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The Relationship between Nonsupervisory Employees' Self-Assessment of Their Supervisory Skills and the Amount of Satisfaction They Believe They Would Receive from Being a Supervisor

Arthur W. Hoffmann
Western Michigan University

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THE RELATIONSHIP BETWEEN NONSUPERVISORY EMPLOYEES' SELF-ASSESSMENT OF THEIR SUPERVISORY SKILLS AND THE AMOUNT OF SATISFACTION THEY BELIEVE THEY WOULD RECEIVE FROM BEING A SUPERVISOR

by

Arthur W. Hoffmann

A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Education Department of Educational Leadership

Western Michigan University Kalamazoo, Michigan August 1985

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THE RELATIONSHIP BETWEEN NONSUPERVISORY EMPLOYEES' SELF-ASSESSMENT OF THEIR SUPERVISORY SKILLS AND THE AMOUNT OF SATISFACTION THEY BELIEVE THEY WOULD RECEIVE FROM BEING A SUPERVISOR

Arthur W. Hoffmann, Ed. D.
Western Michigan University, 1985

This descriptive study investigated the relationship between perceived supervisory effectiveness (competence) and perceived supervisory satisfaction for nonsupervisory professional-technical employees who may aspire to supervisory positions. The study participants are employees of a large industrial company engaged in the engineering and manufacturing of diversified products for the automotive industry. Specifically, the study attempted to (a) collect employee self-assessment data regarding the employee's perceived supervisory job effectiveness and perceived job satisfaction, (b) determine whether a relationship existed between perceived supervisory effectiveness and satisfaction, and (c) determine if the employee's age and educational level were influencing factors.

In order to investigate the relationship between perceived supervisory effectiveness and satisfaction, hypotheses were presented which dealt with overall supervisory ability and also with each of the seven supervisory ability areas. Additionally, hypotheses dealing with the potential influence age and education may have on the perceived supervisory effectiveness and satisfaction assessments were
presented for testing.

A major conclusion of the study was that there exists a direct relationship between perceived supervisory effectiveness and satisfaction for nonsupervisory professional-technical employees. This relationship was present for each of the seven supervisory ability areas as well as for the overall supervisory job assessment. It was further found that the research hypotheses suggesting that age and education were factors which influenced a person's perceived supervisory effectiveness and satisfaction assessments could not be supported.

Organizations typically use job competence as the most important and often sole criterion when selecting employee candidates to fill supervisory openings. The findings of this study support the use of perceived job satisfaction as an additional criterion to use in making the supervisory candidate screening decision. The use of age and education as screening criteria was not supported in this study.
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Western Michigan University

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ACKNOWLEDGMENTS

First I wish to thank the faculty and staff of Western Michigan University who had the foresight and conviction that made this doctoral program possible. Thanks go to all of the instructors of the Educational Leadership Department who traveled to Selfridge Air National Guard Base in Mt. Clemens, Michigan and unselfishly dedicated themselves to this quality program.

I am especially indebted to Dr. Carol Sheffer for her unflagging support and for whom I hold a very special place in my heart. I extend deep appreciation and personal respect to Dr. Uldis Smidchens, my chair, and probably the finest professional I have ever been privileged to know. Dr. Schappe, my committee member from General Motors is a person I respect and admire and hopefully someday I can emulate. It should be remembered that behind every successful endeavor are those who really make it work. I am, of course, thinking of Nellie Stell and the staff of the Educational Leadership Department who form the bulkwork of this doctoral program effort at Western. Also I wish to thank Barbara Arnow, the consultant from Career Dynamics Incorporated and seminar facilitator, who was a delight to work with.

I am personally thankful to Tom Blake, Robert Booker, Jeanne Butman, Michelle Powell, Gloria Torres, and Dave Watkins who worked so diligently with me in collecting and processing the data as well as typing the dissertation and its many drafts.
Heartfelt thanks are given to my parents and my personal family who extended support and understanding during this undertaking. To my children Stephen and Kimberly I wish to express my love and it is my hope that this accomplishment will serve as an inspiration for them to strive toward their formal education and pursuit of knowledge. May God bless all those whose lives were touched in this endeavor.

Arthur W. Hoffmann
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CHAPTER I

INTRODUCTION

Statement of the Problem

Employees are people who join and contribute to work organizations under a psychological agreement. This agreement is a set of expectations held by both the individual and the organization and specifying what each expects to give and receive from one another during the course of their working relationship (Schermerhorn, Jr., Hunt, & Osborn, 1982). Most professional-technical employees expect that during the course of employment they will gain experience, mature in their jobs and advance to higher levels of responsibility. Often the measure of success is achieving a management position (Bailyn, 1980). According to Hall (1976) career progress represents the person's entire life in the work setting.

Walker and Gutteridge (1979) believe that it is the responsibility of an individual to manage his or her career through a process of self-assessment and self-development. This is especially true for professional-technical employees in organizations where dual-career paths are available (Greenwald, 1978). The dual path allows the employee to choose either the technical specialty or the managerial route, whichever he or she perceives to offer the most job satisfaction and need fulfillment.

The organization's obligation is to support and recognize
employees' desires, contributions, skills and abilities when selecting candidates for promotional opportunities. This will ensure that both the individual and the organization continue to receive a fair exchange of values under the psychological agreement. Both employees and management benefit if the promotional selection process produces successful candidates to fill organizational openings (Schermerhorn, Jr., Hunt, & Osborn, 1982). Organizations are dependent upon the performance of their people, and employees are dependent upon organizations to provide jobs and career opportunities. The career needs of the employee and the staffing requirements of the organization must be matched so that both the employee and organization can benefit (Schein, 1978). Career goal progress and opportunities for promotion to management are major concerns of many professional-technical employees (Harlow, 1971).

However, Giegold (1982) states that "most engineers and scientists who accept management positions, to fill the needs of their organization for leadership, do so without a full understanding of the nature and demands of the management job" (p. 94).

Concurrently, the concern of management is to promote the best qualified people to positions of higher responsibility and preferably to select candidates from within the organization. This is particularly true for supervisory openings (Gutteridge, 1976).

Hall (1976) points out that one of the risks involved in promoting a person is that he or she will not be successful in the new position. When this occurs, remedial action is required. This could include demotion, transfer or extended training and consultation. The
promotion of an unqualified or uncommitted professional-technical employee to a supervisory position creates two distinct concerns for an organization. First, the organization loses a competent technician and, secondly, they must deal with an ineffective supervisor who can negatively influence a whole work group, thus multiplying the potential problems.

According to Walker and Gutteridge (1979) many companies have traditionally used tests on vocational interests, aptitudes, personality, motivation and other employee characteristics in making employee selection, promotion and transfer decisions. However, since many tests have been challenged as potentially discriminatory against women and minorities, many companies have discontinued their use. Others found the tests are not valid predictors or that results were inconsistent.

It is essential for organizations to develop management selection processes which will ensure that candidates who are promoted to supervisory positions demonstrate both competency and what Bower (1966) calls "the will to manage" (p. 292). The organization benefits because they can retain and reward highly technical people and promote to management only those who have the skills and desire to manage the work of others.

The purpose of this study is to investigate the relationship which is hypothesized to exist between perceived job effectiveness and the perceived job satisfaction for professional-technical employees who may aspire to supervisory positions.
Need and Significance of Study

In order to deal with the management selection problem, many companies and organizations have implemented new and innovative management planning and development programs to improve the candidate selection process. Currently, the two most promising techniques being used by organizations and companies to identify employees with management potential are the assessment center and individualized career planning concepts (Walker & Gutteridge, 1979).

Management Assessment Center Technique

The term "assessment center" refers to a standardized off-the-job procedure used to identify managerial potential for the purposes of selection, placement, promotion and/or development (Wexley & Yukl, 1977). Although no two programs are exactly alike, they all place heavy reliance upon the use of multiple methods of assessment as well as the observation of behavior in simulated situations. Depending upon its purpose an assessment center will last from one to three days and can be quite inexpensive or costly, depending upon length, location and number of participants.

According to Gautschi (1979), the assessment center is especially helpful for identifying the management potential of non-management people—for example, the professional engineer who thinks he may want to go into management. Participation in such a process will give both management and the employee useful information regarding his or her interest, competence and, hopefully, potential for becoming a manager.
Byham (1975) reports that AT&T alone has assessed more than 70,000 candidates for first-level management and half of all the assessment center operations in the U.S. are aimed at identifying supervisory potential.

Walker and Gutteridge (1979) examined the practices relating to career planning and development reported by a sample of 225 companies surveyed by American Management Associations (AMA). They found that approximately one-third of the responding companies use or are planning to adopt assessment centers. Several companies (3.8%), however, reported they have discontinued their use.

Byham (1975) points out two potential problems in using the assessment center method. These involve the employee who does not get nominated to go and the employee who attends and does poorly. Some companies use a self-nomination process to get around the first problem, but the employee who attends and does poorly remains the greatest concern of management. An additional concern is candidate anxiety which can be stressful to the participants.

Assessment centers are relatively new as aids in identifying and developing managerial potential but the method shows promise. Experience and research on assessment centers has been mixed (Walker & Gutteridge, 1979). However, Byham (1975) believes that based on the research findings to-date, one must conclude that the method does work. While Byham agrees that much more research is needed, he nevertheless recommends that the method be added to the repertory of tools available to the management development practitioner.
Individual Career Planning Technique

In reporting the AMA survey findings Walker and Gutteridge (1979) found that individualized career planning—the idea that organizations should help employees analyze their ability and interests and plan and implement career development activities—is a fairly recent development in human resource management. Employees and organizations become partners in planning and developing the resources required to meet each other's needs. Prime factors cited as influencing the development of such programs are a shortage of management talent, a desire to develop and promote employees from within, a desire to improve productivity, a concern about turnover and a strong expression of interest by employees. Management believes that these and other practical benefits will accrue to the company as well as to the individual employees. Self-development activities are viewed by management as an indication of a person's commitment to make a contribution and develop his or her skills to the fullest. Therefore, they are encouraged and supported.

Among the new practices are individual self-analysis and career planning workbooks and workshops. The workbooks guide individual employees through systematic self-assessment of values, interests, abilities, goals and personal development plans. Workshops provide similar exercises in a group setting and have the advantage of promoting interaction among employees, fostering an exchange of views, and providing valuable peer support for personal career plans (Walker & Gutteridge, 1979).
According to Walker and Gutteridge (1979) management should continue to view career planning and development as an individual responsibility. However, many individuals lack the insight, skills or initiative to determine their own career progress effectively. While "the cream may rise to the top" in an organization, many employees with considerable talent may be overlooked or left behind. Therefore, management involvement in career planning helps assure that individual career plans will be attuned to the actual needs and objectives of the organization. By providing assistance and information relevant to career planning, management can direct efforts toward results that reflect the "real world" of the company. Employee aspirations must fit into the organization's operations, plans and systems of managing people.

Currently, only relatively few companies have comprehensive in-depth career planning programs that approach what in theory is believed to be the "state-of-the-art." Quoting Walker and Gutteridge (1979):

Until this AMA survey, the actual prevalence of such techniques has not been known. Neither have we known very much about company experience with their use. Numerous published articles have described career planning techniques and applications, but these typically have considered specific company programs or have merely advocated career planning. As a relatively new area of human resource management, career planning is still largely a matter of experimentation. (p. 8)

Company sponsored individual career planning and employee self-assessment programs offer organizations an alternative to conventional management selection processes. Since they have only recently been

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implemented in only a few of the larger companies there is a lack of empirical data on which to base an objective evaluation. It is believed that this study will provide an empirical base for evaluation of a typical self assessment program for nonsupervisory professional-technical employees who may aspire to a supervisory position.

Organization of Study

Chapter I presents an introduction to the study, the statement of the problem, the need and significance of the study, and the organization of the study.

Chapter II presents pertinent background information, rationale for the conceptual framework, a review of the selected literature and presentation of the research hypotheses.

Chapter III presents the methods and procedures used to conduct the study. The discussion includes the subjects chosen for the study, the types of instruments used for data collection, the research design chosen for the study and the exact procedures of data collection and methods of analysis.

Chapter IV presents the analysis of data and the testing of the research hypotheses.

Chapter V presents the conclusions about the purpose of the study as well as recommendations for future research.
CHAPTER II

REVIEW OF THE SELECTED LITERATURE

The purpose of this chapter is to review the selected literature relative to nonsupervisory professional-technical employees' self-assessment of their perceived effectiveness (competence) to be a supervisor and the amount of satisfaction (reward) they perceive they would get from doing the supervisory job. The review of literature is divided into ten sections. The first two sections present the pertinent background information and conceptual theory necessary to prepare the reader for the presentation of the several hypotheses to be explored. Sections three and four discuss the literature relative to the concepts of perceived supervisory effectiveness and satisfaction. Section five reviews the subject of career self-assessment. Section six supports the main hypothesis relating perceived overall supervisory job effectiveness and perceived job satisfaction as well as a further hypothesis which suggests that perceived effectiveness and satisfaction are also related for each of the seven supervisory ability areas under investigation. Section seven presents the literature relative to the potential influence of an employee's educational level and age on the effectiveness-satisfaction inquiry being made. Section eight discusses the effect of an employee's education on the perceived effectiveness-satisfaction question under study and presents three additional hypotheses for
consideration. Section nine reviews the related literature regarding the employee's age and his or her perceived effectiveness-satisfaction and presents three pertinent hypotheses for investigation. The last section presents the literature relative to the interaction of an employee's education and age on the perceived supervisory effectiveness-satisfaction question being explored and posits a final hypothesis requiring testing.

Background

Scientists and engineers first began assuming major management roles in industry early in this century. Initially, theories were advanced arguing the existence of intense conflict between technical professionals and managerial personnel without technical or expert qualifications (Greenwald, 1978). The notion that an ideology of professionalism dominates the thinking of scientists and highly technical engineers received support from research on career path planning in high technology enterprises. It was found that the existence of "dual career" hierarchies encouraged some professionals to enter traditional managerial ladders and others to remain technical specialists. Researchers generally find that while scientists place primary importance on such intrinsic rewards of work as discovery and esteem of colleagues, engineers aspire to management careers (Greenwald, 1978). A comprehensive review of the literature by Kerr, Von Glinow and Schriesheim (1977) concluded that while scientists place high values on autonomy, professional commitment and expertise based on abstract knowledge, engineers have essentially the same work
goals as managers. The main difference between engineers and managers according to Gautschl (1979) is the exercise of leadership.

Tannenbaum (1974), however, points to research in the sociology of work which suggests that scientists and engineers, regardless of their professional orientation, have reason to feel dissatisfied with their careers if they are afforded no managerial authority. Tannenbaum (1974) further states that many studies covering a host of different occupations in several countries report that job satisfaction is significantly related to hierarchical position and management status.

