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FACTORS WHICH INFLUENCE LEADERSHIP IN THE PROFESSION OF MEDICAL TECHNOLOGY

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FACTORS WHICH INFLUENCE LEADERSHIP IN
THE PROFESSION OF
MEDICAL TECHNOLOGY

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

by
Bethany L. Wise, B.S., M.S.

* * * * *

The Ohio State University
1984

Reading Committee:
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Robert R. Bargar
David S. Stein

Approved By

[Signature]
Adviser
Faculty of Educational Policy
and Leadership
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1984
To
my mother and father
Mae and Richard,
and my brothers,
Eric and Greg
ACKNOWLEDGMENTS

I am indebted to Professor Donald Sanders, who thoughtfully supported me through each step of this study. It was through his guidance that this research endeavor has been completed.

Appreciation is also extended to Professor Robert Bargar and Associate Professor David Stein for their advice and encouragement and to Assistant Professor John Snyder for his interest and constructive suggestions.

It is with humility and gratitude that I acknowledge the cooperation of the individuals who served as subjects for this study. Without their willingness to share with me their personal experiences and perceptions, this study would not have materialized.
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Studies in Adult Development. Professor Robert R. Bargar

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CHAPTER I

INTRODUCTION

Generally, leadership is regarded as important; for a formal or informal group to accomplish an intended task, someone must appropriately guide the activities of individual members of the group:

Leadership is the process by which one person designates "what is to be done" and influences (inspires, commands) the efforts of others in order to accomplish specific purposes (objectives and work tasks) (Rakich, 1977, p. 282).

The need for leaders to guide and direct has been recognized for some time, and the qualities of effective leaders have been the focus of much speculation and study. Stogdill (1974) provided a factor analysis of the qualities and characteristics of leaders as enumerated in thirty-eight previous writings. The list included twenty-six factors relative to administrative, interpersonal, intellectual, and technical skills, the leaders' relationships with groups, and personal characteristics.

Also because of the need for leadership, experts have evaluated the possibility of developing and nurturing individuals with the potential to serve as effective leaders. Levinson (1968) believed that many individuals are leaders and that leadership can be fostered:
The world of man is made up of geography and atmosphere, personal psychology and social crosscurrents, changing elements and stable landmarks. His behavior is always a result of his internal drives, his maturing capacities, and both the stimuli and constraints of his environment. Leadership behavior, therefore, is a product of multiple forces. Any effort to understand and modify it must contend with those forces (p. 1).

The possibility exists that the attainment of leadership is the result of circumstances external to the individual and that the individual acquires leadership qualities after finding himself/herself in a position in which he/she must lead. Gouldner (1950) criticized the assumption that "the conditions which permitted an individual to become or remain a leader were...qualities of the individual" (p. 21). For, according to Gouldner, not only might conditions in addition to individual traits foster leadership, but the traits required to maintain leadership might be acquired after leadership was obtained and might not be the same as those required to achieve leadership. Such a possibility has been explored by asking leaders to individually describe the background of their leadership attainment.

Leadership in the health professions is not only as essential as leadership in general but, because of the nature of the health professions, unique demands may be placed upon leaders in the health professions. The health professions are very dynamic with respect to clinical practice and technology, so being a leader in the health professions frequently involves not only traditional managing or teaching but monitoring and conducting the discovery of new knowledge through research and the dissemination of that knowledge through
professional publications, seminars at professional meetings and professional workshops.

Because the demands upon leaders in the health sciences are somewhat different from the demands upon leaders in general, the conditions or factors which influence individuals to become leaders in the health sciences may differ somewhat from the conditions or factors which influence individuals to become leaders in general. Therefore, the factors which influence leadership in the health sciences should be studied separately from the factors which influence leadership in general. Morgan (1973) supported this when she called for research "to develop means of identifying potentially effective leadership personnel in several occupational fields, particularly in the health-related professions" (p. 143).

Nursing is one health profession in which the importance of leadership is commonly recognized and discussed in professional writings. Some professional journals deal only with topics related to nursing leadership. Speculations have been made, and studies have been conducted, with regard to the factors which promote effective leadership in nursing. But it cannot be assumed that the factors which promote effective nursing leadership are the same as the factors which promote effective leadership in other health professions, because the demands of some of the other health professions are different from the demands upon nurses.

Medical technology, the science of laboratory medicine, is an example of a health profession which is different from nursing. Medical technology is very technologically oriented and is not
well-understood or recognized by the general population. Therefore, leaders are needed in several capacities which may be in addition to traditional managing and teaching and different from those considered important in nursing. The many unanswered questions of laboratory medicine and the increasing demand for even more improved technology require individuals to design and conduct research programs. Once questions are answered, and improved technology is developed, leaders are needed who are capable of disseminating new knowledge to members of the profession through conducting continuing education seminars and writing for professional publications and textbooks. For the profession to gain public visibility and maintain unity of purpose and practice individuals are needed to serve their communities as representatives of the profession. But yet, studies of the factors which influence the development of leadership in medical technology are scant.

Because of the importance of leaders to the profession of medical technology, the specific needs of the profession, and the possibility that the specific needs may affect the factors which influence the growth of leaders, knowledge of the factors which contribute to the development of effective medical technology leaders is needed. Hence, the focus of this study was to explore the factors which have been influential to the development of current leaders in medical technology who teach or manage and are involved in research, publishing, continuing education, and professional associations.

The purpose of this chapter is to present the rationale for a study of the factors which influence medical technology leadership.
The chapter begins with an overview of trends in medical technology. The increasing demand for leaders in medical technology, together with the lack of specifics relative to the development of effective medical technology leaders, provides the rationale for this study. The chapter concludes with delineation of the purpose of the study and the research question, delimitation and limitation of the study, and an overview of the research report.

Trends in Medical Technology

Increased technological innovations are already requiring increased numbers of competent technologists to interpret laboratory results and to serve as managers, researchers and educators (LaCroix, 1978; Martin, 1979). For example, between 1978 and 1980 the number of available faculty positions increased substantially (Maturen, Rifken, & Florek-Ebeling, 1981).

It is predicted that medical technology as a profession will progressively continue to grow and evolve. The demand for medical technologist positions requiring skills to manage and to interpret laboratory results will continue to increase. By 1990, the total number of positions will decrease, but the number of career ladder steps will increase. The role of the medical technologist of the 1990's will require increasingly more public relations, professional relations, supervision, education and research (Ginzberg, 1982; Ross, 1982).
As the science of laboratory medicine becomes more sophisticated, the need for individuals to monitor the progression and guide fellow professionals through the advancements is increasing. The profession is one in which career progression into leadership roles will be increasingly necessary to maintain the integrity of the profession.

**Purpose of the Study**

The purpose of this study was to explore the factors involved in the development of present-day medical technology leadership as a basis for consideration by the profession regarding what it might do to enhance leadership. The research question is, "What factors influence leadership activity of medical technologists?" According to the literature, the factors may include any number of individual traits as well as factors external to the individual, so a research methodology was employed by which any number of potential factors could be identified.

