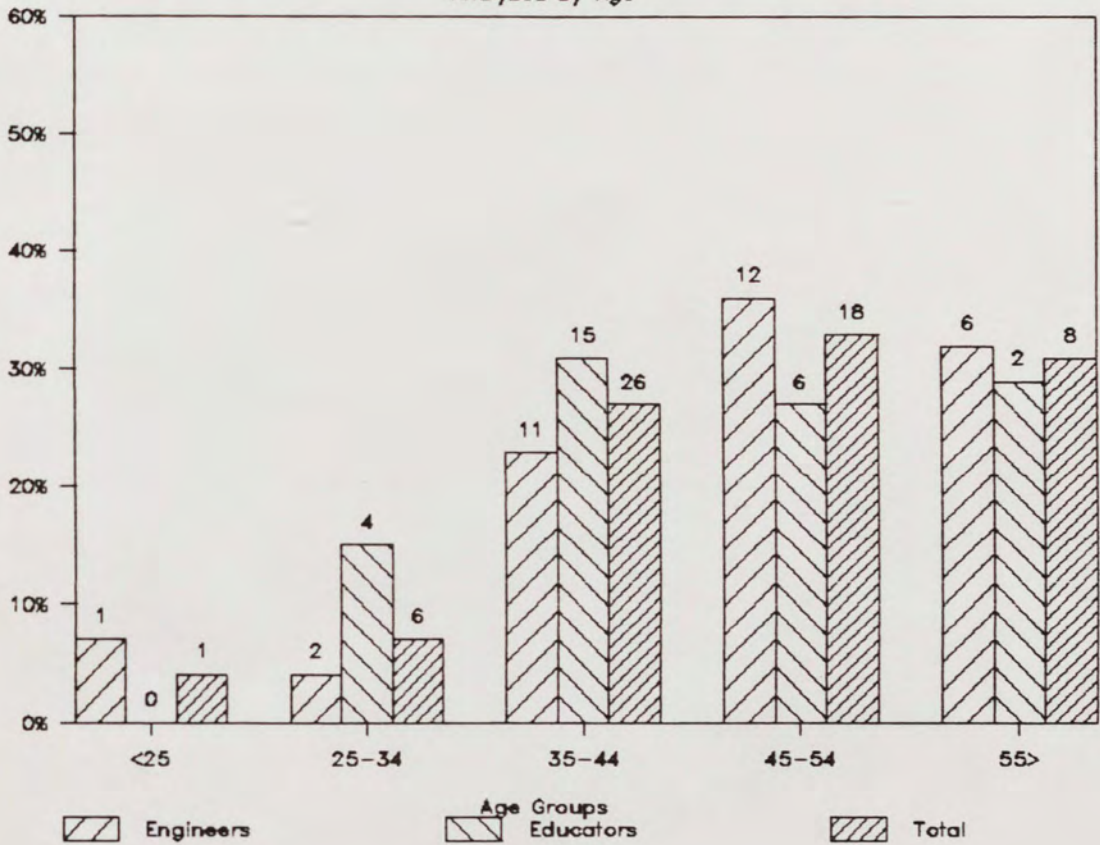


Figure 15. Respondents who Desired a Career Stage 4 (Sponsor) Position - Analyzed by Age of the Respondent

Current Career Stage 1

Analyzed by Time In Occupation

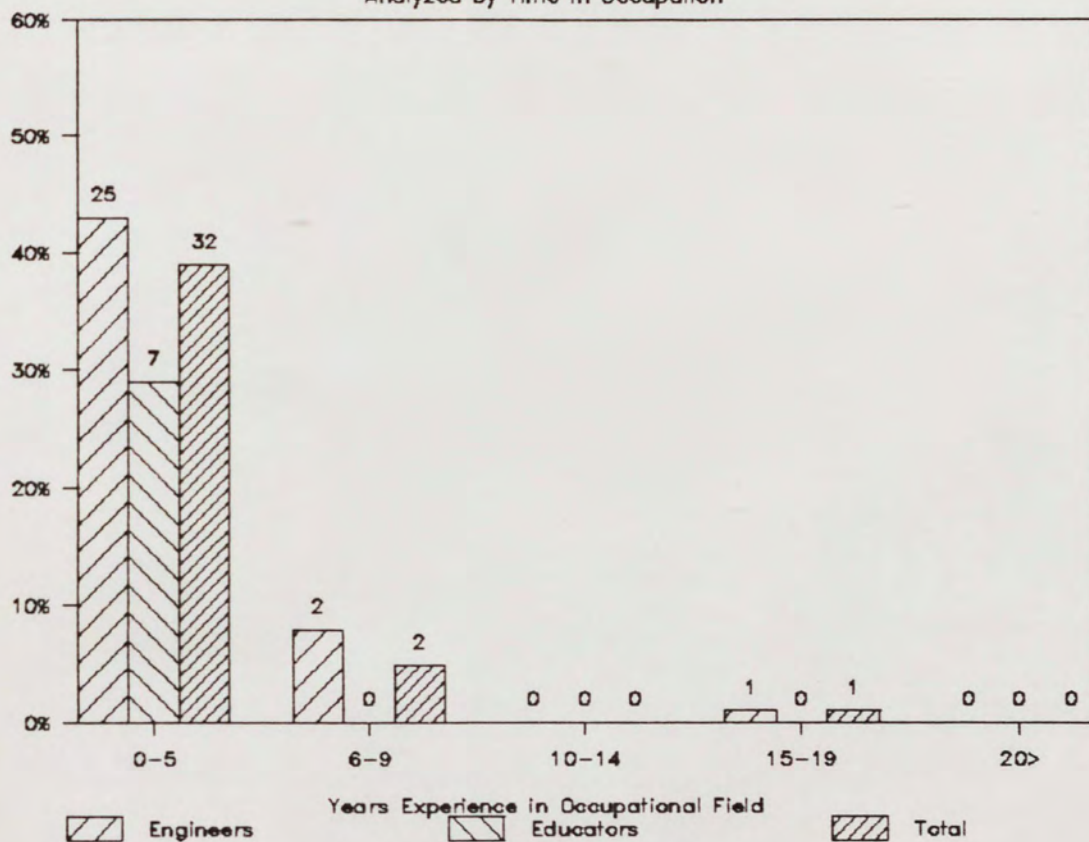


Figure 17.

Respondents who Perceived Themselves as Currently Working in a Career Stage 1 (Apprentice) Position - Analyzed by Years of Experience in Occupational Field

Current Career Stage 2

Analyzed by Time in Occupation

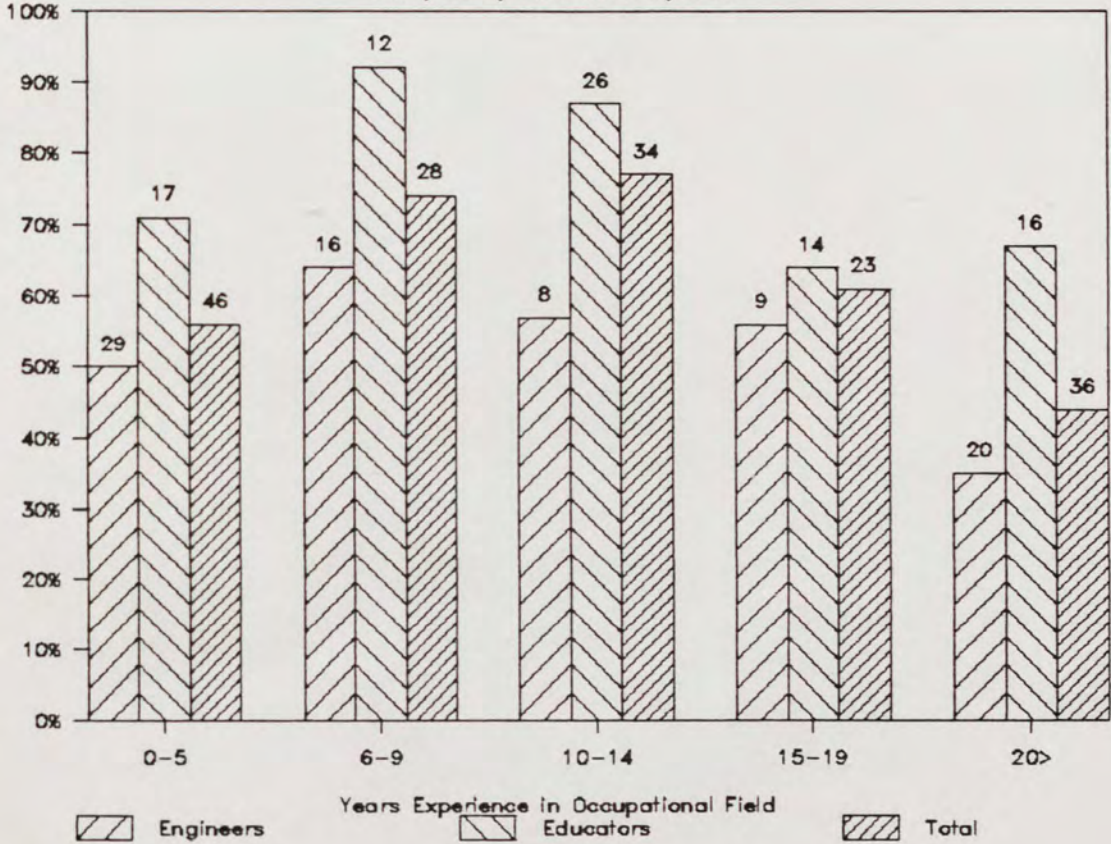


Figure 18. Respondents who Perceived Themselves as Currently Working in a Career Stage 2 (Colleague) Position - Analyzed by Years of Experience in Occupational Field