Greenwald (1978) conducted a questionnaire survey of a large sample of scientists and engineers in the research and development industry to determine the significance of managerial activities to the career satisfaction of such individuals. His central conclusion was that contrary to arguments advanced by others, the exercise of managerial functions appears to be both valued by highly professional employees and a significant contributant to their career satisfaction. Greenwald further stated that, when highly professional employees lack managerial responsibilities and also feel dissatisfied with their career choice can be interpreted to mean that they require these roles for satisfaction.

According to Maier, Hoffman, Hooven and Read (1961), the size and complexity of modern business organizations have created complicated managerial positions and functions. The trend toward considering the people who fill these positions to be "professional" managers recognizes that they must approach these jobs with the appropriate
attitudes toward people and must have knowledge of the management principles and skills involved in effective delegation, communication and interpersonal relationships.

J. Sterling Livingston (1971) believes that education and outstanding performance as an accountant, an engineer, or a salesman reveal only how able and willing a person is to perform tasks he or she has been assigned. But an outstanding record as an individual performer does not indicate whether that person is able to or willing to get other people to excel at the same tasks. Livingston points out that outstanding scholars often make poor teachers, excellent engineers often are unable to supervise the work of other engineers, and successful salesmen often are ineffective sales managers.

Terry, Rue and Hermanson (1982) discuss the typical progression of an employee into management. Most supervisors are promoted from the ranks of operative employees. Those with good technical skills and good work records are the employees generally selected by management for supervisory jobs. Figure 1 shows the normal progression into supervision. A person does not necessarily go into supervision and then go all the way to the top of the organization. Actually, developing the proper skills required for supervision prepares a person for higher levels of management.

Sanford (1983) recommends that top management of all technical-professional organizations need to realize that the best technician may not be the best choice for management. It may be that a less talented technical worker could be a better manager because of natural abilities and inclination. Organizations should make it known that
opportunity for advancement to management will depend on interest and ability in general management, and that all candidates must pursue the knowledge and skills they will need to hold a supervisory job before they are promoted.


Figure 1. Typical Progression Into Supervision.

Schiemann and Morgan (1983), reporting the results of an Opinion Research Corporation survey of 250,000 employees in 200 organizations, confirm that advancement opportunity is a very important work value for many employees, ranking first in importance among professionals and second among managers and clerical employees. Table 1 displays these findings.

Coil (1984) believes that employees who aspire to management may not find that position rewarding or satisfying unless they possess and can exercise what she calls their "preferred skills." These are
the skills that come most easily and naturally to the individual and are responsible for his or her most satisfying and successful accomplishments. The preferred skills model posited by Coil (1984) would suggest that an employee who has the skills and inclination to manage would also reap satisfaction in exercising these skills.

Table 1
Top Five Work Values

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<th>RANK</th>
<th>MANAGERS</th>
<th>PROFESSIONALS</th>
<th>CLERICAL</th>
<th>HOURLY</th>
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<td>1</td>
<td>Pay/Benefits</td>
<td>Advancement</td>
<td>Pay/Benefits</td>
<td>Pay/Benefits</td>
</tr>
<tr>
<td>2</td>
<td>Advancement</td>
<td>Pay/Benefits</td>
<td>Advancement</td>
<td>Security</td>
</tr>
<tr>
<td>3</td>
<td>Authority</td>
<td>Challenge</td>
<td>Supervision</td>
<td>Respect</td>
</tr>
<tr>
<td>4</td>
<td>Accomplishment</td>
<td>New Skills</td>
<td>Respect</td>
<td>Supervision</td>
</tr>
<tr>
<td>5</td>
<td>Challenge</td>
<td>Supervision</td>
<td>Security</td>
<td>Advancement</td>
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Conceptual Framework

Conceptually, the most familiar psychological basis for this study is Maslow's (1970) "hierarchy of needs" theory. The appropriate need fulfillment, sought by the aspiring employee to advance to a supervisory position, are "esteem" and "self-actualization." According to Quick (1980), this is the need to grow to become what one is capable of being; a process in which one's
potential is realized. Achieving the authority and responsibility a supervisor's job offers increases one's self-esteem and can be a powerful motivator and reward as stated by Cohen, Fink, Gadon and Willits (1980). Douglas McGregor's (1960) Theory X and Theory Y supports the existence of a human needs system which motivates a person toward attainment of goals and objectives. As stated by Quick (1980), "the average human being learns, under proper conditions, not merely to accept but to seek responsibility" (p. 18).

Further conceptual support is offered by Hertzberg (1966) in his Two-Factor Theory which describes the following as motivators:

1. Achievement— the results of one's work.
2. Recognition of achievement— others' praise or notice.
3. Work itself— source of good feelings and extent of duties.
4. Responsibility— for one's own work and that of others.
5. Advancement— improvement of status position.
6. Possibility for growth— potential rise in the organization.

Hertzberg calls these "job satisfiers." The implication for this study is that an employee who aspires to achieve a higher position will most probably receive a great deal of satisfaction once he or she attains that position.

The career development phenomenon centers on individual achievement and personal goal progress. McClelland's (1961) "Acquired Needs Theory" can be appropriately applied to career planning to help guide and predict a person's potential. McClelland distinguishes three themes, each of which correspond to an underlying need, which are important for understanding individual behavior. These needs are:
1. Need for Achievement ("n" Ach)--the desire to do something better or more effectively, to solve problems, or to master complex tasks.

2. Need for Affiliation ("n" Aff)--the desire to establish and maintain friendly and warm relations with other persons.

3. Need for Power ("n" Power)--the desire to control other persons, to influence their behavior, to be responsible for other people.

The "n" stands for the simple count of the number of achievement, affiliation or power-related ideas present in viewing pictures and in writing stories as part of the Thematic Apperception Test. The "n" represents the strength of a person's concern with achievement, affiliation and power.

McClelland's basic theory is that these three needs are acquired over time and as a result of life experiences. Schermerhorn, Jr. et al. (1982) believe that the acquired needs theory is especially relevant to the aspiring manager since "n" Ach, "n" Aff and "n" Power complement the needs identified in Maslow's hierarchy and each need is directly associated with a set of individual work preferences. Also, if these needs are truly acquired, it may be possible to acquaint people with the need profiles required to be successful in a particular job. McClelland (1961) reports some success in stimulating people's needs for achievement and he is developing a program that helps managers to adopt need profiles found to be associated with successful executives. The "Acquired Needs Theory" emphasizes that people can be helped to build motivation in themselves by
accomplishing things. High achievers do things rather than just think about them. These people are characterized by the following:

1. They set only moderate goals for themselves which are attainable and realistic yet challenging.

2. Prefer work situations in which they can take personal responsibility.

3. Like immediate positive feedback which an accomplishment gives.

A high "n" Ach person would probably perceive him or herself as having skills and capabilities which, when challenged, would provide satisfaction as an intrinsic reward. A low "n" Ach individual would be inclined to be a follower and more content with extrinsic rewards such as pay and security. This low "n" Ach person may question his or her ability to supervise and therefore be apprehensive about it. The employee might not be satisfied in a job in which he or she believes the necessary skills are lacking (Schermerhorn, Jr. et al., 1982).

Likewise, an aspiring manager would most likely demonstrate high need for affiliation and desire to establish close interpersonal relationships with other employees. He or she would also be inclined to establish a base of personal or social power in order to control others, thus satisfying the need to exercise power.

A major theory relating personal orientation to career selection was proposed by Holland (1966). Holland starts with the straightforward assumption that there is an interaction between personality and environment, such that people gravitate toward environments congruent with their personal orientations. His theory
matches six personality types with six types of occupational environments shown in Table 2.

Table 2  
Holland's Personality Types and Matching Occupational Examples

<table>
<thead>
<tr>
<th>Personality Type</th>
<th>Occupational Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Realistic</td>
<td>forestry, farming, architecture</td>
</tr>
<tr>
<td>2. Investigative</td>
<td>biology, mathematics, oceanography</td>
</tr>
<tr>
<td>3. Social</td>
<td>clinical psychology, foreign service, social work</td>
</tr>
<tr>
<td>4. Conventional</td>
<td>accounting, finance</td>
</tr>
<tr>
<td>5. Enterprising</td>
<td>management, law, public relations</td>
</tr>
<tr>
<td>6. Artistic</td>
<td>art, music, education</td>
</tr>
</tbody>
</table>


The central hypothesis in Holland's theory is that a person's Vocational Preference Inventory (VPI) score or profile is a good prediction of his or her present career aspiration or later career choice. For example, enterprising people will tend to choose careers in enterprising environments, such as management. According to Hall (1976), Holland's hypothesis has been generally well-supported in empirical studies. Hall applied the theory to characterize the type of person who is oriented toward management. "The would-be manager is most probably an enterprising person, verbally skilled, who uses this skill to influence and dominate rather than to help and support others, and who aspires to power and status" (Hall, 1976, p. 15).
Erik Erikson's (1963) theory of life cycles can also be logically applied to the study of working careers. The seventh stage described by Erikson is adulthood, during which the person deals with issues concerned with "generativity"—the desire to make contributions of lasting value to other people; in essence, guiding or impacting the next generation. In the work setting, generativity may be achieved through such things as coaching and sponsoring the development of younger colleagues, teaching or guiding others. The opposite of generativity is what Erikson calls "stagnation", which means standing still, producing nothing. Stagnation also carries the connotation of decay, not just absence of growth.

The final stage of development is "maturity," during which the fully developed person acquires a sense of ego integrity (versus despair). This is the feeling of satisfaction with one's life, with his or her choices and actions. He or she views it as meaningful and is willing to leave it as it is. A person must achieve a satisfactory resolution of the issues in one stage before he or she can deal competently with the issues at the next stage (Erikson, 1963). Attaining a supervisory position could fulfill an individual's need to deal with the "generativity" issue and provide a sense of accomplishment in the "maturity" phase of life.

Expectancy theory proposed by Vroom (1964) stipulates the conditions necessary for a person to perceive job satisfaction. The theory assumes that employees or job seekers try to maximize their expected satisfaction in any situation. Individuals are thus seen as subjectively rational—seeking to enhance their own self-interest.
However, because of uncertainties in the environment, the individual can only seek to maximize satisfaction. For example, an employee may believe that high performance will result in a promotion, something that would be satisfying, but he or she may not receive the promotion because it was decided to reward someone else who had greater length of service. However, had the employee been promoted, he or she may have decided that moving to a higher job level was not as satisfying as previously thought. Thus, the expectancy model does not say that people will actually maximize satisfaction, only that they will try to maximize it. Other things equal, the stronger the expectancy perception (the more confident the individual is about successfully engaging in the behavior), the higher the motivation toward that behavior. Since expectancy refers to beliefs about how effort is linked to behavior, attention must be given to the employee's actual ability to perform the job (Heneman III, Schwab, Fossum & Dyer, 1980).

In recent research, Hall (1976) recognizes that a large proportion of a person's life revolves around the work place and this is where the individual focuses and attempts to fulfill his or her needs, interests and satisfactions by demonstrating competence in the work they do.

Perceived Supervisory Effectiveness

Badawy (1983), a researcher and author on managerial skill development, states that many engineers and scientists have made, or will make, the transition to management smoothly and successfully. However, the record is less than promising. While there is no law of
nature that says good technical practitioners cannot be good managers, Badawy believes it is unlikely that they will be. Although they are well qualified for management by virtue of their analytical skills and backgrounds, many technologists switch to management for the wrong reasons and to satisfy the wrong needs. Hence, they do not make competent managers. Badawy points to substantial evidence, derived from his own research studies, that the transition to management has been troublesome for many technologists and that many of them have failed because they were generally ill-equipped for such a career.

Badawy (1983) explains that managerial competency has three interrelated components: knowledge, skills and attitudes. Although sophisticated knowledge in the principles and elements of administration is a prerequisite for managerial success, such knowledge by itself is not enough for managerial competency. While management theory is a science, management practice is an art. Therefore, to be effective, the manager must develop a set of professional skills. These skills are: (a) technical, (b) administrative and (c) interpersonal.

Technical skills include the ability of the manager to develop and apply certain methods and techniques related to tasks. These skills also encompass a general familiarity with, and understanding of, the technical activities undertaken in his or her department and their relation to other company divisions. The foundation for developing technical skills is a combination of formal education, experience and technical specialization.

Administrative skills relate primarily to the manager's ability
to manage. This includes the ability to organize, plan, direct, and control. An effective manager must have the capacity to build a workable group, to plan, to make decisions, to control and evaluate performance and finally to direct subordinates by motivating, communicating, and leading them in the direction that helps the organization achieve its objectives most effectively. Superior administrative skills are related to and based on other skills such as cognitive and conceptual skills (Badawy, 1983).

Interpersonal skills are probably the most important of all. This is especially true at lower and middle levels. Managerial competency requires a superior ability to work with people. To be effective, the manager must interact with, motivate, influence and communicate with people (Badawy, 1983).

Katz (1974) proposed a three-skill model for an effective administrator which closely resembles the Badawy (1983) approach. Katz believes that the basic technical, human and conceptual skills which are interrelated can be separated and analyzed in studying the effectiveness of a manager. Katz defines the concept of a skill as the ability to translate knowledge into action. Using this definition enables one to distinguish between the three skills of performing the technical activities (technical skill), understanding and motivating individuals and groups (human skill), and coordinating and integrating all the activities and interests of the organization toward a common objective (conceptual skill).

Employees who are motivated to rise to positions of managerial responsibility understand the necessity of becoming competent in one
or more functional areas, but generally no one area captures their full commitment. Instead, they perceive their competence to lie in the combination of specific ability areas (Schein, 1978). Schein categorizes these abilities into three general areas: (a) analytical competence, (b) interpersonal competence, and (c) emotional competence. The person who wants to rise to higher levels of management should be simultaneously proficient at analyzing problems, handling people, and handling his or her own emotions. This, however, is usually not the case, and these skills are acquired with experience.

According to Maier et al. (1961), some people may have greater aptitude than others for acquiring the needed knowledge and skills; however, no one is a born manager any more than he or she is born an engineer. Miner (1975) considers planning, organizing, directing, coordinating, controlling, staffing and representing the most important functions of the managerial job. All of these involve dealing with people to some extent and such functions as directing, staffing, and representing relate almost exclusively to people. Miner (1975) believes that managing takes time to learn, but as competence grows it can become a major source of satisfaction.