Since the need for competent leaders in medical technology is increasing, the profession may benefit from knowledge of the factors which influence individuals to become medical technology leaders. If factors such as luck, seniority or necessity are the basis for promotions, corrective action may be taken, and contributing factors which may provide more competent leaders may serve as the basis for both future promotions and the development of future medical technologists.
This report is divided into five chapters. Chapter II presents a review of leadership and the factors which influence leadership as currently understood in general management and nursing literature, along with justification of need for this study. A detailed description of the methodology used in this study comprises Chapter III. The results of the study are described in Chapter IV, while the research findings, conclusions, recommendations, and implications for further research are presented in Chapter V.
CHAPTER II
A REVIEW OF THE LITERATURE ON
THE FACTORS WHICH INFLUENCE LEADERSHIP

The literature regarding leadership is, at the same time, impressive and disappointing. Generally, there are many references concerning the "making of" a leader. While professional journals in nursing speak to the traits of effective leaders and the development of nursing leaders, in medical technology, literature pertinent to the factors which influence leadership is thin.

Overview

This chapter reviews the literature relative to leadership traits and factors which influence promotions generally and in nursing and medical technology. Additionally, since medical technology is predominantly female, some studies which dealt exclusively with females are included in the discussion of general leadership traits. For medical technology the need for this study is indicated.
General Leadership

Leadership Traits

Gouldner (1950) defined a leader as "any individual whose behavior stimulates patternning of the behavior in some group" (p. 17). He wrote positively of the relationship between intelligence and the ability to lead. According to him there were two distinct aspects to the relationship between leadership ability and intelligence in a group of individuals:

(a) The leader tends to have an intelligence higher than the average in his group;

(b) there is a limit to the superiority of intelligence which a leader may possess (p. 33).

Ten years following Gouldner (1950), Jennings (1960) described three types of leaders:

Sometimes these great men are driven by a deep-seated drive for power over others and by the need to maintain that power at all costs. Or they may be possessed by a sense of mission to which they dedicate their total selves. Still in other cases they are men of unbounded reserves of energy and iron will power, which allow them to resist the values and norms which society usually instills in weaker people (p. 1).

Jennings considered the importance of society to the nurturing of leaders. According to him individuals were driven to leadership by an "unconscious attitude" (p. 3), because they are "born into a society that knows only how to run, to achieve, to grow" (p. 27). The society, therefore, breeds ambition. Or more practically, certain aspects of an individual's situation prompt development
of particular leadership abilities.

Levinson (1968), an individual who has written extensively on adult development, asserted that skill and talent are essential to leadership. Also, in one's work, he/she works to fulfill certain psychological needs:

Those who go to work in organizations have two tasks. Presumably, they are always working on the organizational task, whether it is to produce goods or render services. Invariably, they are also working on personal psychological tasks. In addition to its other social functions, the work organization is always an arena for the resolution of psychological problems (Levinson, 1968, p. 43).

Hence, an individual's psychological needs may affect his/her motivation to obtain a position of leadership.

One of the most comprehensive reviews of managerial leadership traits was completed by Ghiselli (1971). He studied abilities, personality traits and motivational traits as enumerated in Table 1.

With regard to managerial talent Ghiselli (1971) wrote:

The traits of intelligence, self-assurance, decisiveness, and the needs for occupational achievement and self-actualization form a cluster of qualities which are somewhat less important for managerial talent than is supervisory ability. It is apparent that the talented manager seeks position in the organization, and at the same time wishes to utilize his talents to the fullest and to utilize them in work which is of significance. He wants both high occupational status and the opportunity for self-actualization. The fact that the successful manager is endowed with the qualities represented in intellectual superiority means that he is fully capable of doing that work. By this high level of intellect he is further distinguished from his less successful colleague. His machinery is geared to climb the steep road ahead. The talented manager is further equipped for his task by the very fact that he believes he is well endowed, and is prepared to utilize his abilities. He is both self-assured and decisive. We are
TABLE I

LEADERSHIP TRAITS STUDIED BY GHISELLI (1971)

Abilities

- Supervisory ability
- Intelligence
- Initiative

Personality traits

- Self-assurance
- Decisiveness
- Masculinity-femininity
- Working class affinity

Motivations

- Need for occupational status
- Need for self-actualization
- Need for power over others
- Need for high financial reward
- Need for job security
left with the three traits of lack of a need for security, lack of working class affinity, and initiative as being parts of managerial talent, though parts which are lesser in importance than the ones we have just discussed. These three traits seem to have little or nothing in common, and to pertain to quite different aspects of human qualities. Our exploration indicated that the need for security carries no weight at all for the talented executive and administrator. Indeed, quite the contrary, security even appears to be something he avoids. He is a person who is willing to take risks, rather than one who seeks self-protective circumstances. Furthermore, the talented manager is not one who has a "we-feeling" with working class people. In fact, he tends to be the sort of person blue-collar workers would reject as a co-worker. Finally, to some extent the talented manager is one who can readily initiate necessary action, and at the same time can see new and different solutions to problems (pp. 103-104).

One author, Stogdill (1974), analyzed via factor analysis leadership characteristics cited in previous writings. Table 2 presents a summary of his comprehensive analysis (Stogdill, 1974, p. 93). According to the frequencies, administrative, interpersonal, intellectual, and technical skills are considered more important than the leader's relationship with his/her group, which is considered more important than personal characteristics.

Leadership ability consists of six qualities, according to Fox (1976): beliefs, courage, knowledge, independence, willpower, and ambition. But most importantly is a belief in something and the courage to express that belief.

More recently, similarities among women executives were studied by Hennig (1977). Similarities in background included being the first-born or an only child, close attachment to a father who served as a role model, no pressure to accept traditional roles, and involvement in boy's activities. Also, self-esteem among such women was
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<td>5</td>
<td>Social nearness, friendliness</td>
<td>18</td>
</tr>
<tr>
<td>6</td>
<td>Intellectual skills</td>
<td>11</td>
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<tr>
<td>7</td>
<td>Maintaining cohesive work group</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>Maintaining coordination and teamwork</td>
<td>7</td>
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<tr>
<td>9</td>
<td>Task motivation and application</td>
<td>17</td>
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<td>10</td>
<td>General impression (halo)</td>
<td>12</td>
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<tr>
<td>11</td>
<td>Group task supportiveness</td>
<td>17</td>
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<td>12</td>
<td>Maintaining standards of performance</td>
<td>5</td>
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<tr>
<td>13</td>
<td>Willingness to assume responsibility</td>
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<td>14</td>
<td>Emotional balance and control</td>
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<td>15</td>
<td>Informal group control</td>
<td>4</td>
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<td>16</td>
<td>Nurturant behavior</td>
<td>4</td>
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<tr>
<td>17</td>
<td>Ethical conduct, personal integrity</td>
<td>10</td>
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<tr>
<td>18</td>
<td>Communication, verbality</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>Ascendance, dominance, decisiveness</td>
<td>11</td>
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<tr>
<td>20</td>
<td>Physical energy</td>
<td>6</td>
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<tr>
<td>21</td>
<td>Experience and activity</td>
<td>4</td>
</tr>
<tr>
<td>22</td>
<td>Mature, cultured</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>Courage, daring</td>
<td>4</td>
</tr>
<tr>
<td>24</td>
<td>Aloof, distant</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>Creative, independent</td>
<td>5</td>
</tr>
<tr>
<td>26</td>
<td>Conforming</td>
<td>5</td>
</tr>
</tbody>
</table>
Expanding upon the work of Hennig (1977), Higginson and Quick (1980) suggested several characteristics which were dominant among women who became leaders in business. Such women are willing to take the risk of entering traditionally male fields, are candid with their male co-workers, have a positive attitude about being female, a high energy level and sense of self-esteem, are extremely ambitious and competitive, and relate to men easily. Higginson and Quick (1980) also stated, "Husbands are a dominant factor in the making and breaking of women's careers" (p. 24).