Current Career Stage 3

Analyzed by Time in Occupation

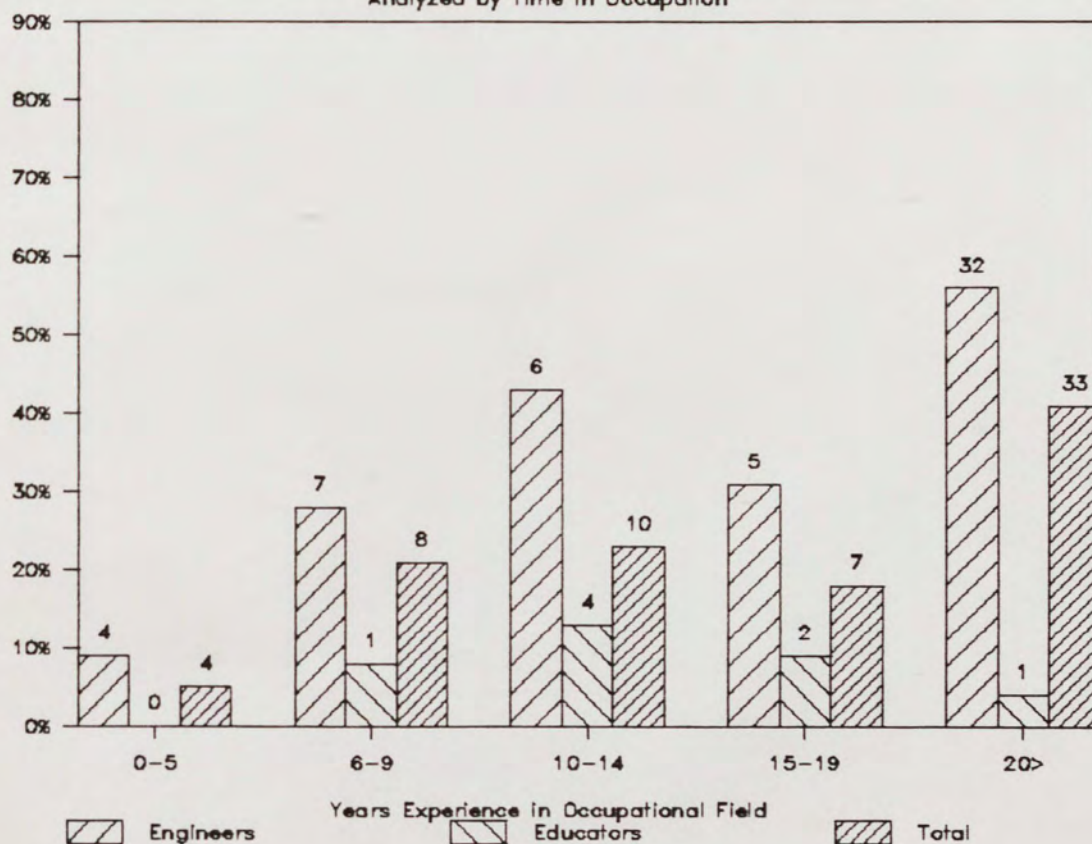


Figure 19.

Respondents who Perceived Themselves as Currently Working in a Career Stage 3 (Mentor) Position - Analyzed by Years of Experience in Occupational Field

Current Career Stage 4

Analyzed by Time In Occupation

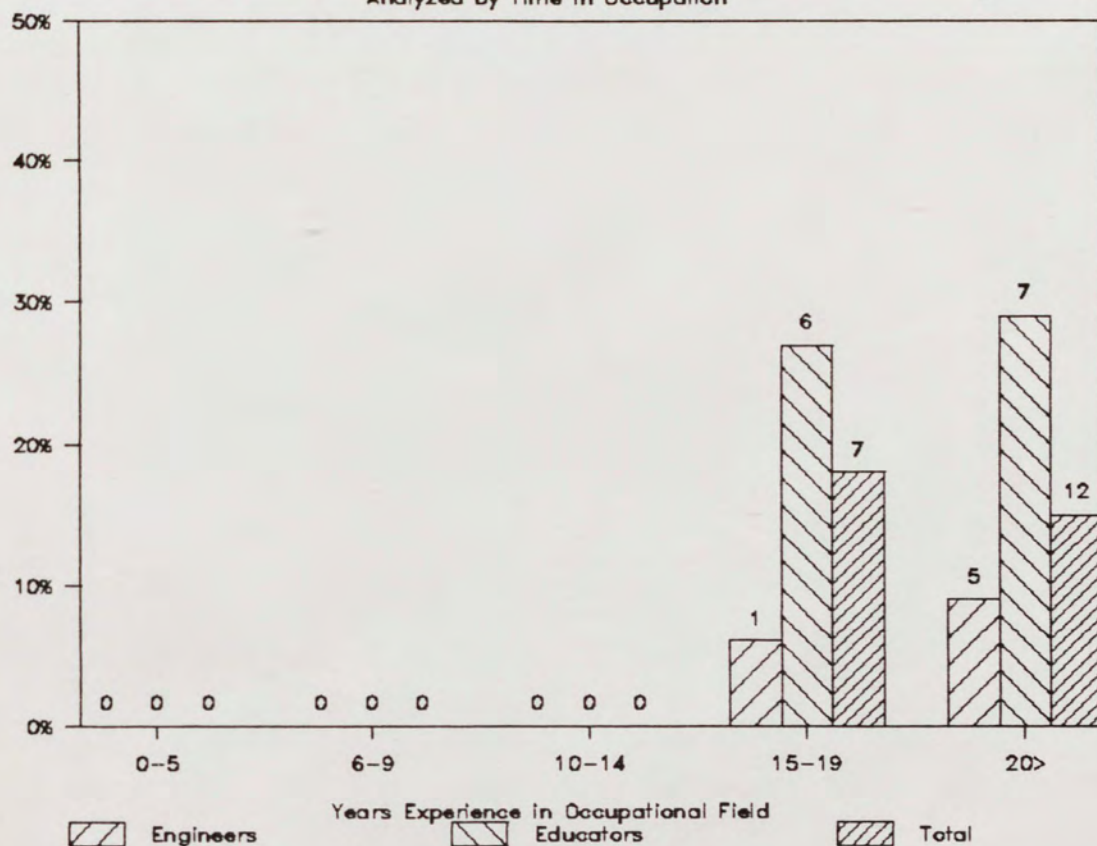


Figure 20. Respondents who Perceived Themselves as Currently Working in a Career Stage 4 (Sponsor) Position - Analyzed by Years of Experience in Occupational Field

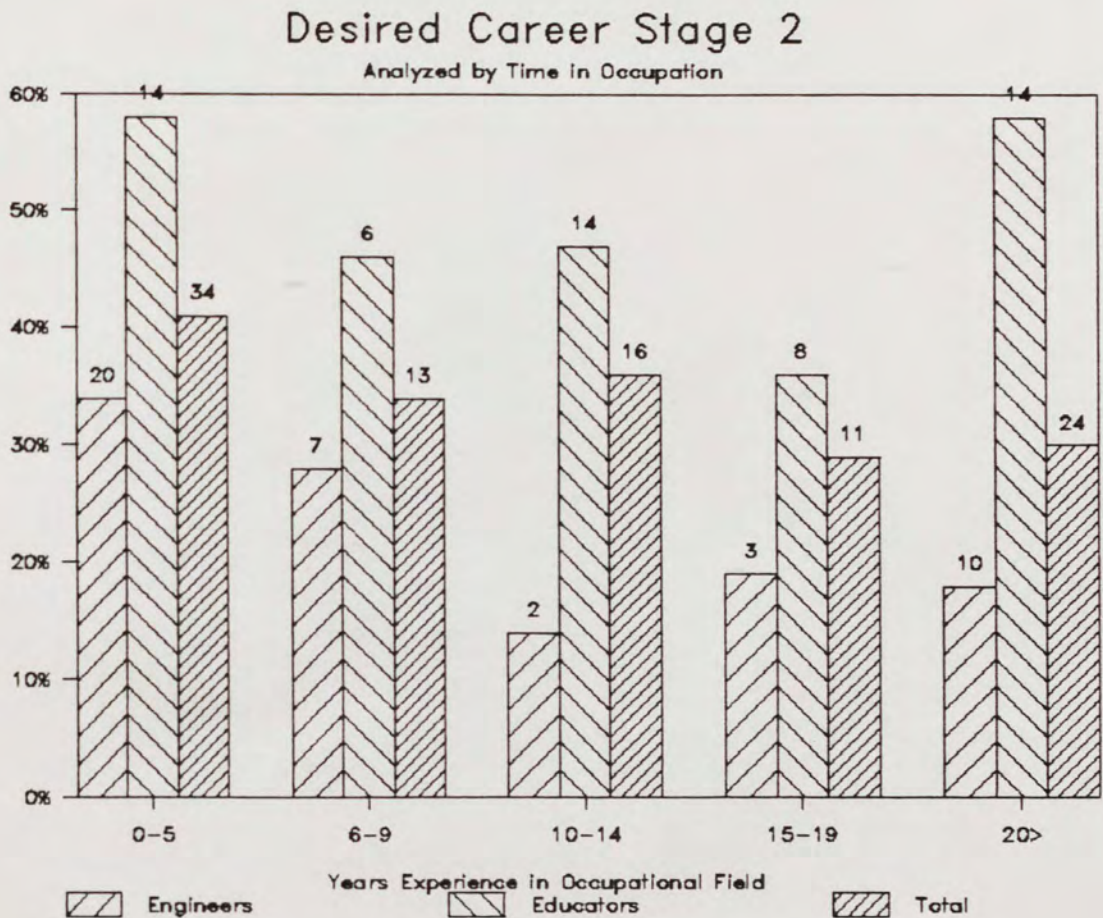


Figure 22.

Respondents who Desired a Career Stage 2 (Colleague) Position Analyzed by Years of Experience in Occupational Field

Desired Career Stage 3 Analyzed by Time in Occupation

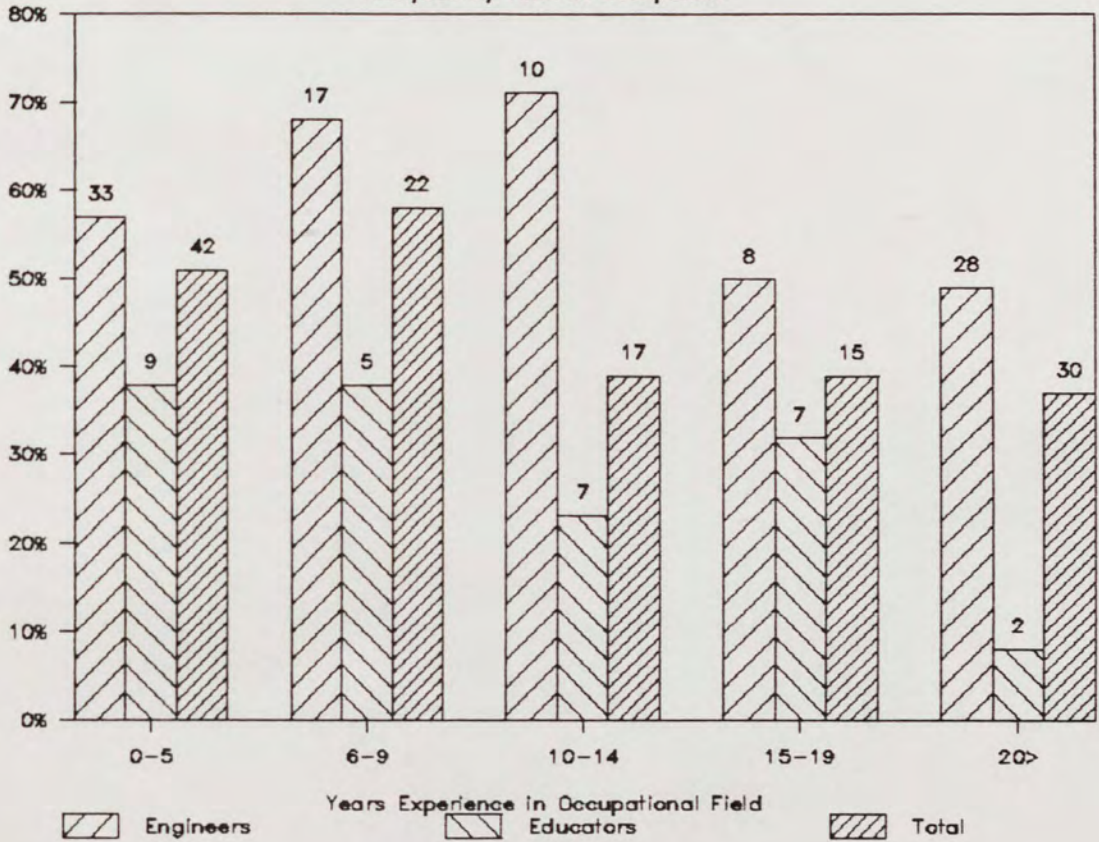


Figure 23.