As a result of differences in interests and motivation, as well as differences in opportunities for learning, most people develop abilities in certain areas and fail to develop them, or develop them to a lesser extent, in others (Miner 1975). Miner further states that intelligence is the total complex of all abilities as they exist in the individual. There are four measurable ability areas which have received widespread study, and these appear to be particularly
important to job performance. They are: (a) verbal ability, (b) numerical ability, (c) mechanical ability and (d) spacial ability. However, verbal ability invariably predominates in intelligence testing. Information is transmitted largely through the written and spoken word and these are the primary means of communication. And according to Boles and Davenport (1982), communication is the primary tool of a manager.

Badawy (1983) comments that the major cause of managerial failure among engineers and scientists is poor interpersonal skills. Success in management is largely determined by the manager's ability to understand, interact with, communicate with, coach and direct subordinates. Many technologists are more comfortable dealing with matters in the laboratory than they are dealing with people. Once promoted to management, however, they have to delegate responsibility to others. They often find this extremely difficult, especially if they have less than complete confidence in their subordinates' abilities. As a result, many technologists find that their advancement—and their managerial careers—are limited more by human factors than by technical ability. The manager is paid to get things done—not to do them himself. One of the most valuable skills a manager can possess is the ability to delegate.

Attitude is another ingredient of managerial competency which Badawy (1983) considers essential to success. Attitudes reflect a person's value system and beliefs toward, self, task, and others in the organization. Attitudes include those patterns of thought that enable one to characterize the manager and predict his or her
performance. Attitudes are partly emotional in origin, but they are necessary because they determine two things. First, the acquisition of knowledge and skills is, in part, a function of attitudes, and second, attitudes determine how the manager applies his knowledge and techniques. Badawy (1983) says:

Attitudes are also important in determining managerial competency for another reason: They tell us what needs are dominant in an individual at a certain time, and thus we can predict and identify the individual's managerial potential. This identification is crucial for enhancing future managerial effectiveness. (p. 26)

Managerial work emerges as largely unprogrammed and full of uncertainties. It is just this uncertainty and need to cope with problems as they arise that makes managing so challenging, and for many, so personally satisfying (Miner, 1975).

In her workbook on career building, Susan Colantuono (1982) advises that a career built on the strengths of an employee's motivated skills is a career that promises greater satisfaction. Hall (1976) advises that the use of assessment data of an employee's skills and abilities to predict managerial performance holds great potential.

Perceived Supervisory Satisfaction

For most people, work is a primary factor in determining the overall quality of life (Rosow, 1974). Work provides a setting for satisfying practically the whole range of human needs - physiological, safety, social, ego, and self-actualization (using Maslow's typology); achievement, affiliation, and power (using McClelland's trilogy); as well as other needs such as aggression and altruism, autonomy and
applause (Hall, 1976). People try to choose work that will best enable them to fulfill their interests, meet their needs, and express themselves. Maslow (1968) found evidence of this connection between career and personal needs, interests and identity in a study that indicated that people who were highly self-actualized were also likely to be highly identified with their work.

Super (1957) sees the career as a synthesis of a person's self-concept and the external realities of the work environment. Super describes self-concept as a person's image of himself—his abilities, interests, needs, values, past history and aspirations. This synthesis develops gradually as the person becomes aware of (a) his self-concept, (b) the opportunities and requirements in particular jobs, and (c) his experiences in implementing his self-concept by doing a particular job. Korman (1975) found that self-esteem was a moderator of the relationship between vocational choice and self-perceived abilities.

Hall (1976) also believes that people generally strive to increase or maintain their sense of self-esteem. An important means of achieving a high level of self-esteem is through the development of an identity containing a sense of personal competence. Hall believes that this results as a consequence of psychological successes in a person's career, beginning with the career selection process in which one chooses a role in which a high degree of satisfaction can be attained, followed by growth in the job and involvement in the role through motivation and commitment. Job choice involves recognition of one's skills and interests which will be utilized on the job. Career
growth consists of increases in the individual's knowledge, ability or
motivation related to the role. Career involvement is the strength of
one's motivation to work in the chosen career role which is conducive
to self-actualization or self-fulfillment. As stated by Hall (1976):

Choice, growth, and involvement can form a spiraling cycle
in which each variable feeds back and reinforces the
others. As the person sees himself becoming more (or less)
competent and successful in an area he has chosen, his
satisfaction will increase (or decrease) his involvement in
that area, and he will then choose to do more (or less)
work in that area, and so on. (p. 31)

Hall and Nougaim (1968) studied young AT&T managers and found a
significant increase in the importance of the needs for achievement
and esteem between the first and fifth years of their careers. The
most successful managers experienced increased satisfaction in this
need area while those who were less successful showed less
satisfaction. The relationship between challenge, success, and career
involvement described by Hall (1976) was based upon the experimental
work of Lewin and his associates on goal setting and levels of
aspiration (Lewin, 1936; Lewin, Dembo, Festinger & Sears, 1944 as
cited by Hall, 1976). According to Hall, Lewin found that goal-
directed behavior was likely to lead to self-perceived, intrinsic
success under the following conditions:

1. The goal represents a challenging but attainable level
   of aspiration.

2. The goal is defined by the person.

3. The goal is central to the person's self-concept.

4. The person works independently to achieve the goal.
Hall (1976) believes that while Lewin's work dealt with well-defined specific tasks, his concepts can be logically applied to more complex task activity, such as work careers. According to Hall (1976):

If a person sets a goal for himself in his work which meets the four theoretical conditions listed above, the attainment of that goal will probably result in feelings of psychological success. Because the goal pushes him to reach some new level of competence, his self-esteem and self-confidence in that area will increase. Furthermore, his increased self-esteem in this area will probably generalize by association to a sense of satisfaction with work in that task area. (p. 125)

Hall (1976) presents a schematic model of how psychological success can influence career development (See Figure 4). To help explain the process the model depicts, Hall offers the following example:

Let us consider a manager about to create a new management information system. Perhaps his training is in accounting; working with management information systems is a completely new type of behavior to him. However, he chooses to go ahead and install the new system. If the system is successful, the manager may see that he possesses skills in designing and implementing information systems, skills he never saw as being part of him before. He may also see that his general managerial and administrative skills are higher than he realized, since managing such an innovative system affecting the work of so many people is a good test of these abilities. Thus, his self-esteem as a manager may grow. His satisfaction with and involvement in his job may increase. (p.126)

Support for the above model also comes from the work of Porter and Lawler (1968), who found that good performance can lead to increases in work satisfaction. Their research showed that it is more likely that good performance will lead to satisfaction instead of employee satisfaction producing good performance.

In a study conducted by Hertzberg, Mausner and Snyderman (1959), accountants and engineers were asked to describe occasions when they had felt exceptionally good or bad about their jobs. Analysis of
these stories pointed to five factors which most frequently contributed to pleasure at work. Achievement—the successful completion of a job—was by far the most prevalent. Personal recognition or praise came next. The opportunity to carry out interesting, creative, challenging, or varied work was third. Being
permitted to exercise responsibility for one's own work or for that of others was fourth and promotion was fifth. According to Miner (1975), three of the above are clearly criteria of personal success on the job: achievement, recognition, and promotion. While the opportunity to do interesting rather than routine activities and to exercise responsibility or autonomy are also present to an even greater degree in higher level positions. A managerial position has the elements necessary to provide these five major sources of satisfaction.

According to Stogdill (1974), the need for self-actualization and autonomy are rated the most important needs by managers. Stogdill summarizes that there is considerable uniformity in the findings that autonomy and self-actualization are regarded as the most important and least satisfied needs of managers. Highly effective managers are better satisfied than their less effective peers.

Arffa (1980) studied job satisfaction in the terms of the dichotomy engineer-manager and found that engineers who have been promoted to manager show more job satisfaction than engineers who have not been promoted. This is also supported by Gautschi (1979) in a 1976 survey of 900 engineers.

Barnes (1960) reported on a University of Chicago survey which showed that scientists and engineers in industry are chronically frustrated and dissatisfied. The report mentioned that professional employees are only slightly more satisfied than factory production workers and less satisfied than foremen, salesmen, skilled workers, or management. According to Bailyn (1977), this is still true. Bailyn's data on three classes of MIT engineers, 1951, 1955 and 1959, showed
that those who held non-managerial positions for well over a decade into their careers are less involved in their work than those with managerial elements in their jobs.

Cooper, Morgan, Foley and Kaplan (1980) present evidence, gathered over a 25 year period, which reflects the opinions of approximately 175,000 employees in 159 companies since the 1950's, and which shows increasing employee dissatisfaction at many levels in organizations. A "hierarchy gap" emerged which showed managers are usually more satisfied than are clerical and hourly employees. Managers feel that they get intrinsic satisfaction from their jobs, not just good pay. Nonmanagement employees reported that their expectations of advancement are lower than they have ever been.

According to Miner (1975), managing appears to require the will or desire to manage. If certain aspects of the managerial job arouse anxiety and strong avoidance motives, it is a sign that motivation to manage is likely to be lacking and that satisfaction in the work is probably minimal.

In a 1977 survey of over 1400 practicing managers, Pearse (1977) found that the opportunity to demonstrate personal competence and to prove one's ability through successfully coping with difficult problems and challenging situations is definitely an important criterion for career satisfaction. In his analysis, Pearse (1977) remarks that:

David McClelland's theoretical portrait of the American business executive as a strong achiever who feels comfortable in exercising social power in organizational life, would seem to fit the career-satisfaction priorities expressed by a significant number of managers in this survey. (p. 27)

Pearse concludes that managers are quite well satisfied with their
managerial careers. Greenwald (1978) found that the exercise of managerial functions appears to be both valued by highly professionalized employees and a significant contributant to their career satisfaction. Greenwald interpreted the results to mean that professional employees who lack managerial responsibilities and who feel dissatisfied with their career choice require these roles for satisfaction.

Traditionally, managing has meant assuming responsibility for the work of others (Coil, 1984). Exercising managerial skills involves leading and directing others, establishing goals and objectives, making important decisions, and coordinating people, activities, and resources. According to Coil (1984), a person who enjoys managing derives satisfaction from being in control, making decisions, having the opportunity to impact the direction of an organization and its workers.

According to Lawler and Porter (1975), people are motivated to do those things which they believe have a high probability of leading to rewards which they value. When an employee says he or she is satisfied with his or her job, the employee in effect is saying his or her needs are satisfied as a result of having the job, and effective performance leads to the attainment of what the employee desires.

According to Heneman III et al. (1980), the most commonly accepted definition of job satisfaction views it as depending on two employee perceptions (beliefs). One perception is the employee's assessment of what the job and work environment is currently providing. This is called the "what is" perception. The second perception is what the employee wants the job to provide or believes the job should provide. This is called the "what should be" perception.
One's satisfaction is determined by the correspondence or agreement between these two perceptions as shown in Figure 5 which depicts "discrepancy theory" as it is commonly called (Wexley & Yukl, 1977).

For the purpose of this study, the employee subjects are anticipating the "what is" perception through a self-assessment process, so they are perceiving what they believe it "would be." The satisfaction level, then, is what they believe the supervisory job would offer them. According to Sterling Institute (1976), this is a valid measure of perceived supervisory job satisfaction as assessed by nonsupervisory employees.

\[
\text{JOB SATISFACTION} = \left[ \frac{\text{WHAT IS}}{\text{WHAT SHOULD BE}} \right]
\]

WHERE: WHAT IS—represents the amount of reward actually provided.

WHAT SHOULD BE—represents the amount of reward the employee believes should be provided.


Figure 3. Job Satisfaction Equation.

Career Self-Assessment

According to Krembs (1983) the challenge facing organizations is to help the specialist sort out and understand the consequence of the decision to go into management as well as to facilitate the development of managerial competence in technical professionals. However,
the individual must accept the responsibility and assume an active participatory role in his or her own career development. The organization can provide opportunity for individual growth, but such planning is "cast within the context of organizational possibilities and plans" (Burack & Mathys, 1980, p. 1).

Gutteridge (1976) states that:

What is good for the individual is also good for the organization. From the individual's point of view, career planning provides an ongoing process for assessing one's long-range objectives in light of organizational opportunities and to establish a personal program of self-development and career growth. From the organization's point of view, career management provides a theme for integrating such diverse aspects of human resource management as a selection, placement, promotion, transfer, training and development. (p. 46)

Based upon the work of Super and Bohn (1970), Crites (1973) has identified five career competencies that contribute to a person's career maturity: self-appraisal, occupational information, goal selection, planning, and problem solving. These are five specific skills that can be developed. Self-appraisal leading to self-awareness is a central concept in vocational psychology. Crites (1973) says, "To know one's self, then, is considered to be a 'sine qua non' of mature career development" (p. 23).

Ganakas (1982) believes that an individual who assesses his or her career goals through self-help techniques will increase personal awareness and an understanding of managerial roles and responsibilities. Self-assessment provides an individual employee an identification process. The purpose is to evaluate his or her interests and abilities for the job they aspire to and to determine both strengths and weaknesses. The individual can then focus on those areas he or
she perceives as needing improvement.

Organizations, on the other hand should consider a proactive role in the career development of individuals within the organization (Ganakas, 1982). McAlindon (1977) points to recent research which reemphasizes the extent to which organizations are "under-estimating people and their potential accomplishments" (p.24). The responsibility of the organization is to "help people grow, achieve, and contribute" (p.26).

McAlindon (1977) further adds that "the development of people is inseparably linked with the development of the organization. And the quality of organizations to a large degree determines the quality of the accomplishments and productivity of people" (p. 27).

The main reason then, for self-assessment of career development, is to allow employees the opportunity to critique themselves as to their skills and desires. If they aspire to supervision, they need to develop an action plan. If they do not want to be a supervisor, they should pursue a parallel career path in their technical specialty. The organization benefits because they can retain and reward highly technical people and promote to management only those who have the skills and desire to manage the work of others.

Relationship Between Perceived Effectiveness and Perceived Satisfaction

**Overall Supervisory Job Skills**

Wexley and Yukl (1977) believe that the best way to explain how job satisfaction is determined is by means of an interaction model. They point to research evidence which suggests that job satisfaction
depends jointly on the characteristics of the job situation and the characteristics of the person. Wexley and Yukl believe that their interaction model is compatible with discrepancy theory described earlier. Korman (1970) describes three kinds of employee characteristics that effect "should be" perceptions. These are needs, values, and personality traits. Needs are important because an employee will desire more of any job factor that is instrumental in fulfilling currently activated needs. Values are the relatively stable beliefs of a person about what is "right" and "wrong" behavior and what are desirable and undesirable life goals. Values influence an employee's preference for certain kinds of occupation and job content. Finally, personality traits such as self-esteem modify a person's job aspirations and preferences. Korman, (1970) defines self-esteem as the extent to which a person likes and values himself and perceives himself to be a competent, adequate human being. An employee with high self-esteem will prefer a job that is important, or one that provides the opportunity for advancement and personal success.