The Editors of *Nation's Business* (1968) published a collection of essays and interviews from twenty-one of the most prominent leaders in business. The Forward to the text alludes to the combination of personal traits and external factors as influential to leadership:

> These men - some with enthusiasm and eagerness, some with reservations and reluctance - accepted a responsibility for leadership when it was urgent and necessary that they do so. And each used the strength of his personality, his character, his integrity to apply that leadership to the constructive good of others. (Editors of *Nation's Business*, 1968, p. vii-viii).

Some discussion of the basis of promotions provides unique information regarding the combination of traits and external factors which often influence attainment of leadership.

The Basis of Promotions

By 1968, research was being done to learn about any factors which affected promotions to high management positions. Glickman,
et al. (1968) supervised a study in which interviewers asked promoters and promotees open-ended questions about their perceptions of the reasons for the promotions. The purpose of the study was "to generate some concepts, ideas, and insights that may point the way toward better answers" (Glickman, et al, 1968, p. 7).

Based on his study Glickman (1968) noted several influences upon promotions. At several locations, jobs were constructed to promote some individuals. The luck of "being in the right place at the right time" (Glickman, 1968, p. 37) was also significant. Further, individuals who worked in smaller units of organizations seemed to obtain promotions easier than individuals in larger units, and individuals who successfully completed a different task often received promotions. Individuals without optimum credentials might have been promoted upon completing a new assignment. Not infrequently, individuals were promoted when their bosses were promoted. Job performance was more important than knowing the right people, and the inability to make decisions severely hampered promotability. Formal education was less important than experience. Periods of change favored youth, and mobility increased the chance for promotion. Finally, though opportunity was a factor in promotions, "opportunity knocks less often at the door of one who waits than for those who are holding the door open" (Glickman, 1968, p. 58).

In 1969, Adams and Fyffe named "sufficient self-interest" and "sufficient perception and adaptability" as essential to promotability
(p. 85). Individuals who are promotable "have learned that promotability is based directly on corporate expectations and that those individuals who correctly perceive their roles by adapting to the organization's requirements are promotable" (Adams, & Fyffe, 1969, p. 172). The implication is that individuals are usually promoted following a conscious effort to obtain the promotion.

According to Campbell, et al. (1970) superiors use the philosophy that individuals actively seek promotions to encourage individuals to work diligently for extended lengths of time. Promotions are based upon experience, by seniority, and merit, as measured by the subjective appraisal of the immediate supervisor. Additionally, superiors recognize financial needs and the need for security of employees and, therefore, additional money and job security are promised with promotion to provide incentive.

From the point-of-view of one particular executive, according to Getty (1971), executives look for certain individuals to groom for executive positions, and luck is not a factor in promotions. "Alertness, imagination, enthusiasm, ambition, and business acumen" are necessary characteristics (Getty, 1971, p. 101).

Fiore and Strauss (1972) reinforced some earlier thoughts and suggested some additional ones relative to promotability. They agreed with Gouldner (1950) that a certain amount of intelligence was necessary but that too much intelligence could be detrimental. They considered the willingness of an individual to devote time and personal freedom to his/her job, as well as his/her ability
to adjust to particular situations, relevant to promotion. Creative ability and behavior are also important.

Nursing Leadership

Nursing is one health science in which leadership has been a major concern. The circumstances which have led to nursing leadership have been discussed and enumerated. Spennrath and Tiivel (1979) indicated that nurses are often placed in positions of leadership out of necessity, because of high turnover rates in nursing. They advocated instructing students in leadership during nursing training.

But most of the nursing literature consists of articles which emphasize particular circumstances or traits relative to leadership. When involved in group decision making, Bloom (1980) observed that young, white nurses with associate degrees were more influential than those who were older, black or vocationally trained. Hammond (1981) indicated the need for assertive nursing leaders who are capable of making decisions. Along with assertiveness, DeYoung, Sifferlin, & Mitzel (1983) emphasized that a nursing leader should be dynamic. According to Hamilton (1981), "The ability to make decisions, motivation and the ability to motivate others, a high energy level, ability to complete assignments, and a willingness to work long hours" are "necessary ingredients for leadership" (p. 11). The willingness to invest effort is directly proportional to the attainment of power, according to Beck (1982). Those individuals who become nurses tend to possess a stronger need to achieve than
individuals generally possess, but knowledge, intelligence, commitment and energy are essential to success (Levenstein, 1982).

King (1981) criticized promotions based on seniority and clinical excellence and provided a more comprehensive list of qualities essential to nursing leadership. Included in the list are competence, high level of commitment, enthusiasm, self-confidence, interpersonal skills, confrontation skills, self-assessment and "realness," or the capacity to like oneself.

A list of qualifications for a "Clinical Nurse Specialist" provides information relative to both personal traits and external factors which are considered necessary to "the job title usually reserved for nurses who have earned the academic degree of masters in nursing and have become highly skilled technicians" (Morath, 1983, p. 51):

1. Have a Bachelor of Science in Nursing or certification in area of clinical expertise or Master of Science in Nursing with no post-masters clinical experience or other demonstrated recognition of clinical expertise.

2. Five years experience in clinical nursing with at least two of these five years in area of clinical expertise.

3. Have the ability to establish and maintain good interpersonal relationships and communications.

4. Demonstrate the ability to accept and implement change.

5. Have consultative ability and skills.

6. Have teaching ability and skills.


8. Show evidence of continuing professional growth; membership in a professional nursing organization is desirable.
9. Be able to work flexible hours as needed (Morath, 1983, p. 51).

The presence of a mentor has also been considered especially contributory to nursing leadership. Mentoring is defined as "the process by which an older, wiser, and more experienced person guides and nurtures a younger one..." (Vance, 1982, p. 7). According to Hamilton (1981) "mentorhood" is "a key to nursing leadership" (p. 4) in that it helps younger nurses to learn to take risks, believe in their professional ideology, accept a philosophical commitment to sharing, relate to people intuitively and empathetically, develop a creative approach to work, and become intellectually inspired. The presence of a mentor actually promotes career advancement, and eighty-three percent of influential nurses reported having at least one mentor (Vance, 1982). In one study in which Wilson (1981) interviewed nurses involved in politics regarding how they became involved, the importance of someone more experienced to provide encouragement was indicated. Hardy (1983) expressed concern that mentoring in nursing is not being provided to the extent that it is needed.

The 1981 study by Wilson involved personal interviews with politically active nurses to explore various aspects of their involvement, including how they became involved. One nurse stated that she had always been active in clubs and organizations, had enjoyed participating, and was willing to do the work that needed to be done. Another just liked being involved. Still another also enjoyed
being involved but expressed the need for some training in management skills while in school.