Respondents who Desired a Career Stage 3 (Mentor) Position Analyzed by Years of Experience in Occupational Field

Desired Career Stage 4

Analyzed by Time in Occupation

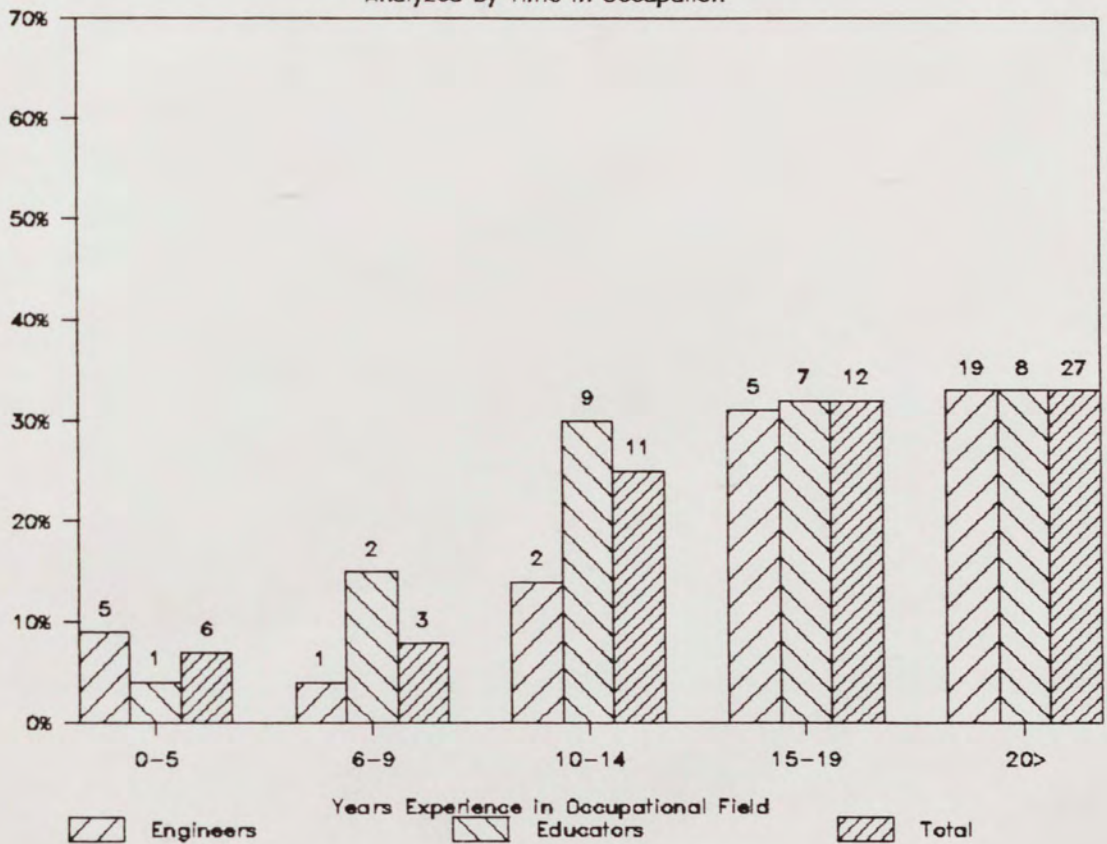


Figure 24. Respondents who Desired a Career Stage 4 (Sponsor) Position Analyzed by Years of Experience in Occupational Field

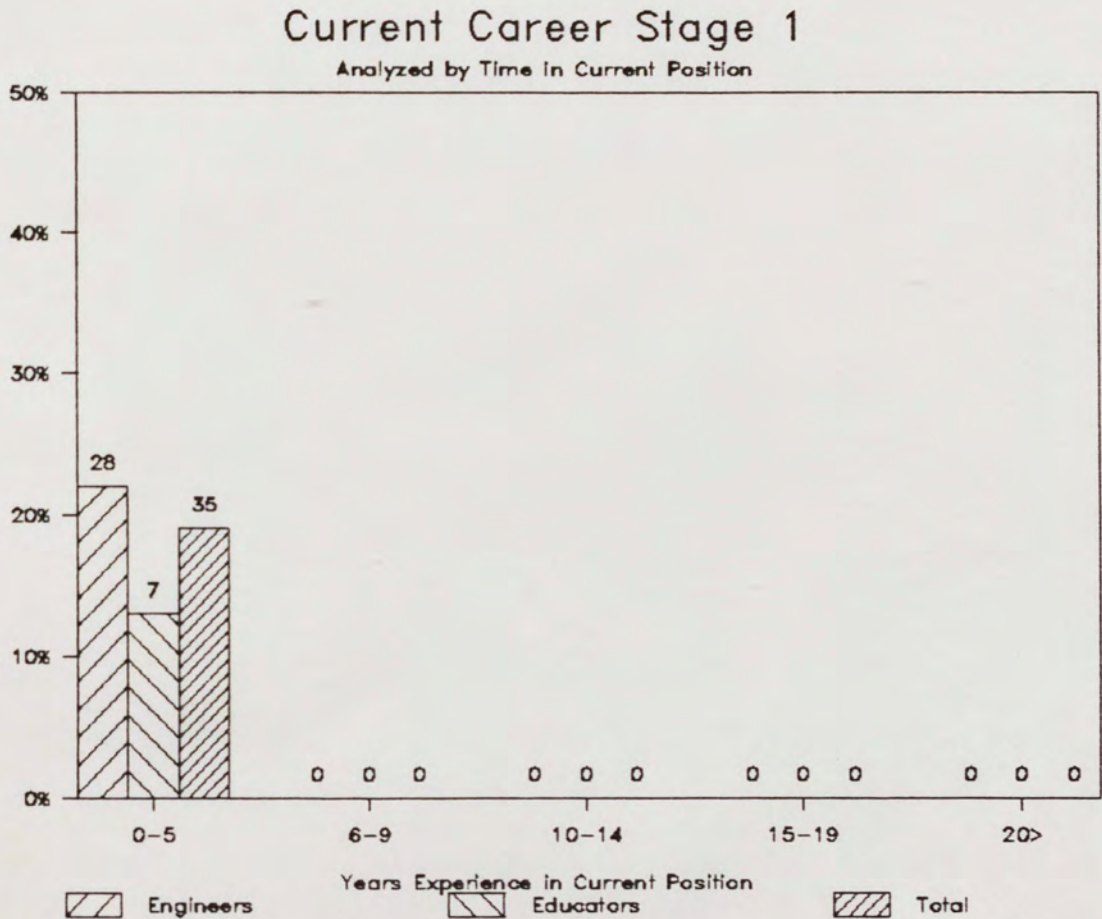


Figure 26. Respondents who Perceived Themselves as Currently Working in a Career Stage 1 (Apprentice) Position - Analyzed by Years of Experience in Current Position

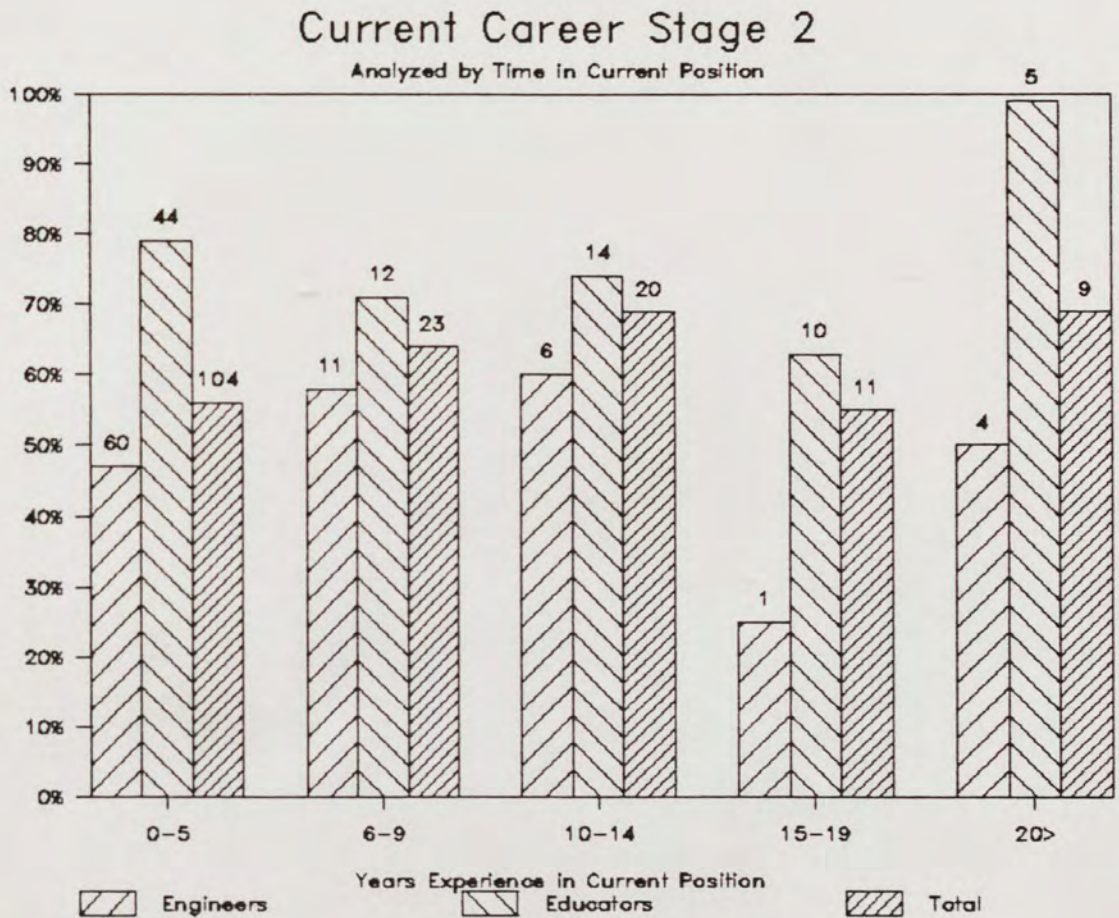


Figure 27. Respondents who Perceived Themselves as Currently Working in a Career Stage 2 (Colleague) Position - Analyzed by Years of Experience in Current Position