Korman (1970) also states that there are three aspects of the job situation that affect "should be" perceptions. They are social comparisons with other employees, previous job characteristics, and reference groups. Studies on the importance of different job characteristics consistently find that the nature of the work itself is a major determinant of job satisfaction (Wexley & Yukl, 1977).

According to Coil (1984), the most satisfied and productive employees are those whose skills are appropriately matched to their jobs. In other words the primary tasks of a job enable the employee
to use his or her strongest and preferred skills. These are the
skills that come most easily and naturally to the individual and are
responsible for his or her most satisfying and successful accomplish­
ments. As Coil (1984) concludes, a person who enjoys managing de­
rives satisfaction from being in control, making decisions, having the
opportunity to impact the direction and development of an office or
department and its workers. Sonnenfeld (1978) believes mastery and
achievement are closely related to job satisfaction. The need for
mastery or recognized accomplishment becomes increasingly important
for employees desiring personal growth.

Lawler and Porter (1975) conclude that management jobs generally
offer the possibility of greater flexibility in differential rewards,
especially in terms of prestige and autonomy in decision making.
Management jobs also typically provide greater opportunities to
satisfy higher order intrinsic needs and the satisfaction of these
needs is closely tied to performance and job competence.

The review of the selected literature leads this investigator to
believe that employees who aspire to supervisory positions view a
promotion as an intrinsic reward in the form of a higher level need
fulfillment. This is especially so if the person believes he or she
has the necessary skills and abilities to do the job. Hence, the
central question that this study explores: Do nonsupervisory
professional-technical employees who perceive themselves as having the
skills and ability to be a supervisor also believe that they would
receive a great deal of satisfaction in exercising these skills as a
supervisor? The answer to this question is posited in the following
hypothesis.
Hypothesis 1A: For professional-technical employees, there is a direct relationship between nonsupervisory employees' self-assessment of their overall supervisory job skills and the amount of satisfaction they believe they would receive from being a supervisor.

Specific Supervisory Ability Areas

Wexley and Yukl (1977) consider job satisfaction to be generalized attitudes by an employee toward the job based on evaluation of different aspects of the job. While there are hundreds of job characteristics to be considered by an employee, certain clusters of job characteristics tend to be evaluated together in the same way. In effect, an employee can be assumed to have a component attitude toward each aspect of the job as well as a composite attitude about the job as a whole. According to Heneman III et al. (1980) satisfaction with any single facet of the job may not be highly related to satisfaction with any other facet. In other words, satisfaction with various facets of the job is at least partially independent. This independence requires that assessments of satisfaction measure each facet separately.

Hackman and Oldham (1975), surveyed several hundred employees working in 62 different jobs and identified the following five "core dimensions" of a typical job:

1. Skill variety. The degree to which a job requires a variety of different activities which involve the use of a number of different skills or talents.

2. Task identity. The degree to which the job requires comple-
tion of a "whole" and identifiable piece of work. Doing a job from beginning to end with a visible outcome.

3. Task significance. The degree to which the job has a substantial impact on the lives or work of other people.

4. Autonomy. The degree to which the job provides substantial freedom, independence, and discretion.

5. Feedback from the job itself. The degree to which carrying out the job results in the employee obtaining direct information about the effectiveness of his or her performance.

According to Hackman and Oldham (1975) each of these core dimensions involves some aspects of the job content that can affect an employee's work satisfaction. Wexley and Yukl (1977) point to research findings which indicate that the relationship between these "core dimensions" and job satisfaction is strongest for employees who desire responsibility, meaningful work, self-direction, performance feedback, and the opportunity for achievement. In other words, employees with strong, higher order needs will be more satisfied if they have jobs that are high on the core dimensions.

According to Schein (1978), employees who want to advance to positions of managerial responsibility should be able to demonstrate competence in a combination of specific ability areas. The person who aspires to management should be simultaneously proficient at analyzing problems, interpersonal relations and controlling his or her own emotions. This generally is not the case and these skills are acquired with experience.

The typical supervisor's job consists of a variety of functions
which, for the purpose of this study, are categorized into seven ability areas. It is beneficial to investigate and compare each category with one another to evaluate which areas reflect employees' strengths and weaknesses relative to the perceived effectiveness-satisfaction measurements. The following is a further hypothesis which requires exploration.

Hypothesis 1B: For professional-technical employees, there is a direct relationship between nonsupervisory employees' self assessment of their perceived supervisory skills and perceived job satisfaction for each of the following supervisory ability areas:

1. Administrative ability
2. Communicative ability
3. Interpersonal ability
4. Developmental/motivational ability
5. Leadership ability
6. Problem solving/decision making ability
7. Technical/professional ability.

Influence of Education and Age

Dawson (1983) comments that the sixties and seventies generation have been raised under the assumptions of "unlimited success" and "education brings everything." They have grown up in an age of high expectations during an era of reasonable affluence. They assume that hard work and education should be rewarded by increased power. At the same time, social legislation has added protection for special classes of employees, such as older workers. It has become difficult to
dislodge older employees who have seniority. Generational competition is particularly keen.

Leider (1974) notes that the general increase in expectations and in general education has left many people with high aspirations in low level jobs. For such people a career change can be an avenue to mobility, self-actualization and job satisfaction.

Payne (1984) describes these mid-career employees who are faced with an uncertain future. The opportunity to become a success has been motivating mid-career employees since childhood. Their parents stressed the desire to achieve early in their lives, and encouraged them to work hard in school, get good grades and gain admissions to good colleges. As these people began careers with large companies, they continued to be encouraged by managers to strive for future success. They were urged to work hard and use their intelligence in order to move up the corporate ladder. However, for many of these professionals their quest for success did not materialize. For one reason or another they became blocked at mid-career.

Payne (1984) considers these mid-career employees to have a great concentration of technical expertise about the organizations in which they work. They have 12 to 20 years of service and many have worked in the same positions for five or more years. These employees have usually demonstrated enormous loyalty in the past. They have not left the organization for greener pastures. They are crucial to the success of the business.

Boettinger (1975), notes that few managers have had childhood visions of becoming managers, and usually it is not until later in
life after preparing for other professions that they discover a talent or interest in management.

This review of selected literature tends to support the need for further investigation of the variables of educational level and age as potential factors which may influence the central hypothesis of this study.

Effect of Education on Perceived Supervisory Effectiveness—Satisfaction

According to Hall (1976) one of the most glaring problems regarding careers today is that the majority of people employed—lower-level white- and blue-collar workers—do not feel that they have careers. Many nonsupervisory, professional and nonprofessional employees perceive their positions as "dead-end" jobs. Lack of advancement opportunities is often seen as lack of career. However, a survey by Yankelovich (1974) indicates a desire for new career rewards among contemporary youth. Four out of five college students believe that a meaningful career is important. Among the most important factors college students report as influencing their career choices are "the opportunity to make a contribution," "job challenge," and "the ability to find self-expression." Disturbing, however was the fact that 69 percent of all college students no longer feel that "hard work will pay off." It seems they have placed their hope in education.

Yankelovich (1974) believes that as education levels and affluence continue to increase, the organization gap between the haves and have-nots (i.e., those who do and do not have career advancement
and growth opportunities in their work) will likewise increase as will
the competition for the limited supervisory-managerial openings.
Yankelovich argues that the critical factor differentiating the haves
from the have-nots will be education. In his 1973 survey he found
that college students were increasingly viewing college as preparation
for a successful career. Harlow (1971) conducted a field study of
graduate engineers destined to move into management. Nearly one half
of the sample population had an intense desire for a management
position. Harlow concluded that professional employees who have a
high level of job satisfaction are also the ones who want to advance.
Interestingly, Harlow defined job satisfaction as the product of the
relation between aspirations and achievement.

According to Seaburg's (1983) review of literature, educational
attainment had strong, positive association with self-evaluations of
competence among adults. Persons with higher educational attainment
were more likely to have high self-evaluations of competence than were
those who never attended college.

Brenner (1982) points to research which shows that individuals
who obtain more education tend to be more aggressive, more achievement
oriented, more dominant and less nurturant than those who were less
educated.

Pearse (1977) surveyed over 1400 managers nationwide and found
their educational level quite high. Nearly 85 percent hold undergrad-
uate degrees and more than 38 percent hold at least one advanced
degree.

However, Hall (1976) believes that people coming out of college
usually have an unrealistic expectation level about the extent to which they will be using their new skills. Some are convinced that they can go directly into middle management.

Contrary to popular belief Livingston (1971) says, "How effectively a manager will perform on the job cannot be predicted by the number of degrees he holds, the grades he receives in school, or the formal management education programs he attends" (p. 79). Livingston (1971) adds that, "academic achievement is not a valid yardstick to use in measuring managerial potential" (p. 79). Livingston points to research studies which conclude that there is no relationship between grades in school and measures of achievement such as title, salary and a person's own satisfaction with his career progress. Academic ability does not assure that an individual will be able to learn what he or she needs to know to build a career in fields that involve leading, changing, developing, or working with people.

Hall (1976) points to empirical findings that showed managers with high school education had greater commitment to the firm than those with college education. In his own research Stogdill (1974) found that the better educated managers were least satisfied with the company and with their freedom on the job. According to Friedlander (1963), less well educated supervisors tend to derive satisfaction from the social and technical rather than the self-actualizing aspects of their work.

Stogdill (1974) concludes that research results concerning the relationship of education to various aspects of job satisfaction for managers are contradictory.
Nevertheless, Miner (1975) believes that higher education does provide knowledge needed to manage the increasingly complex operations of business, and the institutions of higher learning attract a high proportion of those with the intellectual competence required for managerial work. Quoting Miner (1975), "Thus, if we view executive talent as a combination of needed knowledge, intelligence, and motivation, the noncollege population would appear to be relatively deficient in the first two aspects" (p. 303).

Yankelovich (1974) summarizes as follows. Both college and noncollege youth are placing strong value on self-fulfillment and participation in decision making. However, he argues that given the present shortages of fulfilling jobs, only college-educated youth will have a good chance of attaining their work aspirations.

While the review of the literature is somewhat inconsistent with respect to level of education as a variable in this study, the preponderance of the evidence and intuitive logic would lead one to believe that education would have a direct impact on the perceived effectiveness and satisfaction of professional-technical nonsupervisory employees who may aspire to supervisory positions. It follows that college graduates view themselves as achievers and consider their education as a qualification for managerial work. As hypothesized below, it is believed that college graduates have higher expectations of advancement (especially into managerial positions) than do noncollege graduates.

Hypothesis 2A: Nonsupervisory professional-technical employees who are college graduates will show a stronger relationship between...
perceived effectiveness and perceived satisfaction than will noncollege graduates in their supervisory job assessment. This relationship will be true for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

**Hypothesis 2B:** Nonsupervisory professional-technical employees who are college graduates will assess their perceived supervisory job effectiveness higher than will noncollege graduates for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

**Hypothesis 2C:** Nonsupervisory professional-technical employees who are college graduates will assess their perceived supervisory job satisfaction higher than will noncollege graduates for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

It is conceivable that noncollege graduates have, perhaps inadvertently, hurt their chances for promotion to management positions through the process of self-selection out of consideration for promotion. This is by virtue of their being noncollege graduates, irrespective of their ability. The results of the study and later discussion will explore this issue further.

Stogdill (1974) summarizes that while there is little consistency in the relation between education and managerial satisfaction, age is positively related to satisfaction.

**Effect of Age on Perceived Supervisory Effectiveness-Satisfaction**

According to Tyler (1984) the focus for career planning has been
on the younger and more aggressive employees who were seen as having the potential for growth up through the managerial hierarchy. Far less attention has been devoted to the older worker, whose major life goals have either been attained or are now seen as unattainable.

However, in his classic research on age and achievement, Lehman (1953) found that peak creative performance in various scientific fields was most likely to occur in the late thirties or early forties. Another study (Pelz & Andrews, 1966) found the same peaking in the forties but also discovered a second peak ten or fifteen years later, while others remained steadily productive throughout their careers. Payne (1984) comments on the value of mid-career employees who have, perhaps, the greatest concentration of technical expertise within the organization. They have 12 to 20 years of experience and have demonstrated enormous loyalty and made numerous contributions to the success of the business.

These older employees are afflicted by "success backlash" described by Payne (1984) as the lifelong motivation to succeed but now find themselves at mid-career with their goals not yet fully realized. These people began careers with large companies and continued to be encouraged by managers to strive for future success—to work hard, long, and intelligently in order to move further up the corporate ladder and to get closer to the future success which parents, teachers and bosses promised them. They continue to hope and aspire toward their goals.

On the other hand, research has uncovered a trend among young people who seem to be lacking the "will to manage" (Bower, 1966).
Miner (1975) reports that a survey of high school students across the country does indicate that among those who intended to go to college, there were strong negative attitudes toward undertaking a career as a business executive. Miner (1975) describes a continuing study of junior professionals hired directly from college by a government research center. The study shows a persistent decline in their motivation to manage. Among students, there has been a notable shift away from the types of motivation characterizing those who typically seek managerial careers in large corporations and those who succeed in those careers. This implies that an increasingly high proportion of young individuals who are hired for management positions will perform poorly in them.

Hall (1976) indicates that there is a mood of rising expectations among young workers. They have grown up accustomed to economic security and perhaps affluence. These young people have passed the security needs on Maslow's hierarchy, and have become concerned with "higher-order" needs such as affiliation, esteem, autonomy, achievement, and self-fulfillment. Although young people are looking for more achievement and fulfillment in life, many do not see their work careers as the center of their lives. Privacy, friendships, family, and freedom also rank high in the value hierarchies of students (Yankelovich, 1974).

Bailyn (1982) cautions that young engineers if promoted too quickly at the beginning of their careers, run the risk of future stagnation. Hall (1976) argues that much of what is thought to be a generation gap today is more accurately called a value/perception gap.
Part of the difference is that members of each generation perceive things differently.

In support of older employees, Tyler (1984) asserts that organizational emphasis on youth and newness tends to discount accumulated experience and wisdom. Boettinger (1975) found that few managers have had childhood visions of becoming managers, and usually it is not until later in life after preparing for other professions that they discover a talent or interest in management. According to Dalton and Thompson (1971), this is the first time in our nation's history that there are large numbers of technically trained people over 40 years of age in the work force. As the technically trained work force matures, only a shrinking proportion of engineers will be able to find management positions after age 35.