Management training and development in nursing to provide more competent leaders has been advocated (Howarth, 1982). According to Gleeson, Nestor, & Riddell (1983), "Lack of adequate management preparation can be devastating" (p. 12). White (1982), called for deliberate preparation of nursing leaders by recognizing leadership potential in individuals and then cultivating those individuals to serve as leaders. Hence, nurses have recognized the need for leadership, have studied to some extent the factors affecting nursing leadership, and are requesting a more formalized process of developing leaders.

**Medical Technology**

As in nursing, the trend in medical technology is to plan for a future which will require an increased number of leaders to meet demands which will be placed upon the profession. In 1973, the American Society for Medical Technology House of Delegates included demonstration of knowledge in supervision, management and teaching in their list of competencies for career-entry technologists.

Since 1973, the duties of medical technologists have changed. Medical technologists are more involved in management, and are making increasingly greater contributions to education and research (LaCroix, 1978).

According to Martin and Hill (1979) medical technologists have been assuming more responsibility in laboratory management since
the early 1970's. They are working to organize "quality patient care service in a timely and cost-effective manner (Martin, & Hill, 1979, p. 658). And Glassman (1980) stated that "most scientists must frequently take leadership roles with subordinates, peers, committees, boards, or other groups" (p. 46).

Projections for the future indicate that the need for leaders in medical technology will only continue to increase. The following prediction has been made for 1990:

The combination of continuing advances in technology and the growth of for-profit health care enterprises will probably lead to more large laboratories with fewer workers but with more good jobs near the top (Ginzberg, 1982, p. 282). And according to predictions for the ten years from 1990 to 2000, medicine will become more competitive, and medical technologists "will have a more professional relations, public relations, supervisory role or, with additional education, will assume the scientist's research role" (Ross, p. 284).

Even though optimal leadership in medical technology is essential to the future of the profession, studies relative to the factors which may influence leadership in medical technology are scant. Some studies have alluded to factors which influence leadership in medical technology. Gleich, Snider, & MacDonald (1975) noted that supervisory personnel were more interested in continuing education than line technologists. According to Rausch (1977) both three years of college plus one year of clinical experience and two years of preprofessional college plus two years of professional college
prepare individuals for professional practice and growth equally. An individual's value system affects his/her choice of career options (Oliver, 1978). In 1980, Day and McClure surveyed 1,000 medical technologists licensed in California for the purpose of determining "promotion practices, characteristics leading to promotion and management education needs..." (p. 313). Subjects were asked to complete a multiple-choice questionnaire. According to the survey results:

1) most technologists feel that they are promoted for reasons other than managerial potential

2) management education was a perceived need by technologists

3) goal-setting behaviors were more likely to lead to promotion, and

4) males in the population sample were more likely to exhibit goal-setting behaviors than were their female counterparts (Day, & McClure, 1980, p. 313).

They indicated that a study using questions of a more general nature might have provided more comprehensive information.

Summary

This chapter has summarized contemporary thinking and research concerning leadership in general and in nursing. The factors mentioned in the literature which may influence medical technology leadership were also enumerated, and the need for investigation into the factors which influence leadership in medical technology was indicated.

Chapter III is a detailed description of the methodology used in this study. Since so much information is needed and yet to
be gained regarding the factors which influence medical technology leadership, the emphasis of this study was upon obtaining a comprehensive descriptive foundation upon which future research may build.
Qualitative research is a descriptive form of research in which the researcher is the key instrument and "meaning" is of essential concern (Bogdan, & Biklen, 1982). The researcher develops general research questions to investigate in context and focuses upon coming to understand from the point-of-view of the subjects. The intent is to provide a description regarding a particular event or situation, and it is not appropriate, therefore, to test specific hypotheses.

Personal interviewing is an advantageous form of qualitative research when the answer to the research question may be found within the perceptions of individuals. Through the interview the researcher gains insight regarding the interpretation of an individual with respect to some specific element of his/her world (Bogdan, & Biklen, 1982). Such an interpretation may be essential when only the individual possesses all of the information regarding that specific element from which to make an interpretation. The perspective of the individual is also important when he/she has made decisions for reasons which only he/she can explain. The researcher may need to come to understand by asking general questions
which allow the interviewee to describe and explain from his/her perspective.

However, when there is a need to study the personality characteristics of individuals, a reliable, scorable test capable of differentiating particular personality traits may provide more congruent, informative and reliable information than the perspectives of the individuals. Individuals may not be able to describe their own personality characteristics adequately, especially with respect to the extent of their tendencies for particular characteristics. Written tests are available which provide indications of the personality characteristics which individuals exhibit and the extent to which individuals exhibit those particular personality characteristics.

Overview

This study was undertaken with the intention of providing a description of the variables which have influenced some current medical technologists to become leaders in their profession. According to the literature, many different circumstantial factors might influence individuals to become leaders. Because the individuals would probably have the most complete and comprehensive impression of such factors which might have influenced the directions of their professional careers, and because the individuals probably made conscious choices from their perspectives that affected their careers, the individual perceptions of the research subjects were considered essential to the study. Hence, conducting personal interviews
was the primary methodology for this study.

The literature also indicates that personality characteristics might influence individuals to become leaders. Therefore, to identify and describe trends in personality characteristics of medical technologists that might have influenced them to become leaders, a method was needed which could provide indications of individuals' specific personality traits. Standardized instruments are not normally used in conjunction with qualitative research, but because of the need for congruent, reliable information in the domain of personality, to supplement the descriptive data acquired through qualitative means, a personality assessment instrument was included in the research design. Each research subject was asked to complete a personality questionnaire which placed him/her on a continuum with respect to sixteen different personality traits.

This chapter outlines in detail the methodology used for this study. First, definitions, assumptions of the study, and the method of study group selection and gaining access to the subjects are provided. Then, the specifics of the interviews are described, and details of the information provided by the personality questionnaire and its administration and scoring are outlined. The chapter concludes with an explanation of the data analysis used for the study.
Definition of Terms

A medical technologist is an individual who is certified as a Medical Technologist by the American Society of Clinical Pathologists or as a Clinical Laboratory Scientist by the National Certification Agency for Medical Laboratory Personnel.

A leader in the profession of medical technology is a medical technologist who is managing or teaching, in conjunction with a job requirement. He/she must also have published professionally and must be involved in professional organizations and public service activities. Involvement in professional organizations must include holding an elected or appointed office in a professional organization at the state, regional or national level. Involvement in public service might include professional consultation, conducting workshops, disseminating knowledge about medical technology to non-medical technologists, or community or church activities.

A technologist in the profession of medical technology is a medical technologist who is performing standard technical work, which involves completing laboratory tests in a medical laboratory. He/she has not written publications, and is not involved in professional organizations by holding an office at the state, regional or national level. He/she is also not involved in professional consultation, conducting workshops, and disseminating knowledge about medical technology to non-medical technologists.

Assumptions

The assumptions of this study were:

1. Any number of factors may affect the career progression of each individual medical technologist. An attempt was made to explore all factors relevant to each individual.

2. The research subjects were capable of speaking candidly and honestly about the reasons for their career development.
3. The fact that the researcher is already acquainted with the potential research subjects would facilitate entrance to the research subjects and their trust in the study, thereby increasing the accuracy and validity of the data obtained.