Current Career Stage 3

Analyzed by Time in Current Position

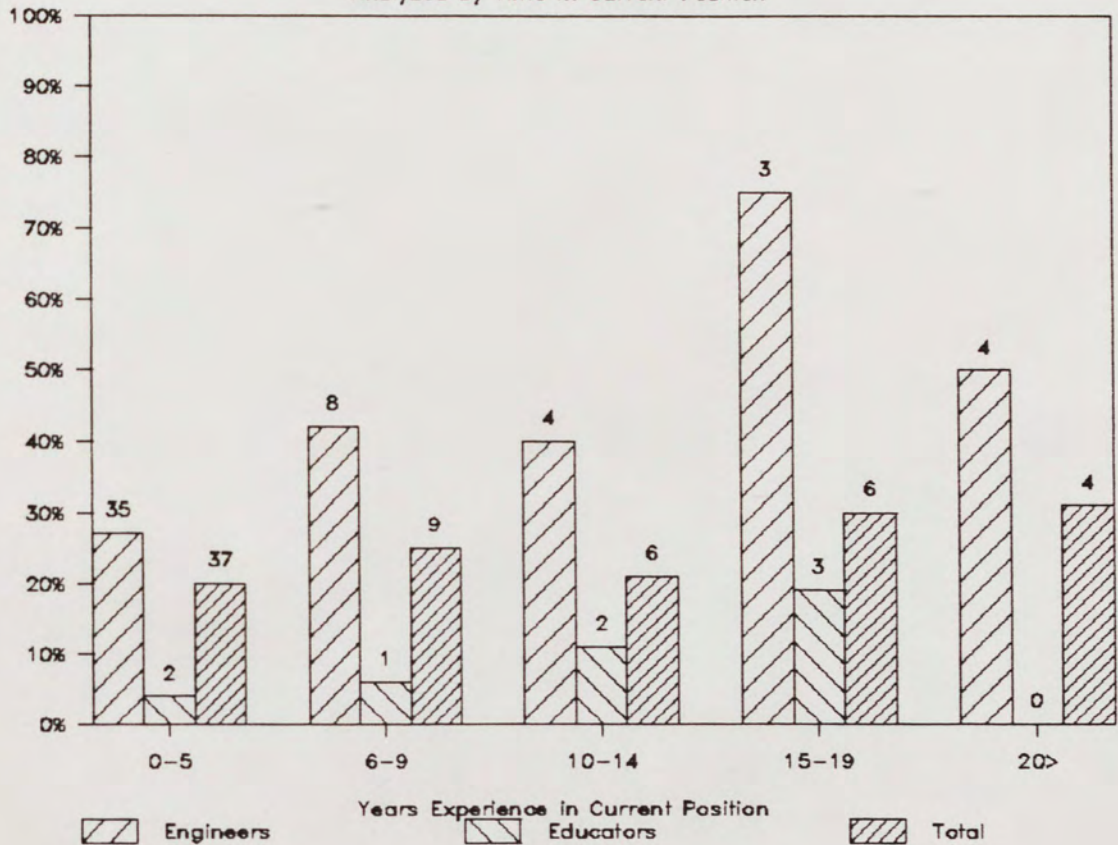


Figure 28. Respondents who Perceived Themselves as Currently Working in a Career Stage 3 (Mentor) Position - Analyzed by Years of Experience in Current Position

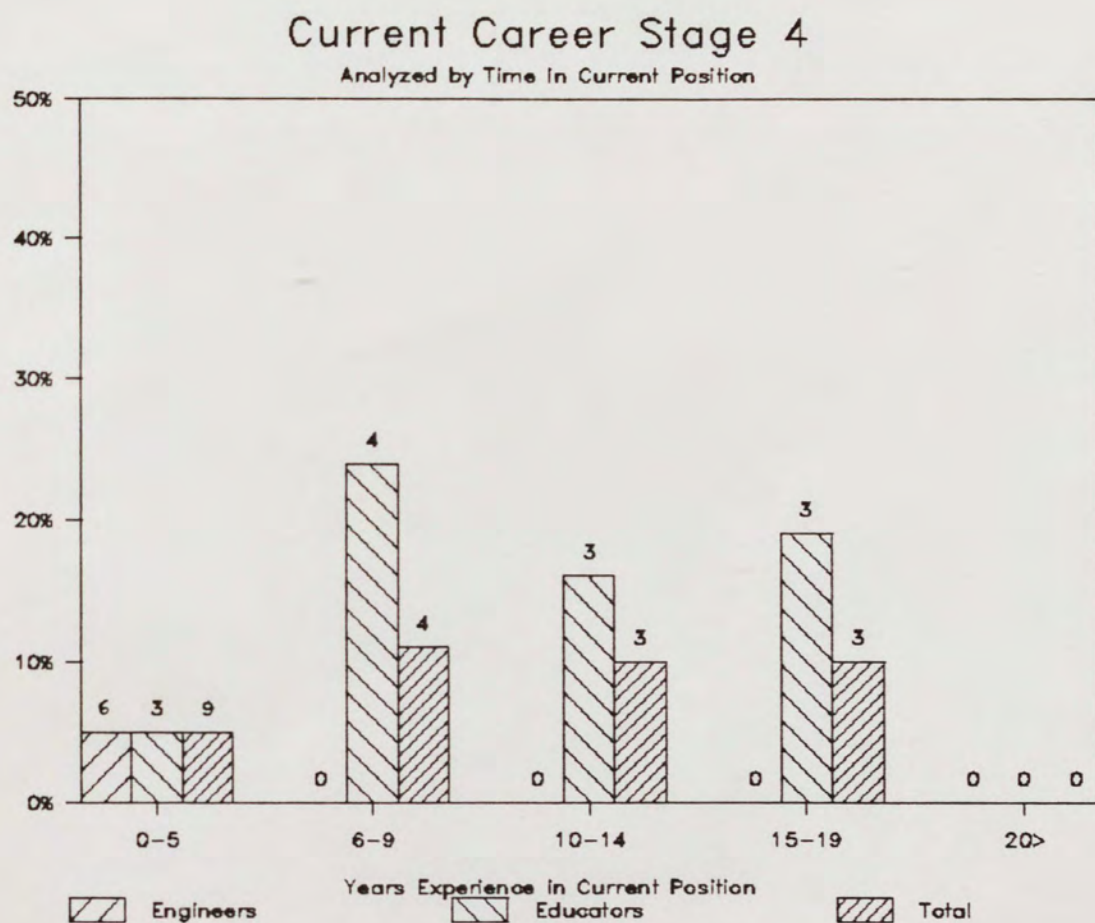


Figure 29. Respondents who Perceived Themselves as Currently Working in a Career Stage 4 (Sponsor) Position - Analyzed by Years of Experience in Current Position

Desired Career Stage 2

Analyzed By Time In Current Position

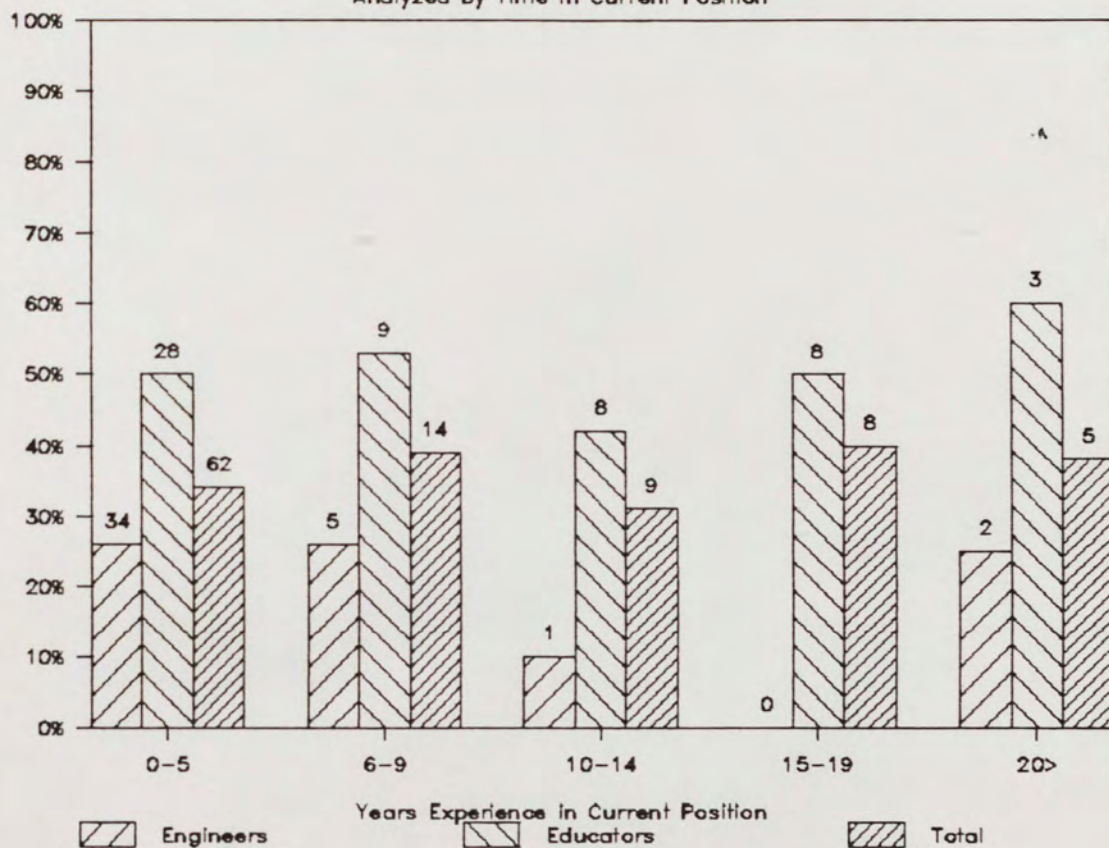


Figure 31.