Levinson (1978b), in discussing his work relative to the mid-life transition says, "society now generates larger cohorts of middle-aged (and older) adults. We must yet learn to foster the development of large numbers of persons in middle adulthood who can contribute as leaders, managers, and mentors, as sources of traditional wisdom and innovation" (p. 111). Hall (1976) refers to research which indicates that peak performance for managers and other more applied professionals comes in the forties. According to Schermerhorn, Jr. et al. (1982), recent research suggests that general intelligence and verbal ability increase with age. This is particularly true of persons at higher occupational, educational, and intellectual levels. Also, older workers seem to be more satisfied with various aspects of the work place than are younger workers. Older persons are more committed
or loyal to the organization and have better attendance records.

Badawy (1978) claims that the gap between the over 40-year-old engineer and performance is a well-known industry problem. Giving challenging assignments to younger persons creates obsolescence by depriving the senior person of chances to learn, change and grow.

Generally, the higher one moves in the organization and the longer one has worked there, the more one identifies with it. The person in reality is actually part of the organization (Hall, 1976). Friedlander (1963) found that older supervisors tend to derive more satisfaction from the social and technical aspects of their work, and less from self-actualization, than do younger supervisors. According to Heneman, et al. (1980), many good arguments can be advanced in favor of considering seniority in making staffing decisions. It can be measured reliably and it may have content validity since it reflects on-the-job experience and rewards loyalty.

According to Levinson, Darrow, Klein, Levinson, and McKee (1976) in their studies of adult development, a man at about age 40 wants desperately to be affirmed by society in the roles he values most. He is trying for a crucial promotion or other recognition. Most of the subjects they studied fix on some key event in their careers as carrying the ultimate message of their affirmation or devaluation by society. This could be a promotion or a new job. If the outcome is favorable, then all is well and the future assured. If it is unfavorable, the person feels wanting and without value.

According to Erik Erikson (1963), the developmental task during the adult years is one of "generativity"—the establishment of the
next generation. Unless a man can at least partially engage himself in "bringing along the next generation" in his organization or profession, he is doomed to a lonely competition with the younger group members and will feel threatened by them. Quoting Dalton and Thompson (1971), "managers and supervisors, of course, have the built-in opportunity to participate in this process. Too often, older nonsupervisors do not" (p. 66).

This selected literature leads one to believe that older mid-to late-career employees continue to be motivated toward their success goals and would consider a promotion as an achievement and intrinsic reward providing much satisfaction.

**Hypothesis 3A:** For nonsupervisory professional-technical employees, the older, more experienced employees will show a stronger relationship between perceived effectiveness and perceived satisfaction than will younger, less experienced employees in their supervisory job assessment. This relationship will be the case for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

**Hypothesis 3B:** For nonsupervisory professional-technical employees, the older, more experienced employees will assess their perceived supervisory effectiveness higher than will younger, less experienced employees for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

**Hypothesis 3C:** For nonsupervisory professional-technical employees the older, more experienced employees will assess their perceived supervisory job satisfaction higher than will younger, less
experienced employees for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

Effect of Interaction Between Education and Age On Perceived Supervisory Effectiveness and Perceived Supervisory Satisfaction

The foregoing discussion of the literature and empirical findings relative to an employee's education and age and their effect upon the employee's perceived effectiveness and satisfaction in performing the supervisory job poses an additional question requiring exploration. Namely, does the combination of educational level and age (experience) produce a synergistic effect which influences how the employee perceives his or her effectiveness and satisfaction as a supervisor?

Hall (1976) offers a glimpse of the education-age interaction in his discussion of career choice decisions. For people with advanced education (college and post-college) the final career decision may continue many years into adulthood. The person may go through several cycles of exploring-focusing-deciding in an attempt to find a career that fits his or her needs, interests and abilities. This can last into the thirties. This process is also reactivated for many people in their forties.

Hall (1976) says, "At 40, many people report the sudden feeling that 'life is half over' that they now have as much time or more behind them than ahead of them. They are now symbolically 'middle-aged.' Time now feels like a scarcer resource" (p.81). With the former goals either achieved or unattainable, and with time seeming suddenly short, the person may begin to search for new values, goals,
and meaning in life. There is more concern to produce something lasting and worthwhile. This is a time when the person's experiences can be a useful source of wisdom and guidance to younger people.

Stogdill (1974), however, concludes that empirical results concerning the relationship of education to various aspects of job satisfaction for managers are contradictory. There is some consistency in the finding that, with increasing age, managers tend to become more satisfied until they contemplate the period of retirement. Empirical data on the effect of both the age and education variables working in cohort was not uncovered in this extensive literature review. Exploration of this presumed interaction in this study could be heuristic, if the findings result in new knowledge.

The review of the literature relative to the variables of educational level and also age range of the employee suggests that an interaction effect between these two variables is a likely outcome. A person who aspires to supervision and who has both college education and long term experience (age) would probably demonstrate greater perceived supervisory job effectiveness and also greater perceived supervisory satisfaction than would persons without both of these credentials.

It would be beneficial to the management selection process to know if such a relationship exists. The following hypothesis is therefore posited.

Hypothesis 4: For nonsupervisory professional-technical employees, the nature of the relationship between the educational level of the employee and perceived supervisory job effectiveness and also perceived supervisory satisfaction scores are dependent upon the
age of the employee. This relationship will be true for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

Summary

In summary, the preceding review of literature has been divided into ten major sections. The first section presented pertinent background information. The second section established conceptual support for the study. Sections three through five discussed the literature relative to the subjects of perceived supervisory effectiveness, perceived supervisory satisfaction, and career self-assessment as it pertains to the study. Section six dealt with specific literature and empirical findings to support the relationship hypothesized to exist between perceived supervisory effectiveness and satisfaction which is central to this study. Two hypotheses were presented requiring exploration of the perceived effectiveness-satisfaction relationship. The first hypothesis was directed to the overall composite supervisory ability assessment. The second hypothesis focused on each of the seven supervisory ability areas providing for an in-depth analysis of how professional-technical employees perceive the various aspects of the supervisory job. The last four sections discussed the influence of an employee's age and education on the relationship between the perceived effectiveness and satisfaction question under investigation as well as the potential interaction of the age and education variables. Seven additional hypotheses were presented in the last three sections.
CHAPTER III

DESIGN AND METHODOLOGY

This chapter is a presentation of the research design and methodology used in this study. Contained within is a discussion of the population that was studied, a description of the instruments selected for data gathering, an overview of the research design, and a discussion of the procedures used in the study.

Population of the study

The target population of interest in this study was the approximately 1400 salaried nonsupervisory engineers, designers and technicians employed by a large industrial concern engaged in the design and manufacture of products for the automobile industry. Although the name of the organization will not be identified in this study, it is a major division, of one of the big three automotive companies, and supplier of many diversified products.

Composition of Presupervisory Self-Assessment Seminar

The employees who made up the sample population participated in six, 2 1/2 hour long evening seminar sessions. These interactive training classes are designed to expose potential managerial candidates to a variety of supervisory-managerial problems using an instructional technique called the "situation-response method," via a professionally prepared video tape medium and self-assessment work-
books. This unique "Careers in Management Program" was developed by the company and Sterling Institute, Inc., a private consulting organization located in Washington, D.C. Sterling Institute is the namesake of its proprietor, Dr. J. Sterling Livingston, former Professor of Business Administration at Harvard Business School. The "Careers in Management" program is based on the concept that self-assessment and self-directed development are the most effective ways of developing employees. The program was designed around three factors found to be critical: (a) effective development is choice-initiated by the employee, (b) self-analytical objective assessment, and (c) goal-directed and consistent with organizational objectives. The purpose of the program is to provide employees the opportunity to assess their management capabilities and evaluate their interest and the amount of satisfaction they would get in supervising the work of others. The situation-response method enables participants to:

1. See typical supervisory situations enacted on video tape;
2. Decide and discuss how they would handle those situations;
3. Observe and evaluate the action taken by the supervisor in the videotape situations;
4. Evaluate their capabilities in handling similar situations;
5. Identify the knowledge or skills they need to develop in order to improve themselves.

This approach provides a basis for realistic self-assessment of capabilities and areas for improvement. Individual action plans for self-improvement are developed based on the self-assessment. The videotapes used during the activity serve three primary purposes.
First, they show examples of the work of a model group for participants to follow as they go through the series. Second, they present visually a wide range of situations which confront supervisors. Third, the videotapes provide information and learning points which supplement the printed workbooks. Each participant is provided a set of workbooks called "guides." These workbooks contain all exercises and assignments as well as instructions which guide the individual (and group) through the activity. The **Self-Assessment Guide** is the workbook of primary importance to this study. It is, in fact, the instrument used to collect the effectiveness and satisfaction data on which this study was based. The objectives of the program for supervisory aspirants is to help participants reach a decision about seeking a career in management and to plan self-development toward their career goals.

**Study Sample**

The study sample consisted of 115 salaried upper-grade-level nonsupervisory engineers, designers and technicians who attended the company-sponsored employee self-assessment and career development seminar workshop. Seminar participants were selected from the general engineering population in the following manner:

1. Individual mailing of seminar enrollment forms to all upper grade-level nonsupervisory employees. Approximately 500 people.

2. Participation was optional and voluntary. Seminars were conducted on site after regular work hours and on the person's own time. One hundred fifty applications were returned and 115 of these
employees participated in the program.

3. On a first-come basis, applicants indicated their preference to attend any one of seven seminars scheduled between May 1984 and August 1984.

4. Each seminar class was scheduled to accommodate up to 25 people and organized to represent each engineering department and job classification in direct proportion to the engineering population as nearly as possible and practical. This was done to insure uniformity among the seminar classes.

Comparison Group

A randomly selected comparison group of nonparticipants was used to improve external validity. The comparison group members were provided the same instruments as the participants, but were individually instructed as to the purpose of the self-assessment process and the procedure to use in filling out the questionnaires. However, they did not attend a training session nor did they experience the video simulations, workbook exercises or group interaction.

The primary purpose for utilizing a comparison group was to measure potential differences which may exist between the volunteer participants and the general population. This procedure, of course, enhances the credibility of the study to infer specific sample population findings to the larger target population. A discussion of the comparison group results is contained in the next chapter. Figure 4 shows the characteristics of the study sample, comparison group and
TARGET POPULATION

1400

ALL SALARIED NONSUPERVISORY
ENGINEERS, DESIGNERS, AND
TECHNICIANS

UPPER GRADE-LEVEL EMPLOYEES

500

RANDOM

VOLUNTEER

PARTICIPANTS

115

+ 30

COMPARISON GROUP

SEX

MALE

106

FEMALE

9

EDUCATION

COLLEGE

54

NONCOLLEGE

61

AGE

40 & UNDER

85

41 & OVER

30

Figure 4. Population and Study Sample Characteristics.
the target population from which they were drawn.

Instrumentation

Description of Instruments

Three instruments were used for data collection. They are (see Appendix B):

1. Supervisory Effectiveness Summary—Self-Assessment of supervisory skills and managerial capabilities. (Series I Careers in Management CIM--11 Sterling Institute, 1976.)

2. Supervisory Satisfaction Level Summary—self-assessment of the amount of satisfaction one would get from performing the supervisory tasks listed in (1) above.

3. Biographical Data Card (BDC)

Instrument Design

The "supervisory effectiveness summary and the supervisory satisfaction level summary" are both contained in the Self-Assessment Guide which is divided into two parts. Part 1 of the guide is the effectiveness assessment used by the participants to evaluate their own readiness for supervision and capabilities for supervision based on seven categories of supervisory skills:

1. Administrative ability
2. Communicative ability
3. Interpersonal ability
4. Developmental and motivational ability
5. Leadership ability
6. Problem-solving, decision making, and performance improvement ability

7. Technical and professional ability.

Part 2 of the guide is the satisfaction assessment used by the participants to evaluate the amount of satisfaction they would get from supervising the work of others in each of the seven categories of supervisory skills. The Self-Assessment Guide (Instrument) was developed by Sterling Institute Inc., and copyrighted in 1976.

Both the effectiveness assessment (part I) and satisfaction assessment (part II) instruments are identical in format and wording of the questions and response scales. Each instrument contains a self-assessment inquiry of 121 questions divided into seven supervisory ability categories. A Likert-type scale is used containing the following scores for question responses:

(1) Excellent
(2) Good
(3) Satisfactory
(4) Needs Improvement
(5) Needs Great Improvement
(0) Not Applicable or Cannot Rate

The (0) zero response was handled as missing data by the computer and did not influence the data analysis results. The effectiveness-satisfaction scores were assumed to be interval scale.

The "Biographical Data Card" (BDC) was self-developed and contains a check off scheme in order to collect pertinent personal information necessary for testing the hypotheses and evaluating the results. Data collected are: sex, age range, educational level and job
level.

Development of Instruments

The effectiveness and satisfaction instruments were profession­ally developed, copyrighted and marketed by Sterling Institute, Wash­ington, D.C. According to the administrator's manual, which accom­panies the seminar course material, Sterling Institute has conducted extensive research to identify the most important factors in effective career development and believes that the seven supervisory ability areas adequately define the key elements of a typical supervisor's job. S. E. Joslin (Personal Communication, May 15, 1984 & July 10, 1984) and her associates at Sterling Institute were contacted by this researcher and unfortunately the reliability and validity documenta­tion relative to the assessment instruments were unavailable. Ster­ling Institute was very helpful as to the development of the instru­ments, their extensive use and also were very supportive of this study as indicated in their endorsement letter (See Appendix A). The findings and results of this project will be shared with them and hopefully will prove useful in the work they do.

There is much literature and empirical support for the content validity of these instruments. According to Pfeiffer and Goodstein (1982) content validity means that a careful examination of the instrument and the things it is supposed to measure shows that there is a reasonable, logical, clear connection between the instrument and what is measured. In addition Pfeiffer and Goodstein say, "Instruments intended to be used for personal growth should promote
self-analysis by providing the user with valid information about himself or herself" (p. 72). In the case of the study instruments, the significant concern would be whether or not the ability categories and their respective questions really reflect the key elements of the typical supervisor's job. Stogdill (1974) made a comparative analysis of 52 factorial studies in order to determine the strength of common factors of ability categories or effective leadership characteristics. The most frequently occurring factors are descriptors of various skills of the leader. They include the following in order of frequency of occurrence:

1. Social and interpersonal skills
2. Technical skills
3. Administrative skills
4. Intellectual skills
5. Leadership effectiveness and achievement
6. Social nearness, friendliness
7. Group task supportiveness
8. Task motivation and application

These factors describe the leader as making effective use of interpersonal, administrative, technical, and intellectual skills. The results of the factorial studies indicate that there is no need for an infinitely large number of variables in order to obtain a well-balanced description of the leader (Stogdill, 1974).