4. After seven years a medical technologist had sufficient opportunity to set professional goals and to progress beyond doing standard technical work.

**Study Group Selection**

Both leaders and technologists were subjects of this study so that the results found for each could be described and compared to each other. To optimize the potential of identifying factors which promote medical technology leadership the leaders and technologists were defined to represent extremes regarding the extent of their involvement in leadership activities. The leaders might indicate the presence of particular factors, while the technologists might indicate that those same factors were not present to any extent.

The study group consisted of ten leaders and ten technologists who were medical technologists for at least seven years. Such a study group was determined to be small enough to conduct the research according to the proposed methodology and large enough to obtain sufficient information to describe the leaders and the technologists. Seven years was determined to be sufficient time for a medical technologist to have become involved in management or education and professional writing and professional and public service.

Subjects were selected via systematic sampling, in which individuals were specifically chosen. The researcher was, from her
own professional activities, aware of the names of many individuals who met the definition of a leader. Individuals who might have known people meeting the definition of a technologist were consulted to obtain those names.

There were two main reasons for the systematic sampling. The first was to insure that the study group did indeed consist of individuals who met the definition of a leader or a technologist. The second reason for the systematic sampling was to enhance variety in the study group. Each group consisted of individuals of different ages, some individuals were single and some who were married, and at least one man, even though men are not prominent in medical technology. It was felt that if the study group included more variety, as well as individuals who met the definitions of leaders and technologists, the possibility of identifying any factors which might promote leaders would be increased.

To facilitate traveling for the personal interviews, all of the subjects selected for this research were residing in Ohio. Among approximately twenty-five leaders and four hundred technologists available within Ohio, there was sufficient variety to select the ten leaders and ten technologists for this study.

Gaining Access to the Research Subjects

To initiate the study an individual introductory letter was sent to ten leaders and ten technologists (Appendix A). The letter briefly described the study, since detailed explanations tend to discourage potential interviewees (Dexter, 1970). The letter also
requested that the individuals, if willing to participate, provide specifics regarding their education, work positions and responsibilities, research, publications, continuing education activities as faculty or participant, and professional and public service on an enclosed form (Appendix B) or by providing a resume. The purposes of requesting return of the information were to verify the willingness of each individual to participate, to insure that each individual did indeed meet the definition of leader or technologist, and to provide background information which needed to be addressed in the interview.

Since funding for this study was provided by the School of Allied Medical Professions of The Ohio State University, to enhance the credibility of the study, the letters were typed on official letterhead of the Medical Technology division. It was anticipated that the letterhead, combined with the fact that each of the potential subjects was either personally acquainted or familiar with the researcher via reputation would prompt return of the questionnaire or resume.

It was felt that individuals would hesitate to participate if personal information would be provided in the report of the study results. So, to encourage participation in the study, subjects were assured in the introductory letter of anonymity in that no names or identifiable information would be reported, and the results would be reported by groups.
Each subject was asked to return the questionnaire or resume by a specified date. After one week following the specified date follow-up telephone calls were made to each non-respondent (one leader and four technologists). Each non-respondent was asked if he/she had reservations about the study that could be resolved. He/she was encouraged to participate because of the possibility that he/she may differ from those more willing to participate (Dexter, 1970). One technologist expressed disinterest in participating, an introductory letter was sent to an alternate individual, who returned the biographical questionnaire. The other non-respondents did not participate in the study.

**Interview Methodology**

After receiving an individual's biographical information, it was understood that the individual was willing to participate, and the interview was scheduled via telephone for a time and place convenient to the interviewee. Most frequently the interviews were conducted at the subject's place of work, before lunch, and followed by lunch (Dexter, 1970).

This study was designed to identify any factors which influenced the career development of each research subject from the point-of-view of the subject. Hence, the interviews were loosely structured (Bogdan, & Biklen, 1982). Each interview began with a brief clarification of the purpose of the study, a reminder of the confidentiality of the study (Dexter, 1970), and an open-ended question similar to, "What factors do you think have influenced the direction your career
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<tr>
<td><strong>TABLE 3</strong></td>
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<td>FACTORS WHICH INFLUENCE</td>
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<tr>
<td>GENERAL AND NURSING LEADERSHIP</td>
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<tr>
<td>1. History of involvement in extracurricular activities</td>
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<td>2. College grades</td>
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<td>3. Highest academic degree earned</td>
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<td>4. Monetary need</td>
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<td>5. Sex</td>
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<td>6. Physical health</td>
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<td>7. Personal background</td>
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<td>8. Family support</td>
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<td>9. Mobility</td>
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<td>10. Luck</td>
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<td>11. Seniority</td>
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<td>12. Merit</td>
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<td>13. Opportunity</td>
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<td>14. Talent/ability</td>
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<td>15. Technical competence</td>
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<td>16. Necessity/accident</td>
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<td>17. Mentor</td>
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<td>18. Job security</td>
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<td>19. Management training</td>
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<td>20. Time/personal freedom/independence</td>
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General and nursing leadership literature was used to generate a list of factors which influence leadership in those areas (Table 3). During the interviews follow-up questions according to each individual's biographical information and initial response were asked to clarify any potential influence of each of those factors. Through this method similarities and differences between the factors influential to medical technology leadership and those influential in general and nursing leadership could be identified and discussed.

Because of potential unique influences upon leadership in medical technology, special attention was given to additional factors or influences that might emerge during the interview. Follow-up questions on any emergent themes were asked as necessary for clarification (Bogdan, & Biklen, 1982).

Since different factors might have influenced different aspects of professional growth, each aspect of the biographical information was discussed with each interviewee. Each question, including any follow-up questions, was structured in an open-ended format as much as possible to encourage the interviewees to answer the question from their perspectives. Leading questions which might encourage the interviewees to answer with a particular response were avoided (Bogdan, & Biklen, 1982). The questions were structured and asked in a non-judgemental manner so that no respondent would feel insufficient about his/her development. Also, the interviewer attempted to encourage the interviewee to express himself/herself by supporting
the opinions of the interviewee (Dexter, 1970). Examples of follow-up questions are provided in Appendix C.

Each interview was taped and later transcribed, if permission of the interviewee was obtained. If the interview was not taped, transcriptions were made from notes meticulously recorded during the interview (Bogdan, & Biklen, 1982). This was the case with four of the interviews.

16 Personality Factor Questionnaire Methodology

To identify personality factors which may have influenced the leadership development of the subjects of this study each subject was asked to complete the Cattell 16 Personality Factor Questionnaire (16PF), Form A (See Appendix D). The 16 PF, available from the Institute for Personality and Ability Testing (IPAT), is a multiple-choice questionnaire. This instrument was used because it is a reliable and valid measurement of several common and distinct personality traits (Cattell, & Eber, 1974).

In consideration of nomenclature, a Universal Index (U.I.) number, a technical name and a descriptive label are provided for each personality trait. The U.I. numbers and their corresponding descriptive labels are listed in Table 4.