Respondents who Desired a Career Stage 2 Position - Analyzed by Years of Experience in Current Position

Desired Career Stage 3

Analyzed by Time in Current Position

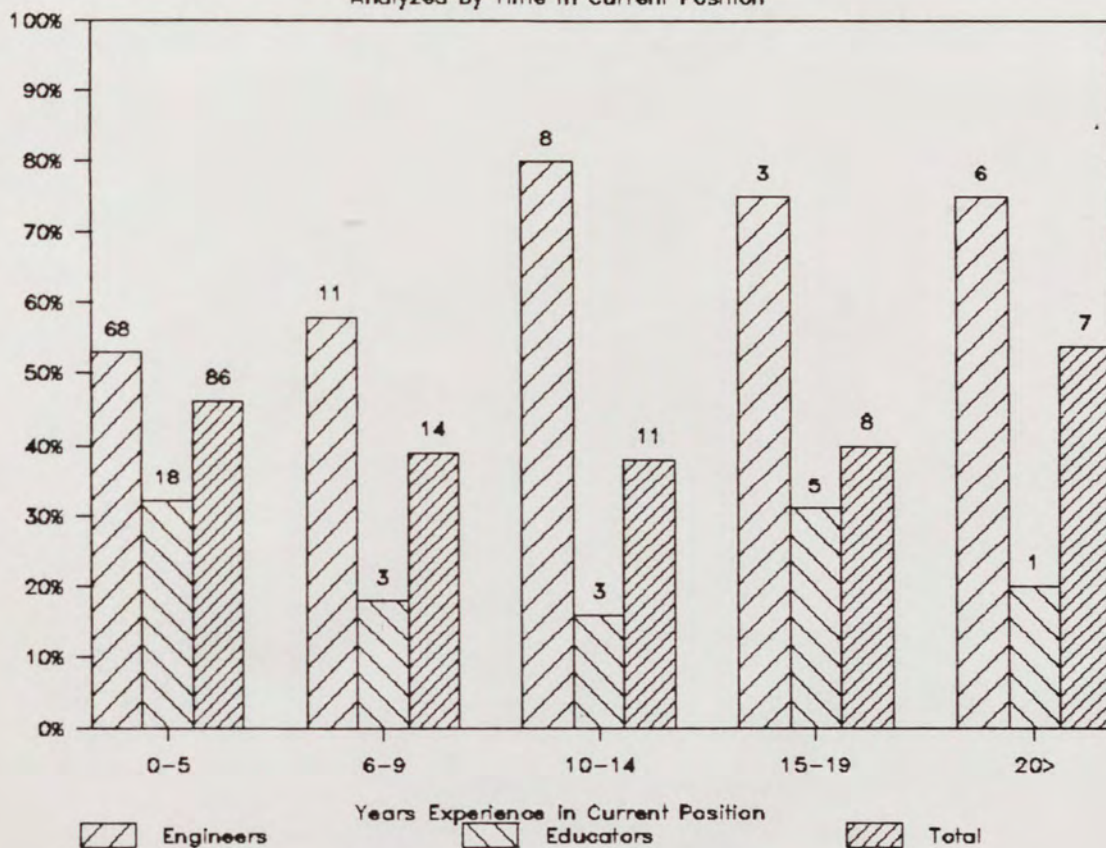


Figure 32.

Respondents who Desired a Career Stage 3 Position - Analyzed by Years of Experience in Current Position

Desired Career Stage 4

Analyzed by Time in Current Position

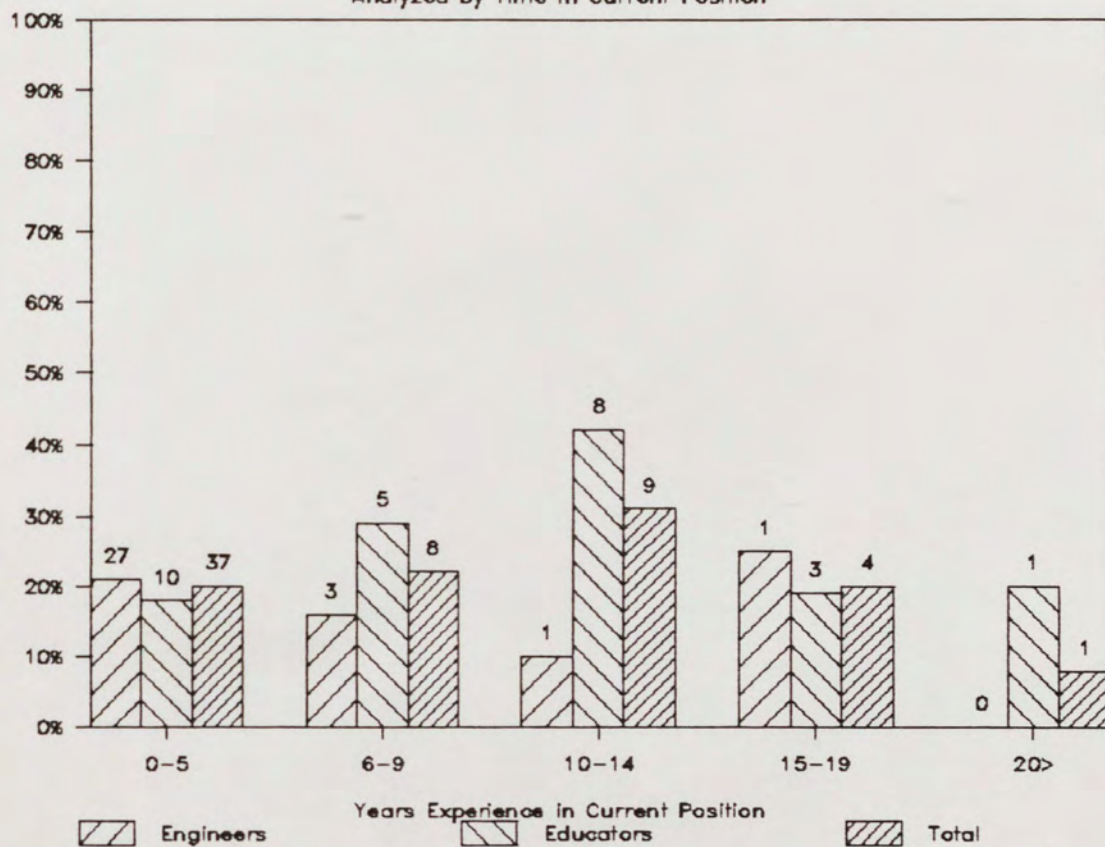


Figure 33. Respondents who Desired a Career Stage 4 Position - Analyzed by Years of Experience in Current Position

Current Career Stage 1

Analyzed by Highest Degree Held

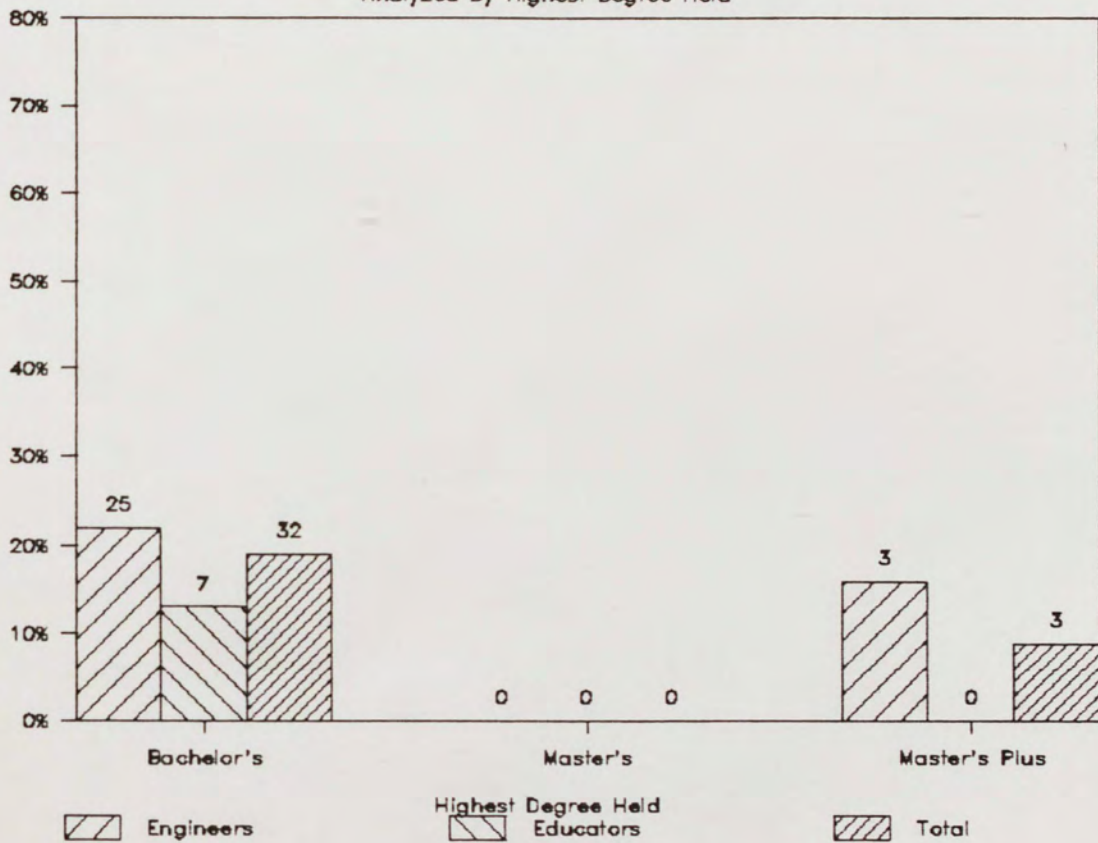


Figure 35. Respondents who Perceived Themselves as Currently Working in a Career Stage 1 (Apprentice) Position - Analyzed by Highest Degree Held by the Respondent