Katz (1974) in his retrospective commentary, relative to his three-skill approach to the manager's job, identified the following factors as examples of ability belonging under the broader human,
conceptual or technical skill areas:

(1) **Human Skills**
   - (a) leadership ability.
   - (b) intergroup relationships.

(2) **Conceptual skills**
   - (a) general management point of view—way of thinking.
   - (b) recognizing priorities, probabilities, objectives, criteria, patterns and correlations.
   - (c) knowing interrelationships of units and environment.

(3) **Technical skills**
   - (a) specific expertise.

Mintzberg (1973) in his book, *The Nature of Managerial Work* proposed that an effective way to determine what skills managers need is to analyze the roles they perform. His study of ten managerial roles suggested eight basic sets of managerial skills. The skill areas identified and described by Mintzberg corresponded with the seven ability areas in this study instrument. Mintzberg's eighth skill area was "peer skills" in dealing with other managers. Not an appropriate measurement for the present study. A number of other authors have also identified categories of managerial skills, which lend further support and credence to the study instrument, are presented in Table 3.

The evidence is overwhelming in support of the selection of the study instrument's seven supervisory ability areas as being representative of the skills required for supervision.
Table 3

Comparison of Supervisory/Managerial Ability Areas

<table>
<thead>
<tr>
<th>STUDY INSTRUMENT</th>
<th>ABILITY AREA</th>
<th>AUTHORITATIVE SUPPORT</th>
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</thead>
<tbody>
<tr>
<td>COLANTUONO (1982)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Administrative</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4. Develop/Motivate</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>x</td>
<td>x</td>
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<tr>
<td>6. Problem Solving</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Decision making and Performance Improvement</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>7. Technical &amp; Professional</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Instrument Administration**

This investigator has relied upon self-reported personal data and employee self-assessment data which was collected as unobtrusively as practical and believes the data to be as unbiased as possible.

All of the workbooks and instruments were coded by number only and participants were told that their participation was voluntary and that confidentiality would be assured. The respondents were
cautioned to answer the questions honestly since the purpose of the instrument is intended to be their own personal assessment of their supervisory abilities and satisfaction. The results reflect their strengths and weaknesses and will be used privately by them to guide their self-development toward supervisory competence. The model group on the video tape demonstrated the procedure and this enhances the quality of the study respondents' information since they are doubly instructed of the proper procedure.

Pilot Study

A pilot study of all the data collection and analysis procedures was conducted. The pilot group consisted of 25 employees who attended the first seminar session. Analysis of the pilot study resulted in no changes in the self-assessment instruments but it did point out certain concerns which required attention. These concerns were:

(1) The magnitude of the data required much more time to be entered into the computer than previously anticipated. As a result, more automated procedures were developed.

(2) Self-assessment guides were collected, xeroxed and returned the same evening creating a logistics problem. Additional help and machines were utilized thereafter.

(3) Biographical data were collected on a paper form which was difficult to handle and sort. Card stock was used in subsequent sessions.
Analysis Procedures

Four statistical approaches were used to analyze the collected data and test the various hypotheses:

1. Correlation using the Pearson Product Moment Coefficient to determine the strength of the relationship between perceived effectiveness and satisfaction.

2. Testing of the difference between two correlation coefficients from two independent population samples. Used to compare college graduates with noncollege graduates and also to compare younger and older age groups relative to the perceived effectiveness-satisfaction correlation parameters.

3. The "t" test for independent means was used to explore differences between college and noncollege subjects' scores and also between the scores of younger and older age groupings.

4. Two-way analysis of variance to investigate the independent variables of education and age and their potential interaction.

The rationale for using each of the above methods and the appropriate hypotheses tested is presented below.

Application of Analysis Procedures for Testing of Hypotheses

Hypotheses 1A and 1B: These hypotheses presume a direct relationship between the effectiveness and satisfaction assessments for both overall supervisory job skills and also for each specific ability area.

The Pearson Product Moment Correlation Coefficient (PPMCC) was used to demonstrate the strength of the relationship between the
two main variables: (a) perceived supervisory job effectiveness (competency)—independent variable and (b) perceived supervisory job satisfaction (reward)—dependent variable. Data were considered to be on an interval scale and normally distributed for both the perceived effectiveness and satisfaction assessments.

**Hypothesis 2A:** This hypothesis predicts that college graduates will demonstrate a stronger relationship between perceived supervisory effectiveness and satisfaction assessments than will noncollege graduates for both overall supervisory job skills and also for each specific ability area.

The analysis procedure used for this hypothesis was the test of no difference between two population correlation coefficients computed from data which were considered to be interval scale and to be normally distributed with the comparison groups independent of one another.

**Hypotheses 2B and 2C:** These two hypotheses support the belief that college graduates will demonstrate higher perceived supervisory effectiveness scores (Hypothesis 2B) and also higher perceived supervisory satisfaction scores (Hypothesis 2C) than will noncollege graduates. This was tested for both overall supervisory job skills, and also for each specific ability area.

The "t"-test for independent means was used to explore for differences between the effectiveness scores and also the satisfaction scores for college graduates versus noncollege graduates. Data were considered to be on an interval scale and normally distributed with the comparison groups independent of one another.
Hypothesis 3A: This hypothesis proposes that older, more experienced, non-supervisory employees will show a stronger relationship between perceived supervisory effectiveness and satisfaction assessments than will younger, less experienced, employees for both overall supervisory job skills and also for each specific ability area.

The analysis procedure used for this hypothesis was the test of no difference between two population correlation coefficients computed from data from two independent samples. Underlying data were considered to be interval scale and to be normally distributed with the comparison groups independent of one another.

Hypotheses 3B and 3C: These two hypotheses predict that older, more experienced, nonsupervisory employees will demonstrate higher perceived supervisory effectiveness scores (Hypothesis 3B) and also higher perceived supervisory satisfaction scores (Hypothesis 3C), than will younger, less experienced, employees for both overall supervisory job skills and also for each specific ability area.

The "t"-test for independent means was used to explore for differences between the perceived effectiveness scores and also the perceived satisfaction scores for older versus younger age-group employees. Data were considered to be on an interval scale and normally distributed with the comparison groups independent of one another.

Hypothesis 4: This hypothesis presumes an interaction effect between the educational level of the employee and the age-range of the employee on the perceived supervisory job effectiveness assessment.
scores and also on the perceived supervisory job satisfaction scores for both overall supervisory skills and also for each specific ability area.

Two-way analysis of variance was used to investigate the two independent variables of education level and age-range and their potential interaction relative to the dependent variables of perceived supervisory effectiveness and also perceived supervisory satisfaction. Interaction was deemed present in this two-factor design when the effect of the levels of the first independent variable (college-noncollege) upon the dependent variable (perceived effectiveness or satisfaction scores) was not the same across the levels of the second independent variable (younger-older age-range employees). Interaction results were plotted to graphically depict the cell means.

Additional comments and discussion relating to the analysis of data are included in Chapter IV (Results) following the discussion of each hypothesis.

Summary

This chapter presented a description of the population, composition of the supervisory self-assessment seminar, discussion of the instrumentation as well as the study of design and procedures used to collect and analyze the data. The next chapter will address the results of the data collection and analysis.
CHAPTER IV

RESULTS

This chapter reports the findings of the study. The purpose of this research was to investigate the relationship which was believed to exist between perceived job effectiveness and the perceived job satisfaction for professional-technical employees who may aspire to supervisory positions. A further intention of the study was to explore the variables of employees' age and education and their potential impact on perceived supervisory job effectiveness, perceived supervisory job satisfaction and interrelationships which could provide insight for useful conclusions. This chapter will examine the collected data relative to the posited research questions. The first section of this chapter will report general information regarding the collected data, and the second section will discuss the results of the testing of the nine previously offered hypotheses.

Review of Information Regarding Data

Description of Data

The collected data represent the responses of 115 nonsupervisory employees who participated in a career self-assessment program and who completed evaluations of their perceived supervisory job effectiveness and perceived supervisory job satisfaction. The data also include biographical information describing the participant's gender, age range, educational level and job classification level. Similar data
were also collected for a comparison group of 30 nonparticipants of the seminar program which were randomly selected from the general engineering population and having the same job characteristics as the seminar participants. Table 4 summarizes the make-up of the sample population.

Table 4
Characteristics of the Sample

<table>
<thead>
<tr>
<th></th>
<th>TOTAL PARTICIPANTS</th>
<th>SEX</th>
<th>AGE 40 &amp; 41</th>
<th>COLLEGE DEGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLE</td>
<td>115</td>
<td>106</td>
<td>9</td>
<td>85 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNDER OVER</td>
<td>YES 61</td>
</tr>
<tr>
<td>COMPARISON GROUP</td>
<td>30</td>
<td>27</td>
<td>3</td>
<td>22 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UNDER OVER</td>
<td>YES 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NO 16</td>
</tr>
</tbody>
</table>

For each person, the data collected consisted of the self-evaluation response to 121 inquiries relative to perceived supervisory effectiveness and 121 identical inquiries relative to perceived supervisory satisfaction. Each response was the selection of a value of 1 through 5 on a "Likert scale" and a 0 designated for questions not answerable or not applicable. The effectiveness and satisfaction scores are considered to be on an interval scale. The 121 questions reflected supervisory job characteristics in seven separate ability areas which allowed for the analysis of each area as well as an overall composite job assessment relative to the research questions.

The biographical data were gathered by a simple check-off of the appropriate information for each characteristic on the biographical data card.

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Analysis Of Data

The data were entered into computer data files via a terminal keyboard and verified both automatically, using a data audit program, and also manually. Statistical procedures and data analysis were carried out by accessing the "MINITAB" computer program (Terry, Rue & Hermanson, 1982). The first data analysis procedure to be carried out was the computer generation of histograms of both overall effectiveness scores and overall satisfaction scores for the total sample population. These histograms verified that these scores were normally distributed. The effectiveness plot in particular depicted an almost ideal normal curve shape (See Appendix C).

Prior to the testing of the research hypotheses, descriptive statistics were calculated and analyzed for congruence and fidelity. Categorical comparisons were made of the raw scores, mean scores, standard deviations and variances of the effectiveness and satisfaction scores for: (a) all participants, (b) college vs noncollege graduates, (c) age ranges 40 and under vs 41 and older, and (d) college vs noncollege graduates by the above two age ranges.

These analyses demonstrated the viability of the data and verified the homogeneity of variance among comparable groups of data. Pearson "r" correlations were calculated for all comparisons of the effectiveness and satisfaction scores. Scattergrams were plotted as a visual confirmation of the Pearson Product Moment Correlation Coefficient (PPMC) calculations. Samples of the scattergram and Pearson "r" calculation are included in Appendix C.
Comparison Group Characteristics

A randomly selected comparison group of 30 persons was used to determine if the characteristics of the volunteer sample population were measurably different from those of the general engineering population to which the study findings are inferred.

Descriptive statistics, calculated for the comparison group and compared to the participant group data statistics, confirmed that the participant group had essentially the same means, standard deviations and variances for the perceived effectiveness and satisfaction scores as those of the comparison group. The "t"-tests for independent means and variances were applied to the comparison and participant groups to demonstrate equivalence using an alpha = .05. See Appendix D.

Pearson "r" correlations for the perceived supervisory effectiveness-satisfaction scores of the comparison group were also similar to those of the participants. This was demonstrated by testing the hypothesis of no difference between the two population correlation coefficients computed from the data of the comparison group and the participants as independent samples. See Appendix D.

Based on these analyses it was concluded that the participants of the pre-supervisory self-assessment seminars were representative of the larger engineering population from which they came.

Test of Hypotheses

This study was designed to answer research questions concerning the relationship which was hypothesized to exist between perceived supervisory effectiveness and perceived supervisory satisfaction.
as measured by professional-technical, nonsupervisory employees' self-assessment scores.

For the sake of clarity, each of the nine hypotheses will be presented and then a review of the results of testing will follow.

**Relationship Between Perceived Effectiveness and Satisfaction**

**Hypothesis 1A:** For professional-technical employees, there is a direct relationship between nonsupervisory employees' self-assessment of their overall supervisory job skills and the amount of satisfaction they believe they would receive from being a supervisor.

A review of the scattergram suggests a positive and linear relationship between perceived overall supervisory skills (effectiveness scores) and perceived overall job satisfaction scores.

The Pearson product-moment correlation coefficient for these data is .492 (see Table 5). The null hypothesis was set equal to or less than zero. For a level of significance of alpha = .05 the critical value of the correlation coefficient is $r = .164$ for the one-tailed test (Hinkle, Wiersma, & Jurs, 1979, p. 476). Therefore, using an alpha of .05, it is possible to reject the null hypothesis that the (Pearson product-moment correlation coefficient) parameter "rho" is equal to or less than zero, against the alternate hypothesis that it is greater than zero.

The scattergram suggests, and the correlation coefficient confirms the presence of a positive relationship between perceived overall supervisory effectiveness and perceived overall supervisory job satisfaction for a sample of 115 professional-technical employees.
Table 5

Comparison of Correlation Coefficients (Pearson r)  
Job Effectiveness vs Job Satisfaction

<table>
<thead>
<tr>
<th>Ability Category</th>
<th>All Participants</th>
<th>College Degree</th>
<th>Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1. Administrative</td>
<td>.499</td>
<td>.506</td>
<td>.489</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>.550</td>
<td>.644</td>
<td>.427</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>.514</td>
<td>.545</td>
<td>.465</td>
</tr>
<tr>
<td>4. Develop /Motivate</td>
<td>.333</td>
<td>.462</td>
<td>.220</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>.346</td>
<td>.355</td>
<td>.323</td>
</tr>
<tr>
<td>6. Problem Solving</td>
<td>.421</td>
<td>.434</td>
<td>.415</td>
</tr>
<tr>
<td>7. Technical/Professional</td>
<td>.451</td>
<td>.572</td>
<td>.351</td>
</tr>
<tr>
<td>8. Total Overall Ability</td>
<td>.492</td>
<td>.546</td>
<td>.421</td>
</tr>
</tbody>
</table>

Number in Sample: 115 54 61 40 75

Level of Significance for One-Tailed Test:  
Alpha = .05  
.164 .223 .210 .257 .199


Therefore, these data support the hypothesis that a direct relationship exists between nonsupervisory employees' self-assessment of their overall supervisory effectiveness and the amount of satisfaction they believe they would receive from being a supervisor.

Hypothesis 1b: For professional-technical employees, there is
a direct relationship between nonsupervisory employees' self-assessment of their perceived supervisory skills and perceived job satisfaction for each of the seven supervisory ability areas.