Each question on the 16PF has been designed to test for a specific factor to produce undistorted results. The questions are indirect, so that subjects cannot relate any question to a specific personality trait and, thereby, distort test results according to responses
TABLE 4

16 PERSONALITY FACTOR QUESTIONNAIRE

PERSONALITY FACTORS (Cattell, & Eber, 1974)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Personality Trait</th>
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<tbody>
<tr>
<td>A</td>
<td>Cool vs. Warm</td>
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<tr>
<td>B</td>
<td>Concrete-Thinking vs. Abstract-Thinking</td>
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<td>C</td>
<td>Affected by Feelings vs. Emotionally Stable</td>
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<td>E</td>
<td>Submissive vs. Dominant</td>
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<tr>
<td>F</td>
<td>Sober vs. Enthusiastic</td>
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<td>G</td>
<td>Expedient vs. Conscientious</td>
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<tr>
<td>H</td>
<td>Shy vs. Bold</td>
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<tr>
<td>I</td>
<td>Tough-minded vs. Tender-minded</td>
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<tr>
<td>L</td>
<td>Trusting vs. Suspicious</td>
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<tr>
<td>M</td>
<td>Practical vs. Imaginative</td>
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<tr>
<td>N</td>
<td>Forthright vs. Shrewd</td>
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<tr>
<td>O</td>
<td>Self-assured vs. Apprehensive</td>
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<tr>
<td>Q₁</td>
<td>Conservative vs. Experimenting</td>
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<tr>
<td>Q₂</td>
<td>Group-oriented vs. Self-sufficient</td>
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<tr>
<td>Q₃</td>
<td>Undisciplined Self-conflict vs. Controlled</td>
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<tr>
<td>Q₄</td>
<td>Relaxed vs. Tense</td>
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given (Cattell, & Eber, 1974).

Each research subject was given the 16PF with appropriate instructions after his/her interview and was asked to return it at his/her convenience. Each subject was told that the test should take 35-40 minutes to complete. A stamped envelope was provided for the return.

The results were scored manually with stencils available from IPAT. Raw scores were marked on the answer sheet (Appendix E). For each of the sixteen factors raw scores were converted to sten scores available from IPAT in which ten equal points cover the population, and the population or mean is fixed at sten 5.5. Sten scores of 4 and 7 are considered only slightly below and above the mean, respectively. Those with scores of 2, 3, 8, and 9 are considered to have a strong tendency toward low and high, while scores of 1 and 10 are considered to have extremely strong tendency towards low and high, respectively (Appendix F). General population norms specific to males and females were used, because IPAT derived the norms by combining the totals in frequencies, according to the Census, of individuals from various occupations.

Data Analysis

The data for this study were collected over a period of four months. Data obtained via the interviews were analyzed separately from data obtained via the 16PF because of the difference in the nature of the data.
The majority of the interviews consisted of responses to open-ended questions. The open-ended questions were analyzed using content analysis. Content analysis is "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (Holsti, 1969, p. 14). Such analysis was appropriate for this study to identify specific "messages" within the transcripts of the responses to the open-ended questions. The initial list of possible "messages" for which to search was derived from general and nursing leadership literature. The presence or absence of any "message" (factor) which might have influenced the leadership development of each research subject was identified and coded. A code number, beginning with 1, was assigned to each factor as per Table 3. Factors which emerged during the interviews which were different from those in Table 3 were also coded (E + number, beginning with 1).

In the final analysis for each predetermined or emergent factor discussed in the interviews, the comments of leaders and technologists were extracted from the interviews and recorded (Appendix J). The comments of leaders and technologists for each predetermined or emergent factor were then described and compared with each other. The descriptions often include the numbers of leaders and technologists indicating the importance of each factor to facilitate the development of a rank-ordering from most to least influence of the importance of each factor to medical technology leadership. The purpose of
the comparison was to make obvious the differences between the leaders and the technologists.

Analysis of the results of the 16PF was separate from the analysis of the interviews. A histogram for each of the sixteen factors was developed in which the number of leaders and technologists obtaining each sten score, as well as the normal Gaussian distribution curve for the factor, was plotted. Hence, the histogram is a visual representation of the results to aid in describing results obtained for leaders and technologists with respect to each other and the normal distribution.

Feedback to Research Subjects

As promised in the introductory letter each research subject was mailed the results of his/her own 16PF tallied on the report form available from IPAT (Appendix G), a thank-you letter (Appendix H), and an explanation of the results (Appendix I).

Chapter IV presents a description of the information obtained via the interviews and the personality questionnaire. The description begins with scenarios of the career patterns of a typical leader and a typical technologist. Then, an analysis by factor of the coded transcripts of the interviews is provided. The analysis of the results of the personality questionnaire follows and is via discussion of the results as plotted on histograms.
CHAPTER IV

INFLUENCES UPON MEDICAL TECHNOLOGY LEADERSHIP

Overview

The findings from both the interviews and the 16PF are discussed in this chapter. To initiate the discussion the findings from the interviews are summarized via composite, hypothetical accounts of the career patterns of the most typical leader and technologist in medical technology. Since most medical technologists are female, the individuals described in the accounts are females.

Following this introductory summary the results of the interviews and the 16PF are delineated by factor. For the interviews statements of leaders and technologists with respect to each of the potential factors listed in Table 3 and seven influences upon leadership in medical technology which emerged during the interviews (Table 5) are summarized and described in general order from most to least influence. The order for the discussion follows the order of the listing in Table 6, although some of the factors appear to have influenced leadership to the same extent. For the 16PF the cumulative results for each factor for leaders and technologists are described and compared to each other and sten distribution scores via histograms for each factor.
Career Pattern of a Typical Leader

The following is an account of the possible career pattern of the most typical leader. This account has been assembled with consideration to each point that was strongly manifested in the data obtained from the resumes, the interviews, and the 16PF. The account includes the majority but not all of the factors which influenced leadership for each of the leaders and is intended to serve as an introduction to the more detailed description of the study results. However, the variety from this account is minimal and involves only those factors which were mentioned by only a few of the leaders.

The career pattern of a typical leader seems to begin to take form when she is a child. Parental influence is very strong, and the parents often work together to instill within the child the value of an education and of living an active, contributory life. The parents are themselves often both participants in community activities and encourage the child to help with those same activities and participate in others. The future leader tends to be lovingly helped to follow her abilities and to be everything of which she is capable. She is also taught to approach life with conscientiousness and commitment.

In school the leader performs well academically, frequently earning grades of A or B. She is encouraged to take advanced courses which are usually science-oriented and college-preparatory. Teachers, friends and family, as well as the leader, come to assume that the leader is college-bound. She is also involved in extracurricular activities as much as possible, within constraints of travel and needs at home.
Before beginning college the leader explores possible areas in which to major and usually chooses one which is science-related in keeping with her abilities, interest and academic background. The practicality of identifying a major in which a job is obtainable is also considered when choosing a career. Information about medical technology, since the profession is not well-known, is usually acquired from family, friends, counselors, or high-school career days.

In college the leader tends to excel academically. She has the ability to perform well, and uses that ability. She also comes to realize, usually through the faculty, the importance of being professionally involved and remaining current with the dynamic technology.