Current Career Stage 2

Analyzed by Highest Degree Held

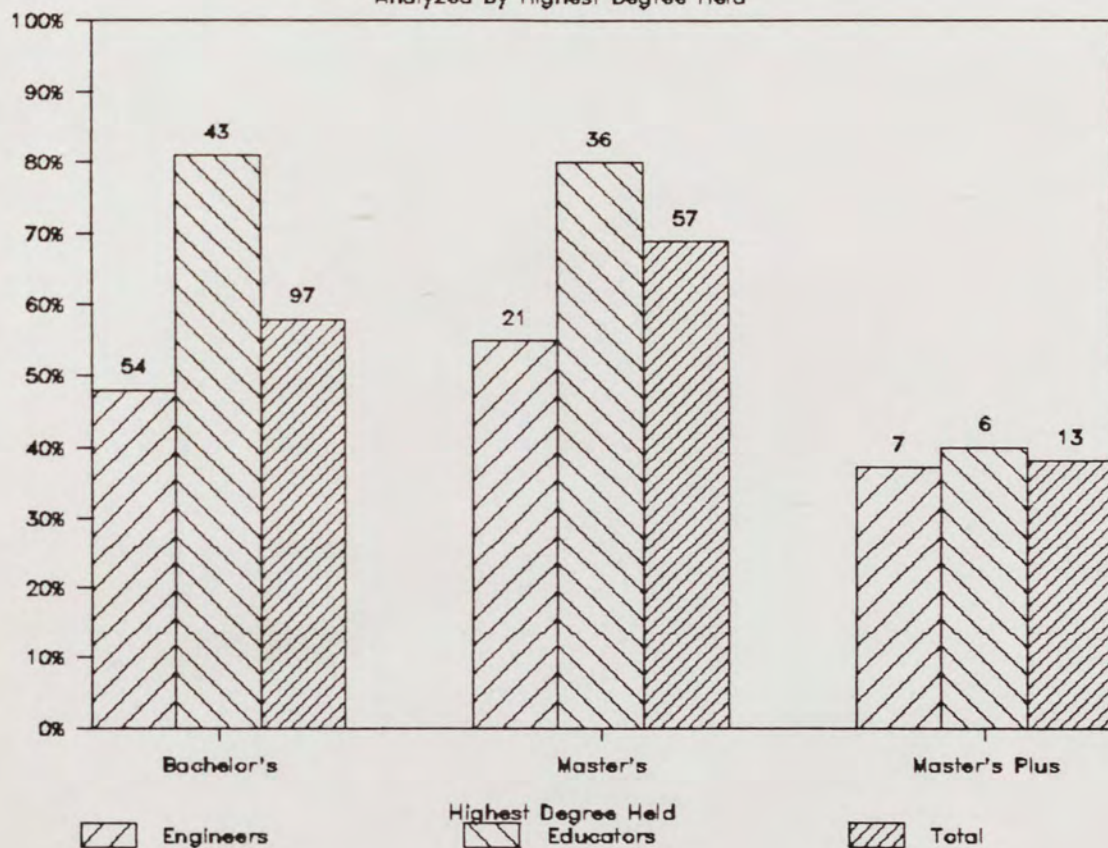


Figure 36. Respondents who Perceived Themselves as Currently Working in a Career Stage 2 (Colleague) Position - Analyzed by Highest Degree Held by the Respondent

Current Career Stage 3

Analyzed by Highest Degree Held

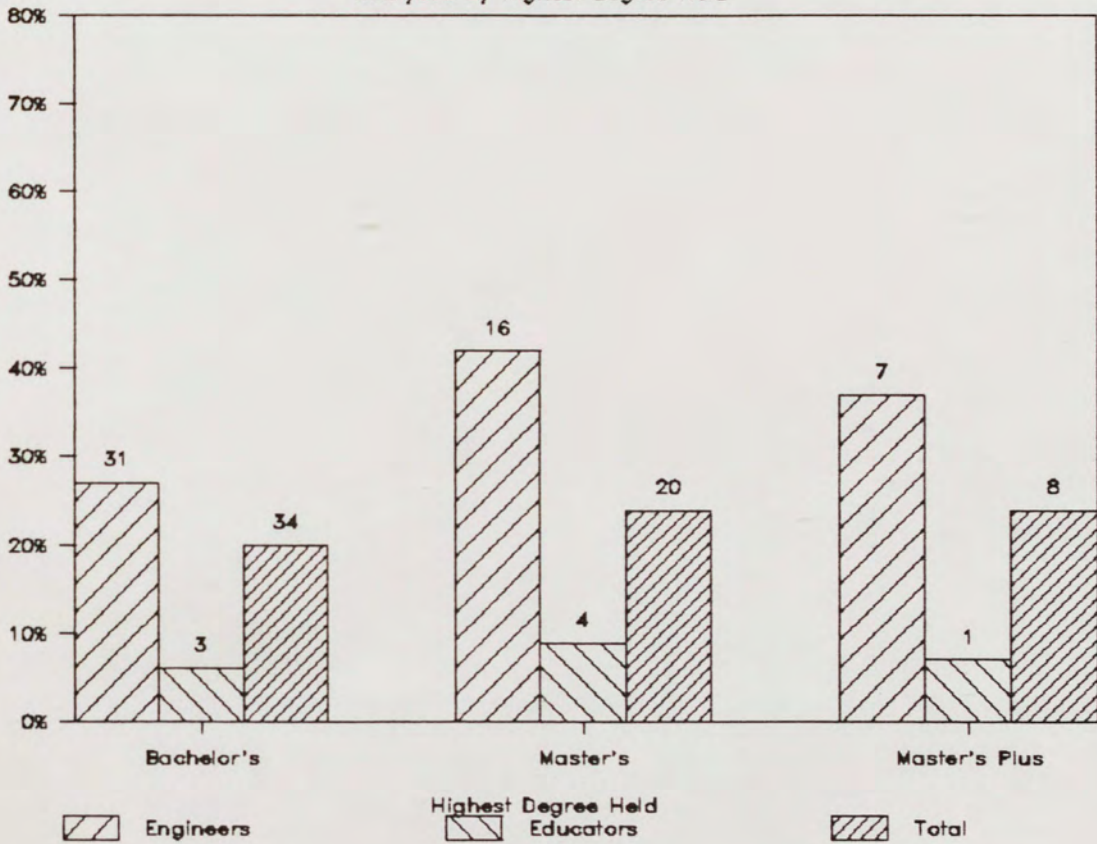


Figure 37. Respondents who Perceived Themselves as Currently Working in a Career Stage 3 (Mentor) Position - Analyzed by Highest Degree Held by the Respondent

Current Career Stage 4

Analyzed by Highest Degree Held

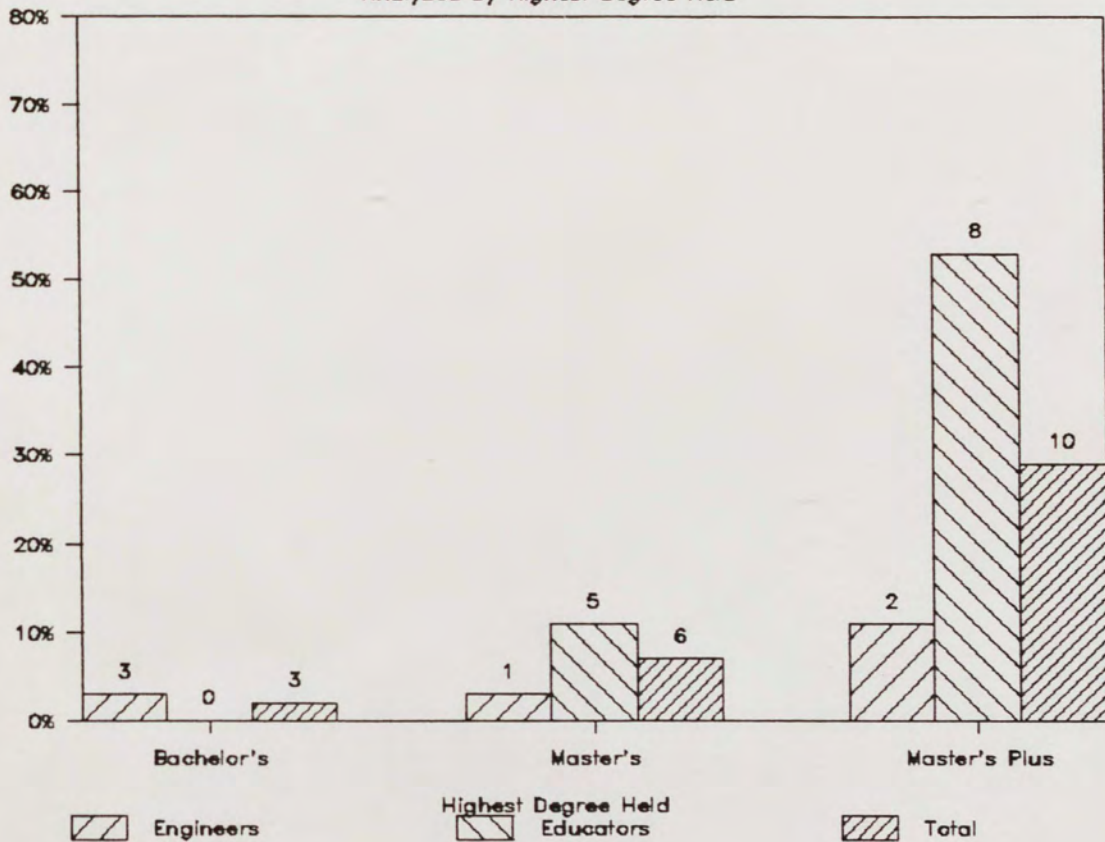


Figure 38. Respondents who Perceived Themselves as Currently Working in a Career Stage 4 (Sponsor) Position - Analyzed by Highest Degree Held by the Respondent.