A plot of the perceived supervisory effectiveness and perceived supervisory satisfaction scores indicates that a positive and linear relationship exists between these two assessment measurements for each ability area.

The Pearson "r" for these data are shown in Table 5. The null hypothesis was set equal to or less than zero for testing the perceived effectiveness-satisfaction correlation of scores for all 115 participants in each ability area. For a level of significance of alpha = .05 the critical value of the correlation coefficient is $r = .164$ for the one-tailed test. Therefore, using an alpha of .05, it is possible to reject the null hypothesis that the parameter "rho" is equal to or less than zero, against the alternate hypothesis that it is greater than zero for each of the supervisory ability areas.

Therefore, these data support Hypothesis 1B that a direct relationship exists between nonsupervisory employees' self-assessment of their perceived supervisory skills and perceived job satisfaction for each of the seven supervisory ability areas.

Hypothesis 1A and 1B are also applicable to categorical subdivisions of the total 115 participant population into age-range and educational level groupings. These analyses were also completed and the results are tabulated in Table 5. In all cases there were positive correlations between perceived supervisory effectiveness and satisfaction for each specific ability area as well as the overall.
ability assessment. The critical values for Pearson "r" at alpha = .05 and a one tail test are shown in Table 5 and are determined by the sample sizes of the categorical subdivisions. In all instances the calculated value of the Pearson correlation coefficient exceeded the critical value of "r" shown in Table 5. Therefore Hypothesis 1A and 1B are supported for both age-range and educational level groupings for all seven ability areas as well as for the overall composite supervisory ability assessment. That is, there exits a direct relationship between perceived supervisory effectiveness and satisfaction scores for: (a) college graduate grouping, (b) noncollege graduate grouping, (c) 40 and under age-group, and (d) 41 and over age group. The correlation data developed by these analyses are used in comparing college graduates versus noncollege graduates and also older versus younger employees in testing subsequent hypotheses.

Effect of Education on Perceived Supervisory Effectiveness-Satisfaction

Hypothesis 2A: Nonsupervisory professional technical employees who are college graduates will show a stronger relationship between perceived effectiveness and perceived satisfaction than will noncollege graduates in their supervisory job assessment. This relationship will be true for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

A cursory review of the correlation coefficients shown in Table 6 indicate that the college graduates demonstrate a numerically stronger relationship between perceived supervisory effectiveness and perceived supervisory satisfaction than do noncollege graduates. However, to
determine if the higher correlations for college graduates are statistically significant it was necessary to test the hypothesis of no difference between the two population correlation coefficients for each of the ability areas and also for the overall supervisory job assessment. The results of the testing of these hypotheses are displayed in Table 6 and interpreted as follows.

The null hypothesis of no difference between the correlation coefficients for college graduates versus noncollege graduates is retained for all cases with an alpha = .05. In other words, Hypothesis 2A is not supported. No evidence was found that the relationship between perceived supervisory effectiveness and perceived supervisory satisfaction for employee participants who are college graduates is stronger than for nongr~ade employee participants. These results are applicable for each of the seven supervisory ability areas as well as for the overall supervisory job assessment.

Hypothesis 2B: Nonsupervisory professional-technical employees who are college graduates will assess their perceived supervisory job effectiveness higher than will noncollege graduates for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

The null hypothesis of no difference between the mean effectiveness scores for college graduates versus noncollege graduates was retained in all cases with an alpha = .05. No evidence was found to support the research hypothesis that employee participants who are college graduates perceive their supervisory job effectiveness to be higher than that of their noncollege counterparts.
In other words, Hypothesis 2B is not supported and therefore no conclusion can be stated as to whether or not educational level was a determining factor in how nonsupervisory professional-technical employees view their perceived job effectiveness as a supervisor.

**Hypothesis 2C**: Nonsupervisory professional-technical employees who are college graduates will assess their perceived supervisory job satisfaction higher than will noncollege graduates for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

The null hypothesis of no difference between the mean satisfaction scores for college graduates versus noncollege graduates was supported in all cases with an alpha = .05. No evidence was found to support the research hypothesis that employee participants who are college graduates perceive their supervisory job satisfaction to be higher than that of their noncollege counterparts. In other words, Hypothesis 2C is not supported. No conclusion can be stated as to whether or not educational level was a determining factor in how nonsupervisory professional-technical employees view their perceived job satisfaction as a supervisor.

The earlier concern about the possibility that noncollege graduates may have self-selected themselves out of consideration for a supervisory job can not be properly addressed in this study since no conclusions can be stated concerning educational level and its possible impact on perceived supervisory effectiveness and satisfaction.
Table 6
Test of No Difference Between Two Independent Population Correlation Coefficients - College vs Noncollege

<table>
<thead>
<tr>
<th>Ability Category</th>
<th>College Degree</th>
<th>Reject Null</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>1. Administrative</td>
<td>.506</td>
<td>.489</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>.644</td>
<td>.427</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>.545</td>
<td>.465</td>
</tr>
<tr>
<td>4. Develop/Motivate</td>
<td>.462</td>
<td>.220</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>.355</td>
<td>.323</td>
</tr>
<tr>
<td>6. Problem Solving</td>
<td>.434</td>
<td>.415</td>
</tr>
<tr>
<td>7. Technical/Professional</td>
<td>.572</td>
<td>.351</td>
</tr>
<tr>
<td>8. Overall</td>
<td>.546</td>
<td>.421</td>
</tr>
</tbody>
</table>

Table 7
Test of No Difference Between Two Independent Population Correlation Coefficients - Older vs Younger

<table>
<thead>
<tr>
<th>Ability Category</th>
<th>Age Range</th>
<th>Reject Null</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40+Under</td>
<td>41+Over</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>1. Administrative</td>
<td>.381</td>
<td>.560</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>.581</td>
<td>.528</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>.477</td>
<td>.534</td>
</tr>
<tr>
<td>4. Develop/Motivate</td>
<td>.403</td>
<td>.310</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>.285</td>
<td>.379</td>
</tr>
<tr>
<td>6. Problem Solving</td>
<td>.382</td>
<td>.444</td>
</tr>
<tr>
<td>7. Technical/Professional</td>
<td>.301</td>
<td>.515</td>
</tr>
<tr>
<td>8. Overall</td>
<td>.473</td>
<td>.503</td>
</tr>
</tbody>
</table>

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Effect of Age on Perceived Supervisory Effectiveness-Satisfaction

Hypothesis 3A: For nonsupervisory professional-technical employees the older, more experienced employees will show a stronger relationship between perceived effectiveness and perceived satisfaction than will younger, less experienced employees in their supervisory job assessment. This relationship will be true for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

A review of the correlation coefficients shown in Table 7 indicates that the older age-group (41 and over) employees show a numerically larger correlation coefficient in all of the ability areas except communicative and developmental/motivational categories. In these two ability areas the younger age-group (40 and under) employees demonstrate a slightly higher coefficient (.581 vs .528 for communicative and .403 vs .310 for the developmental/motivational ability areas). To determine if any of these comparisons are statistically significant, the hypothesis of no difference between the two population correlation coefficients was tested for each ability area and also for the overall supervisory job assessment. The results of the testing of these hypotheses are displayed in Table 7 and interpreted as follows.

The null hypothesis of no difference between the correlation coefficients for the age groupings of 40 and under versus 41 and over is retained for all cases with an alpha = .05. In other words, Hypothesis 3A is not supported. No evidence was found to support the
research hypothesis that older, more experienced employees would demonstrate a stronger relationship between perceived supervisory effectiveness and satisfaction than would younger, less experienced employees. These results are applicable for each of the seven supervisory ability areas as well as for the overall supervisory job assessment.

**Hypothesis 3B:** For nonsupervisory professional-technical employees, the older, more experienced employees, will assess their perceived supervisory effectiveness higher than will younger, less experienced employees for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas.

The null hypothesis of no difference between the mean effectiveness scores for the 40 and under versus 41 and over age groupings was retained in all cases with an alpha = .05. It was concluded that the perceived supervisory effectiveness scores for the 40 and under age grouping were not statistically different from those of the 41 and over age grouping. In other words, Hypothesis 3B is not supported. No conclusion can be stated as to whether or not nonsupervisory employees from these two age groupings perceive their supervisory effectiveness differently. These results are applicable for each of the seven supervisory ability areas as well as for the overall supervisory job assessment.

**Hypothesis 3C:** For nonsupervisory professional-technical employees the older, more experienced employees will assess their perceived supervisory job satisfaction higher than will younger, less experienced employees for: (a) overall supervisory skill and also
for (b) each of the seven supervisory ability areas.

The null hypothesis of no difference between the mean satisfaction scores for the 40 and under versus 41 and over age groupings was retained in all cases with an alpha = .05. It was concluded that the perceived supervisory satisfaction scores for the 40 and under age grouping were not statistically different from those of the 41 and over age grouping. Thus, Hypothesis 3C is not supported. It can not be concluded that nonsupervisory employee participants, belonging to these two age groupings, do not perceive their supervisory job satisfaction differently. These findings are applicable for each of the seven supervisory ability areas as well as for the overall supervisory job assessment.

Effect of Interaction Between Education and Age On Perceived Supervisory Effectiveness and Perceived Satisfaction

Hypothesis 4: For nonsupervisory professional-technical employees, the nature of the relationship between the educational level of the employee and perceived supervisory job effectiveness and also perceived supervisory satisfaction scores is dependent upon the age of the employee. This relationship will be true for: (a) overall supervisory skill and also for (b) each of the seven supervisory ability areas. This hypothesis predicted an interaction between the independent variables of education and age upon the dependent variables of perceived supervisory effectiveness scores and perceived supervisory satisfaction scores. The two-way analysis of variance did not support this predicted interaction. Therefore Hypothesis 4 is

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not tenable for the overall supervisory job skill nor for any of the seven supervisory ability areas. The testing for interaction included the graphical plotting of the cell means to determine the characteristics of plots. See Figure 5.

The plot of the mean effectiveness scores for college graduates under and over 40 years old versus noncollege graduates for the same age groupings were essentially parallel, indicating no significant interaction. However, the graphs of the mean satisfaction scores for the same groupings indicated a potential-interaction between college versus noncollege for the advanced age group. Actually the college-noncollege plots intersected at the same point for the 40 and under age group and diverged from the point for the 41 and over age grouping.

The statistical test using two-way analysis of variance with an alpha = .05 was not significant and therefore the evidence did not support that an interaction between the independent variables of age and education was present for this study's sample population. See Tables 8 and 9.

Summary

Results have been offered which support the purpose of the study. The first section reviewed information regarding the data. It described the collected data, the methods of analyses and compared characteristics of the sample population with that of a randomly selected comparison group. The second section of this chapter presented the results of the testing of the prime hypotheses. The two main
Figure 5. Interaction Plots For Effectiveness and Satisfaction Over the Variables of College versus Noncollege Graduates and Age Range.

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Table 8
Test For Interaction Between Age and Education Level For Perceived Effectiveness

OVERALL SUPERVISORY EFFECTIVENESS MEANS

AGE

<table>
<thead>
<tr>
<th>COLLEGE GRADUATE</th>
<th>40 &amp; UNDER</th>
<th>1 &amp; OVER</th>
<th>ROW MEANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>262.9</td>
<td>246.5</td>
<td>254.7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NONCOLLEGE GRADUATE</th>
<th>247.5</th>
<th>220.9</th>
<th>234.2</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>COLUMN MEANS</th>
<th>255.2</th>
<th>233.7</th>
<th>244.5</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

2 WAY ANOVA TABLE

<table>
<thead>
<tr>
<th>VARIANCE DUE TO</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>FCV</th>
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</thead>
<tbody>
<tr>
<td>EDUCATION</td>
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<td>5463.</td>
<td>5463.</td>
<td>2.25</td>
<td>4.04</td>
</tr>
<tr>
<td>AGE</td>
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<td>6009.</td>
<td>6009.</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td>EDUCATION * AGE</td>
<td>1</td>
<td>340.</td>
<td>340.</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>ERROR</td>
<td>48</td>
<td>116156.</td>
<td>2420.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>51</td>
<td>127969.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

hypotheses of the study were accepted; however, the remaining seven hypotheses which dealt with the influence of education and age relative to the effectiveness-satisfaction relationship and assessments were not supported.

Chapter five offers a discussion concerning the conclusions that can be drawn from the data analysis presented in this chapter. In addition recommendations are made for future research and use of this study.
Table 9
Test For Interaction Between Age and Education Level For Perceived Satisfaction

<table>
<thead>
<tr>
<th>OVERALL SUPERVISORY</th>
<th>SATISFACTION MEANS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>40 &amp; UNDER</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>218.4</td>
</tr>
<tr>
<td>NONCOLLEGE GRADUATE</td>
<td>221.6</td>
</tr>
<tr>
<td>COLUMN MEANS</td>
<td>220.0</td>
</tr>
</tbody>
</table>

2 WAY ANOVA TABLE

<table>
<thead>
<tr>
<th>VARIANCE DUE TO</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>FCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUCATION</td>
<td>1</td>
<td>2019.</td>
<td>2019.</td>
<td>.73</td>
<td>4.04</td>
</tr>
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<td>AGE</td>
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<td>3108.</td>
<td>3108.</td>
<td>1.12</td>
<td></td>
</tr>
<tr>
<td>EDUCATION * AGE</td>
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<td>3201.</td>
<td>3201.</td>
<td>1.16</td>
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<tr>
<td>ERROR</td>
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<td>132512.</td>
<td>2761.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>51</td>
<td>140840</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

As discussed previously, this study has been conducted for the purpose of determining whether or not there exists a relationship between the perceived job effectiveness and the perceived job satisfaction for professional-technical employees who may aspire to supervisory positions. An additional purpose of this study has been to determine if an employee's education and age influenced the above relationship or if these two variables affected an employee's perception of his or her supervisory effectiveness or satisfaction. This chapter presents conclusions relative to each of these items. Conclusions regarding the relationship between perceived effectiveness and perceived satisfaction for the total sample population are presented in the first section of this chapter. The conclusions regarding the influence of an employee's education and age follows. Section two of this chapter offers recommendations for future research. This chapter concludes with a summary of this researcher's opinions and thoughts regarding this study.

Conclusions

Relationship between Perceived Supervisory Effectiveness and Perceived Supervisory Satisfaction

The finding that there is a direct relationship between perceived effectiveness and perceived satisfaction for professional-tech-
nical employees who may aspire to supervisory positions leads to a number of useful observations. The relationship was found to be true for both the overall supervisory job assessment and also for each of the seven supervisory ability areas. In addition the relationship held for sub-groupings of the sample population into college and noncollege graduates as well as the age groupings of 40 and under and 41 and over. In each instance, the correlations were statistically significant and exceeded the critical value by a comfortable margin. However, it must be noted that correlation does not imply causation. It only indicates the existence of a relationship (Kerlinger, 1973).