After obtaining the baccalureate degree the leader begins working as a medical technologist. She is encouraged by co-workers or supervisors to attend local meetings of the professional organization and does so. Once the leader attends a local meeting of medical technologists, her enthusiasm and interest grow. She is encouraged by more senior members of the organization to be involved. She sees situations in which her assistance is needed in the professional organization, so she wants to and does volunteer to help. She views the situations as opportunities to contribute and use her abilities.

After originally volunteering and thoroughly completing a task she is usually asked to be further involved in the professional organization. She is usually asked to accept an appointment to or compete in an election for some office. She accepts the offer, and as she becomes more involved, the offers increase to involvement at the national level. She finds herself serving on committees or as an officer at the annual national meeting.

In conjunction with activities in the professional organizations, the leader is interested enough in the profession to want to learn more. She is also interested in progressing to the ranks of management or education. So, she decides to attend special seminars to learn about management or graduate school to obtain an advanced degree. Enrollment in graduate school is on a part-time basis while working full-time.
At some time during the initial period of the growth of her career, the leader may or may not get married and have children. If she gets married and has children, she usually works part-time to remain current with the profession when her children are infants. Within a few months after her children are born, the leader returns to working full-time. Her husband understands her need and desire to continue to grow professionally, and she works at not neglecting him and her family as she continues to grow. So, her family understands and is supportive, as she is promoted to teaching or managing and becomes involved in research, publishing and professional organizations.

The leader may remain single instead of getting married. If so, she is more independent than she would be if she had gotten married. The time and personal freedom to be involved may be easier for her to obtain.

But whether single or married the leader wants to be involved, so she finds the time to be involved. She organizes her schedule and sets her priorities. In addition to her professional involvement she participates in church and community activities and enjoys each of her activities.

Within a few years of baccalaureate graduation and often without the advantage of seniority the leader has progressed as a working professional and in the professional organization. She views her progression as accepting opportunities presented to her and may feel very lucky in the respect that the opportunities were presented to her instead of someone else. But she also realizes that her abilities and competence, and interest and desire have facilitated her professional growth.

As the leader progresses through the ranks of the working world, the demands upon her increase. Job promotions require maintaining knowledge of the current state of medical technology and may be dependent upon involvement in research, professional publishing, professional organizations, and community activities. The leader wants to grow professionally and personally. As soon as she feels that she has met a goal, she sets more goals for herself.
Career Pattern of a Typical Technologist

The possible career pattern of a typical technologist both resembles and is different from the career pattern of a typical leader. As with the account of the leader, the following account of the technologist has been assembled with consideration to each point that was strongly manifested in the data obtained from the resumes, the interviews, and the 16PF. The extent to which individual technologists vary from this account is minimal and involves factors mentioned by only a few of the technologists.

The career pattern of a typical technologist begins to take form when she is a child. Her parents instill within her the value of an education and indicate that they will support her if she decides to attend college.

In school, the technologist appears to have a higher-than-average interest in and an aptitude for the sciences. She is encouraged to take science courses and a college-preparatory curriculum. She usually has little interest in extracurricular activities.

Before beginning college the technologist explores possible areas in which to major and usually chooses one which is science-related in keeping with her abilities, interests and academic background. The practicality of identifying a major in which a job is obtainable may be a consideration when choosing a career. However, the technologist usually does not know about medical technology and may obtain her baccalaureate degree in a natural science, only to discover that she cannot obtain a job, and when she begins to explore alternatives, she realizes that medical technology is a feasible alternative. She then returns to college for training in medical technology for the sake of being able to find a job.

In college the technologist obtains good grades, mostly B's and some C's. She is not involved in extracurricular activities.
Around the time of achieving her baccalaureate degree and beginning to work full-time, the technologist gets married and has children. When she has children, she stops working, at least for several months and possibly until her children attend school. The decision to stop working is partially based on her interest and partially made at the request of her husband, who thinks she should stay home with the children. However, she may not be able to leave work for more than a few months, because she may need a salary.

The technologist likes her work and is generally satisfied with it. She is not bored with working as a medical technologist and is not interested in being active in professional organizations. She admits that she might be more concerning about a job promotion if she did not have children but because of her primary concern for her family, is not interested in obtaining a promotion. She is content to work in the same place and even if she looks, cannot find a job she likes better than the one she has.

In comparing the account of the technologist to that of the leader it appears that there are some basic differences between the two. Those differences will be delineated in the next two sections of this chapter, in which the results of each factor for leaders and technologists are compared and contrasted.

**Interviews**

The foregoing accounts were an introduction to this section and the section which immediately follows this one. In this section a factor-by-factor description of information obtained from the interviews, in order from most to least frequently mentioned, is provided. The description for each factor includes a summary of the relevant information obtained for each from both the leaders and the technologists. For emphasis and explanation, some anonymous quotes are included in the descriptions.
For further information regarding the analysis of the interviews, Appendix J is a summary of relevant information or quotes for each factor to be discussed. Only quotes which provide information relevant to this study with endangering the anonymity of the research subjects have been included.

Opportunity

Opportunity appears to be crucial to medical technology leadership. For this factor the leaders were at one extreme, while the technologists were at the other. Each of the leaders mentioned the presence of the opportunity to act as a leader in at least one of the areas relevant to this study (management, teaching, publishing, professional service, public service). Statements such as "the opportunity came along," "an opportunity for growth," "a unique opportunity," "a lot of opportunities," and "the opportunity to be involved" were common among the leaders. Also, opportunities were often in the form of requests from a supervisor or peer. The leaders did not commonly indicate actively seeking the opportunities to be involved.

Two of the leaders attributed attainment of their advanced degrees mostly to opportunity. Both only had to attend school for one or two more quarters to obtain their advanced degrees.

In contrast, none of the technologists used the term "opportunity." One indicated the lack of promotion at work due to lack of available positions, implying the absence of opportunity, but
TABLE 5

FACTORS WHICH INFLUENCE MEDICAL TECHNOLOGY LEADERSHIP

WHICH EMERGED DURING THE INTERVIEWS

<table>
<thead>
<tr>
<th>Factor No.</th>
<th>Factor Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Concern for professional growth</td>
</tr>
<tr>
<td>E2</td>
<td>Concern for personal growth</td>
</tr>
<tr>
<td>E3</td>
<td>Job expectation/support/encouragement</td>
</tr>
<tr>
<td>E4</td>
<td>Personal interests/priorities</td>
</tr>
<tr>
<td>E5</td>
<td>Satisfaction levels</td>
</tr>
<tr>
<td>E6</td>
<td>God/church</td>
</tr>
<tr>
<td>E7</td>
<td>Personality</td>
</tr>
</tbody>
</table>
TABLE 6
RANK-ORDERING OF INFLUENCES UPON MEDICAL TECHNOLOGY LEADERSHIP
ACCORDING TO INTERVIEW RESULTS