Desired Career Stage 2

Analyzed By Highest Degree Held

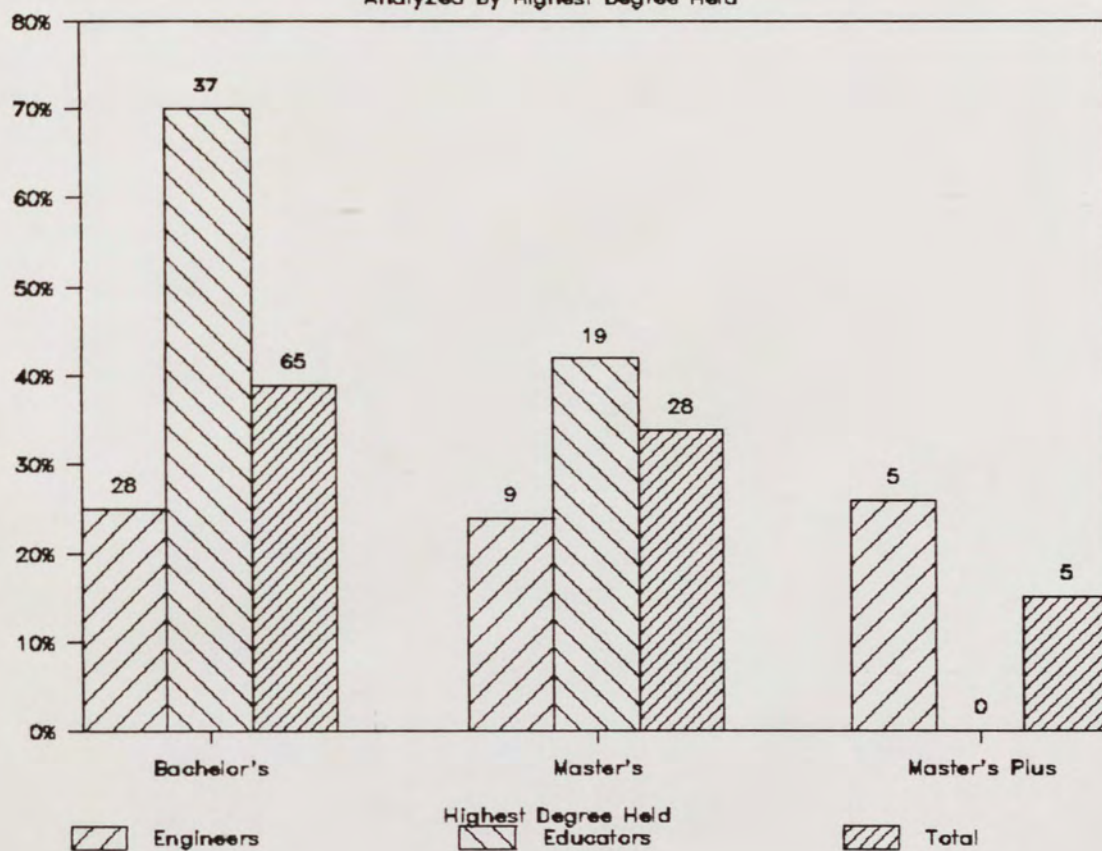


Figure 40. Frequency and Percentage of Respondents' Desired Career Stage 2 (Colleague) Position - Analyzed by Highest Degree Held by the Respondent

Desired Career Stage 3

Analyzed by Highest Degree Held

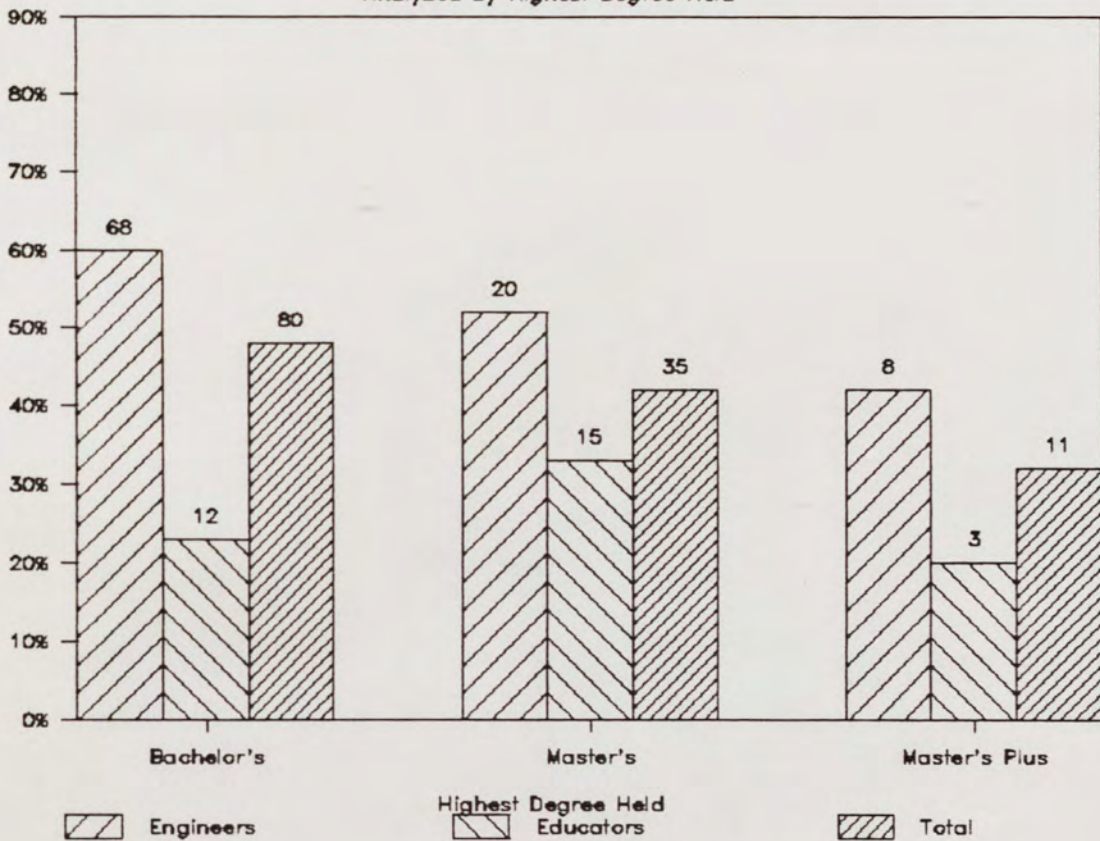


Figure 41. Frequency and Percentage of Respondents' Desired Career Stage 3 (Mentor) Position - Analyzed by Highest Degree Held by the Respondent

Desired Career Stage 4

Analyzed by Highest Degree Held

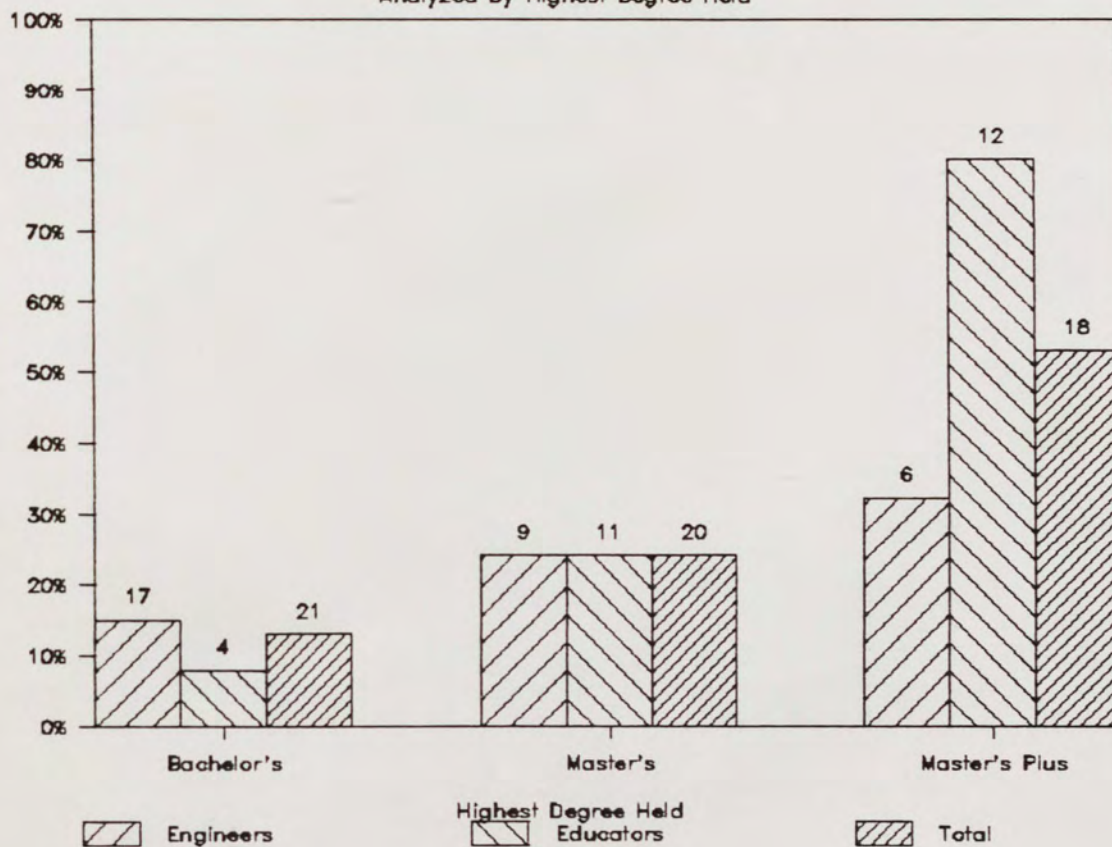


Figure 42. Frequency and Percentage of Respondents' Desired Career Stage 4 (Sponsor) Position - Analyzed by Highest Degree Held by the Respondent

Technical Career Track Preferences

Analyzed by Current Stage

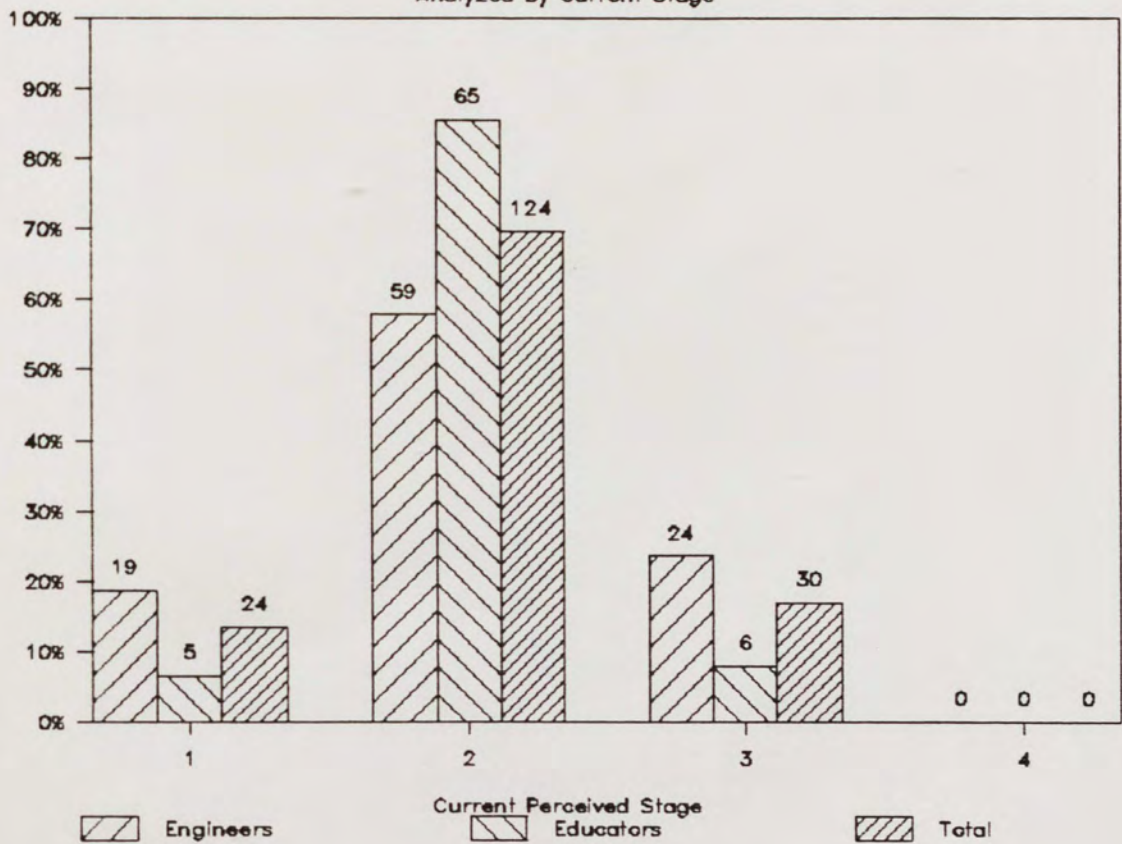


Figure 43. Frequency and Percentage of Respondents who Desired to Pursue a Technical Career Track in their Organization - Analyzed by Respondents' Perceived Current Career Stage