It was found that, for professional-technical employees, perceived supervisory effectiveness was directly related to perceived supervisory satisfaction and this infers that an employee's perceived effectiveness as a supervisor can be used as a predictor of his or her satisfaction in the same pursuit. The converse is also true and perceived supervisory satisfaction is a predictor of the person's perceived competence to do the supervisory job. A person who perceives herself or himself as possessing high ability to be a supervisor will also receive high satisfaction from performing the job. Conversely those with lower abilities would be less satisfied.

The finding of a relationship between perceived supervisory effectiveness and satisfaction offers management a useful "tool" for evaluating potential candidates for supervisory openings. As was stated in the introductory chapter, the proper selection of candidates for supervisory positions is a major concern of many organizations. Simply stated, management would be well-guided to select for supervi-
sory positions those people who have the competence to perform the supervisory job effectively while at the same time receiving personal satisfaction in doing the job. This concept is supported by Lawler and Porter (1975) whose research results emphasized that performance causes satisfaction and not the other way around.

A major purpose of the self-assessment seminars was to encourage the employee participants to "look at themselves" and identify what they believed were both their strengths and weaknesses if they were put into a supervisory position. From this self-analysis the participants were asked to draw up an action plan to strengthen their areas of weakness through a program of self-development. The underlying concept recognized that those individuals who would get little or no satisfaction from being responsible for the productivity of others, will not devote the time or effort necessary to acquire the knowledge and skills they need to succeed in supervisory positions. Sonnenfeld (1978) believes that mastery and achievement are closely related to job satisfaction and because of this, the need for mastery, or recognized accomplishment, becomes increasingly important. J. Sterling Livingston (1971) stated that, "only those men [or women] who have a strong desire to influence the performance of others and who get genuine satisfaction from doing so can learn to manage effectively" (p.85). Both Sonnenfeld's and Livingston's studies lend further support for the perceived supervisory effectiveness-satisfaction relationship found in this study.

In essence, organizations may use perceived supervisory job satisfaction as a screening technique for preselection of potential
supervisory candidates just as they intuitively use a person's perceived or demonstrated competence currently to make the screening selection. According to Badawy (1983), the current practice of promoting the most technically competent to an administrative position, simply for their technical abilities, should be abandoned. Badawy points to strong evidence that these individuals make the poorest managers. He believes organizations should look well beyond the candidate's technical ability, searching for possible ingredients and characteristics that would make him or her a successful manager. Certainly perceived satisfaction in doing the supervisory job should be a criterion.

The extension of the basic finding of the existence of a relationship between perceived supervisory effectiveness and satisfaction to each of the seven supervisory ability areas provides organizations with an even more useful "tool" to enhance the supervisory selection process. Management can review potential candidates in greater detail in order to assure that the successful candidates display a balanced supervisory-satisfaction perception in all of the ability areas rather than just technical competence or overall competence. This notion is further reinforced by Stogdill's (1974) research which showed that subsequent promotion of supervisors or first level managers into higher management positions was because they demonstrated the capability of being satisfied, not only by responsibility and autonomy, but by personal interrelationships and by organizational life. Stogdill also found that dissatisfaction by managers contributed to cleavage between workers and managers. Managerial satisfaction seems
essential to the effectiveness of the whole organization and is, therefore, an appropriate criterion which can be used to enhance the supervisory selection process.

**Influence of Education on Perceived Supervisory Effectiveness and Perceived Supervisory Satisfaction**

It was hypothesized that an employee's education (college vs non-college) would influence the perceived supervisory job effectiveness and satisfaction relationship. This, however, was not the case and Hypotheses 2A, 2B and 2C were not supported. College graduates and noncollege graduates did not perceive their supervisory effectiveness and satisfaction differently and the relationship between these two variables was not influenced by the educational level of the professional-technical employees participating in the study.

This is an important result because it provides organizations an insight as to the influence education may have on their employees' perceptions of how effective and satisfied they would be in the supervisory job. The present study does not lend support to the notion that college graduates perceive their supervisory effectiveness and satisfaction differently than their noncollege counterparts. Management, in making the candidate selection decision, should not use the education level criterion as a discriminant for screening candidates based on the supervisory effectiveness-satisfaction assessment. This study's finding is supported by Stogdill (1974) who concluded that his review of research results concerning the relationship of education to various aspects of job satisfaction for managers are contradictory. Many years ago Cicero said: "Natural
ability without education has oftener raised man to glory and virtue, than education without natural ability" (cited in Harvard Business Review, 1971, p. 86).

Influence of Age on Perceived Supervisory Effectiveness and Perceived Supervisory Satisfaction

A statistical difference was not found in the strength of the relationship between perceived supervisory effectiveness and perceived supervisory satisfaction for the 40 and under versus 41 and over age groupings. Also the mean scores for perceived supervisory-effectiveness and perceived supervisory satisfaction did not differ statistically when these two age groups were compared against each other. An additional comparison was made between the age groupings of 50 and under versus 51 and over with the same results. These results can be used to guide the criteria used by organizations in the selection of potential candidates for supervisory openings. The notion that age influences how professional-technical employees perceive their supervisory effectiveness and satisfaction was not supported in this study and therefore it is recommended that age not be used by organizations as a means of screening potential supervisory candidates. Support for this finding also comes from Sonnenfeld (1978) who concluded that his research convincingly established the need to evaluate potential on an individual basis, and not by age group. This is further reinforced by Dalton and Thompson (1971) who pointed out that history is replete with examples of the middle-aged and seniors contributing, accomplishing and achieving throughout their lives. For example, Shakespeare wrote comedies and sonnets until he was 40; all

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of his major tragedies were written after this age.

**Interaction of Education and Age on Perceived Supervisory Effectiveness and Satisfaction**

The hypothesis that education and age interact and influence the employee's perception of his or her supervisory effectiveness and satisfaction was not supported. In other words the notion that an interaction between the independent variables of age and education would jointly influence the dependent variables of perceived supervisory effectiveness and satisfaction could not be substantiated. This was the case for both college versus noncollege graduates over the age groupings and also when investigated by age grouping with the education levels as the other independent variable. From an application standpoint this implies that organizations should not specifically select supervisory candidates based on age and education criteria with the belief that these two independent variables will mutually effect the candidates perceived effectiveness and satisfaction. Interaction of course still remains a possibility but it was not evidenced in this study and therefore it should not be recommended as a selection criterion.

**Postlogue**

Throughout the supervisory selection process organizations should not be unduly influenced by the education level (college versus noncollege graduates) or age of the candidates. The seminar classes were made up of volunteers of both college and noncollege graduates, young and old and virtually all were hopeful of, and aspiring to
supervisory positions. These employees donated their own time during evening hours in the pursuit of seeking knowledge about themselves and an understanding of their strengths and weaknesses, in hope of bettering their careers and growth.

Schermerhorn et al. (1982) found that there are fewer differences between older and younger workers than many people believe. However, he points to recent research which does suggest that general intelligence and verbal ability increase with age. This is particularly true of persons at higher occupational, educational and intellectual levels. Older workers do seem to be more satisfied with various aspects of the workplace than are younger employees. Schermerhorn's findings were evidenced in the present study but the differences were not large enough to demonstrate support of the research hypotheses relating to the influence of education level and age on the perceived supervisory effectiveness and satisfaction.

This investigator believes that organizations would be wise not to arbitrarily screen-out of consideration for supervision those employees who are either older or non-degreed or both. These people could very well become excellent supervisors and as pointed out earlier, they also have much wisdom, knowledge and maturity to offer their organizations. Many organizations are facing a management manpower crunch (Miner, 1973) and can ill-afford to arbitrarily eliminate from consideration, potential supervisory candidates simply because they are past 40 or because they did not graduate from college.
Recommendations for Future Research

It is hoped that this research study will result in additional analysis and research concerning the relationship between perceived supervisory effectiveness and satisfaction.

It would also be most useful if a longitudinal study could be conducted which would follow professional-technical supervisory candidates, who are successful in receiving promotions and advance to management jobs, to determine their actual supervisory effectiveness and satisfaction.

Hall (1976) supports such research in his remarks about career interest and satisfaction. Hall states that,

Variables such as needs and interests best predict how well-suited a person is for a particular occupation. These personal characteristics should predict the person's choice of occupation, his satisfaction and his continuation in the occupation better than they predict his performance in that occupation. Unfortunately, this quite straightforward hypothesis has never been tested to this writer's knowledge. (p. 104)

This study did not consider differences which may exist between males and females. The study sample only included nine women and, therefore, a gender analysis was not feasible. However, women managers are a fast growing contingent. Pearse (1977) quotes author Martha Burrow,

The potential for positive use of this new energy source [women] in management is unmeasured. As women pursue their ambitions across boundaries they have never crossed and exercise authority they have not enjoyed in the past, the results must be monitored and evaluated. The meshing of this feminine energy with that of their male colleagues will be a most exciting time in the history of management science. (p. 6)
Male-female differences are a much talked-about subject today. Summarized research shows that there are generally less performance-related differences between women and men than is generally suspected. It would be useful to include a comparison of male versus female responses to the perceived supervisory effectiveness and satisfaction assessments. This investigator recommends that this aspect be explored in a future study.

Summary

This investigator has attempted to study a group of nonsupervisory professional-technical employees to determine if a relationship exists between their self-assessment of their supervisory skills and the amount of satisfaction they believe they would receive from being a supervisor.

The study group is representative of the larger engineering population employed by a major automotive component manufacturer. Every effort has been made to assure confidentiality and to protect the rights of the participants.

It is believed that this research can and will serve as a catalyst to initiate additional research into the subject of perceived supervisory effectiveness and satisfaction for those who may aspire to supervisory or management positions. The employees who made up the sample group should be applauded for their participation and cooperation during the study.
Appendix A

Endorsement Letter
July 20, 1984

Mr. Arthur Hoffmann  
Fisher Body General Office  
30001 Van Dyke  
Warren, MI 48090

Dear Art:

It has been a pleasure to talk with you on the telephone over the last few weeks about the development of the Self-Assessment Guide for Series I of Careers in Management. I am delighted to hear that General Motors continues its active use of Series I and plans to increase that use in the next year. As we discussed, I have enclosed a revised version of the Series I notebook for your reference. If there is interest in obtaining masters of the revised materials, please let me know.

I have also enclosed some information on Sterling Institute including Dr. Livingston's articles from the Harvard Business Review and a general writeup of the corporate capabilities.

As we agreed, Sterling Institute would be pleased to grant its permission for you to refer to your use of the Careers in Management Self-Assessment Guide in your dissertation with the understanding that you will credit Sterling Institute for its development. We would be most interested in your findings.

If I can be of further assistance, please let me know.

Sincerely,

Sherry Joslin

enclosures
Appendix B

Instruments
PRE-SUPERVISORY SELF-ASSESSMENT
AND CAREER DEVELOPMENT

Confidential
I.D. NO.

PLEASE CIRCLE:

SEX: M or F

AGE: 20-30 31-40 41-50 51-60

EDUCATION: High School Years of College Degree

Yes No 1 2 3 4 Yes No

JOB LEVEL: 5 6 7 8
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These consist of pages:

Appendix B, pages 104-126 (Self Assessment Guide)

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300 N Zeeb Rd., Ann Arbor, MI 48106 (313) 761-4700

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Appendix C

Histogram, Scattergram and Pearson 'r' Calculation
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<th>MIDDLE OF INTERVAL</th>
<th>NUMBER OF OBSERVATIONS</th>
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<td>140.0</td>
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</tr>
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<td>150.0</td>
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</tr>
<tr>
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<td>2</td>
</tr>
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<td>180.0</td>
<td>2</td>
</tr>
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Figure 6. Histogram of Effectiveness Scores
For Total Sample Group

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Figure 7. Typical Scattergram Showing Relationship Between Effectiveness and Satisfaction Scores and Pearson Correlation Coefficient.

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Appendix D

Descriptive Statistics of Comparison Group Versus Participant Group and Test of No Difference Between Two Independent Population Correlation Coefficients
### Table 10

**Descriptive Statistics of Comparison Group vs Participant Group**

<table>
<thead>
<tr>
<th>ABILITY CATEGORY</th>
<th>EFFECTIVENESS</th>
<th>SATISFACTION</th>
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<tr>
<td></td>
<td>COMPARISON GROUP</td>
<td>n=30</td>
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<tr>
<td></td>
<td>MEAN</td>
<td>S.D.</td>
</tr>
<tr>
<td>1. Administrative</td>
<td>30.93</td>
<td>6.67</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>28.00</td>
<td>6.25</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>68.33</td>
<td>14.77</td>
</tr>
<tr>
<td>4. Develop/Motivate</td>
<td>31.67</td>
<td>7.81</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>52.60</td>
<td>12.12</td>
</tr>
<tr>
<td>6. Problem Solving</td>
<td>26.97</td>
<td>7.01</td>
</tr>
<tr>
<td>7. Technical/Professional</td>
<td>5.73</td>
<td>1.78</td>
</tr>
<tr>
<td>8. Total Ability</td>
<td>244.23</td>
<td>18.14</td>
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</table>

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### Table 11

**Test of No Difference Between Two Independent Population Correlation Coefficients**

<table>
<thead>
<tr>
<th>ABILITY CATEGORY</th>
<th>Comparison Group</th>
<th>Participant Group</th>
<th>Reject Null</th>
</tr>
</thead>
<tbody>
<tr>
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<td>n=115</td>
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</tr>
<tr>
<td>1. Administrative</td>
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<td>.449</td>
<td>x</td>
</tr>
<tr>
<td>2. Communicative</td>
<td>.566</td>
<td>.550</td>
<td>x</td>
</tr>
<tr>
<td>3. Interpersonal</td>
<td>.569</td>
<td>.514</td>
<td>x</td>
</tr>
<tr>
<td>4. Develop/Motivate</td>
<td>.458</td>
<td>.333</td>
<td>x</td>
</tr>
<tr>
<td>5. Leadership</td>
<td>.553</td>
<td>.346</td>
<td>x</td>
</tr>
<tr>
<td>6. Problem Solving</td>
<td>.288</td>
<td>.421</td>
<td>x</td>
</tr>
<tr>
<td>7. Technical/Professional</td>
<td>.446</td>
<td>.451</td>
<td>x</td>
</tr>
<tr>
<td>8. Overall</td>
<td>.539</td>
<td>.492</td>
<td>x</td>
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</tbody>
</table>

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