Managerial Career Track Preferences

Analyzed by Current Stage

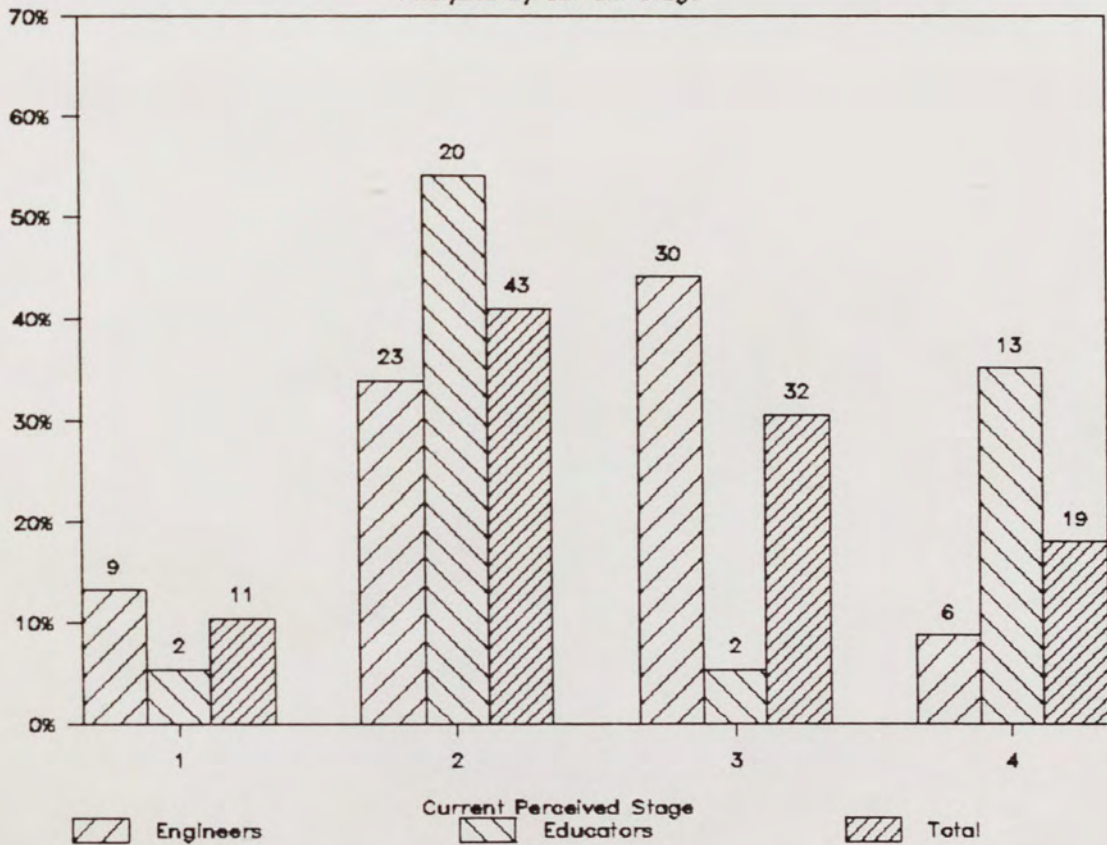


Figure 44. Frequency and Percentage of Respondents who Desired to Pursue a Managerial Career Track in their Organization - Analyzed by Respondents Perceived Current Career Stage

Technical Career Track Preferences Analyzed by Desired Stage

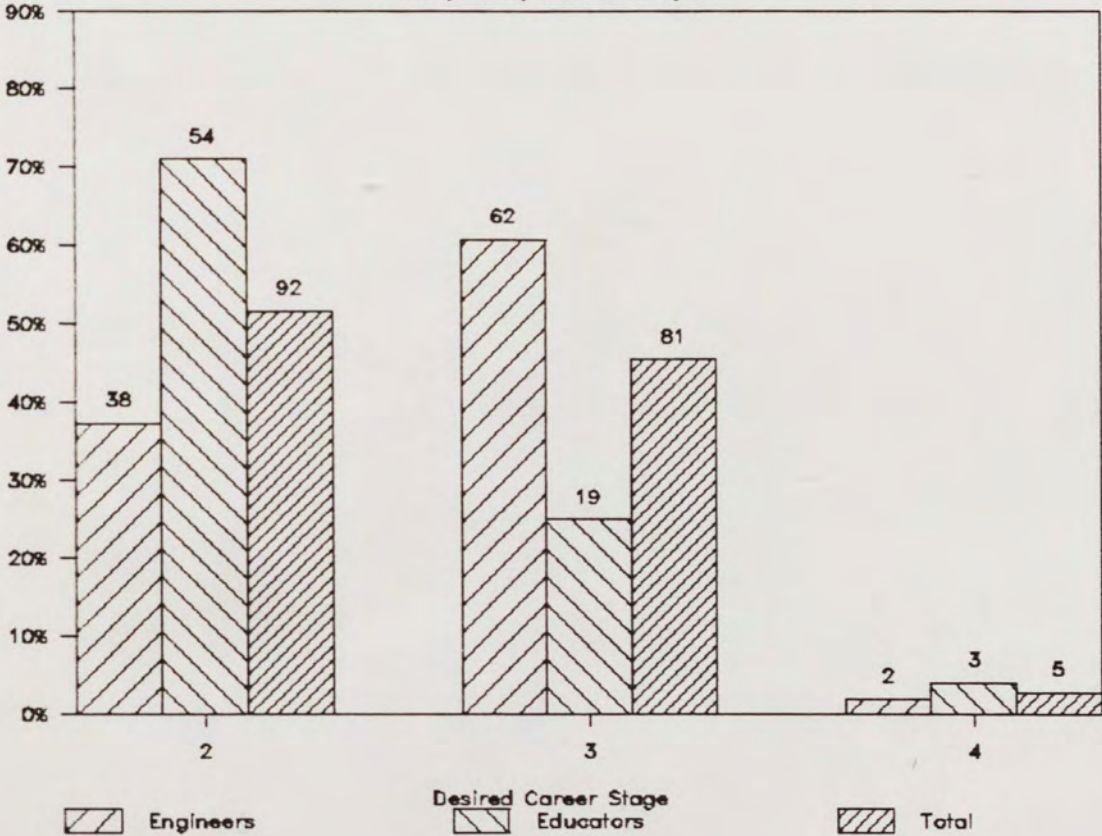


Figure 45. Frequency and Percentage of Respondents who Desired to Pursue a Technical Career Track in their Organization - Analyzed by Respondents Desired Career Stage

Managerial Career Track Preferences

Analyzed by Desired Stage

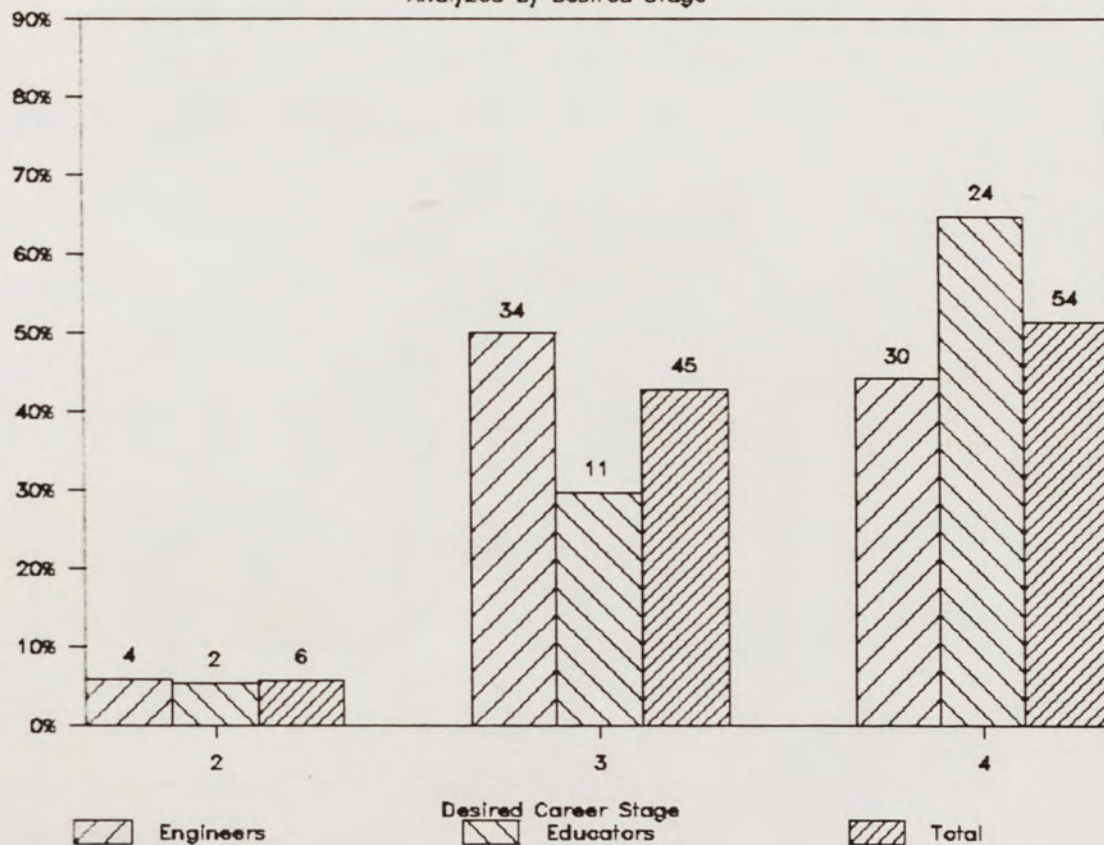


Figure 46. Frequency and Percentage of Respondents who Desired to Pursue a Managerial Career Track in their Organization - Analyzed by Respondents Desired Career Stage

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