<table>
<thead>
<tr>
<th>Factor No.</th>
<th>Factor Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Opportunity</td>
</tr>
<tr>
<td>E4</td>
<td>Personal interests/priorities</td>
</tr>
<tr>
<td>E5</td>
<td>Satisfaction levels</td>
</tr>
<tr>
<td>14</td>
<td>Talent/ability</td>
</tr>
<tr>
<td>2</td>
<td>College grades</td>
</tr>
<tr>
<td>3</td>
<td>Highest academic degree earned</td>
</tr>
<tr>
<td>7</td>
<td>Personal background</td>
</tr>
<tr>
<td>8</td>
<td>Family support</td>
</tr>
<tr>
<td>20</td>
<td>Time/personal freedom/independence</td>
</tr>
<tr>
<td>E1</td>
<td>Concern for professional growth</td>
</tr>
<tr>
<td>E3</td>
<td>Job expectation/support/encouragement</td>
</tr>
<tr>
<td>10</td>
<td>Luck</td>
</tr>
<tr>
<td>17</td>
<td>Mentor</td>
</tr>
<tr>
<td>1</td>
<td>History of involvement in extracurricular activities</td>
</tr>
<tr>
<td>11</td>
<td>Seniority</td>
</tr>
<tr>
<td>15</td>
<td>Technical competence</td>
</tr>
<tr>
<td>16</td>
<td>Necessity/accident</td>
</tr>
<tr>
<td>5</td>
<td>Sex</td>
</tr>
<tr>
<td>18</td>
<td>Job security</td>
</tr>
<tr>
<td>9</td>
<td>Mobility</td>
</tr>
<tr>
<td>E7</td>
<td>Personality</td>
</tr>
<tr>
<td>E2</td>
<td>Concern for personal growth</td>
</tr>
<tr>
<td>E6</td>
<td>God/religious background</td>
</tr>
<tr>
<td>6</td>
<td>Physical health</td>
</tr>
<tr>
<td>12</td>
<td>Merit</td>
</tr>
<tr>
<td>4</td>
<td>Monetary need</td>
</tr>
<tr>
<td>19</td>
<td>Management training</td>
</tr>
</tbody>
</table>
none focused upon "opportunity" as relevant to the directions their careers had taken.

**Personal interests/priorities**

All of the leaders and most of the technologists referred merely to personal interests or priorities when explaining the direction their careers had taken. The difference between the two groups was in the interests they indicated. The leaders tended to make statements such as, "I like being involved." They teach, write or supervise because they "enjoy" it. One leader summarized the thoughts of the others very well when she explained, "Well, I would say most of the things I've done, it's been because I was interested in taking on that kind of job."

For the technologists who referred to their own interests when discussing their careers, the interests tended toward working and caring for family. Interest to be involved in professional activities was not expressed. The one technologist who attended graduate school did so because she "wanted to..."

**Satisfaction levels**

It became evident during the interviews that satisfaction levels were frequently mentioned by interviewees. There was a difference in the satisfaction levels between leaders and technologists. Most of the leaders indicated that they weren't satisfied with doing only "bench" work. They made statements such as, "I'd be
bored if I was a bench tech." Another remarked, "I've always enjoyed a challenge and doing all I could."

**Talent/ability**

Almost all of the leaders made statements that at least implied that their talent or abilities contributed to their leadership attainment. One leader explained, "I was regarded as an individual to be called upon..." Another replied, "I was born to know how to delegate." Most of the leaders indicated the presence of talent and ability in conjunction with opportunity and an interest in being involved.

In contrast to the leaders the technologists either did not have the ability or did not, for some reason, use their abilities. One individual inquired about obtaining a promotion, and the result was, "She said she didn't think I could do it." And another indicated lack of ability when she said, "I'm not a person with a lot of energy." But another technologist admitted, "...compared to what I'm capable of, I've only done fifty percent."

**College grades**

Ability seems to correlate with the academic history of the interviewees. Almost all of the leaders indicated high academic grade averages in college. Three of the technologists were as strong academically as the leaders, while the seven others obtained B's and C's.
Highest academic degree earned

Advanced academic degrees also seemed to correlate with ability, as well as with opportunity and interest. Seven of the leaders possessed degrees beyond baccalaureate degrees, two of which were Ph.D.'s. All of the advanced degrees provided preparation for managing or teaching medical technology. One technologist had obtained a Master of Science degree, and another technologist had taken courses but in areas unrelated to medical technology.

Two technologists expressed disappointment that they had not pursued advanced degrees. One stated that if she was ten years younger she would return to school, and another stated that her husband had very old-fashioned values and ideas and prevented her from returning to school.

Personal background

Many of the medical technology leaders attributed their achievements to their personal background in addition to their ability. As one leader stated, "I am more and more convinced that what happens in early childhood has a great bearing on one's career." And as another replied, "I guess it all starts back at your home level."

The specifics of the parental influence varied among the leaders. According to two of them, their parents strongly encouraged education, and three other leaders volunteered that, in addition to encouraging education, their parents had encouraged and were examples of active participation and working hard. Additionally,
one of the leaders cited a desire to please her mother as motivation to succeed, and another leader attributed her independent upbringing to her current success in leadership.

Among the technologists parental encouragement to attend college was common. Most technologists indicated that going to college was either encouraged or just seemed like a part of life. However, none of the technologists indicated that their parents encouraged them to actively participate in society or that their parents were active in community activities.

**Family support**

Family support began with the parents as indicated in the discussion on personal background and is more currently obtained from the spouses of leaders. Among the leaders with spouses each noted support from their spouses. According to one, "And he's very supportive of my meeting my needs."

Support to be professionally involved was not as obvious among the technologists with spouses. For example, most of the leaders continued to work at least part-time when their children were small, while some of the technologists had stopped working for several years when their children were small, at the requests of their husbands. Also, two of the technologists would have pursued advanced degrees with more family support.
Support from a spouse appears to be important, mostly because it is essential to obtaining the time and freedom to be professionally involved. Two of the leaders interviewed were male and three were single females, and all of them exhibited more personal freedom in their professional decisions than the women with children. As one realized, "I haven't had many constraints on me." Instead of "constraints" the freedom to work "twelve hour days" and "do the extra stuff" was mentioned.

The primary constraint upon the time and personal freedom of both female leaders and technologists was their children. Almost all of the female interviewees with children had altered their careers when their children were small. As indicated earlier, the technologists usually altered their careers more drastically than the leaders.

One leader volunteered that "independence" might quite possibly be the one common denominator to medical technology leadership. Two technologists supported this view when they admitted that they would have been more professionally inclined without restrictions from husbands or children. Only two technologists implied that lack of independence was not the reason for failure to advance professionally, and one of them was a single female and the other a male.
Concern for professional growth

Generally, the leaders exhibited more concern for professional growth than the technologists. One indication of such concern is activity in professional medical technology organizations. Three of the leaders were not active in extracurricular activities before becoming medical technologists but, because of a desire for professional growth or to provide professional influence, are involved in professional organizations.

Some leaders also indicated concern for professional growth as reasons for some of their other professional activities. One had changed jobs because "there wasn't much of a future...professionally" at the previous job. Another conducts professional workshops because, "I learn probably ten times as much as I would learn sitting in the office on that same date."

Job expectation/support/encouragement

Sometimes the professional activities of the leaders were job-related instead of being only personally motivated. Expectation, support and encouragement from the work place had provided incentive to be involved in leadership activities to several of the leaders. One found that "the name of the game" was to obtain a Ph.D. degree, another was "sent" an application to the professional organization, and still another had published, because she was "told to." Four
other leaders, all of whom were active in professional organizations, made statements such as "work really encouraged the activity" and "support from the labs to keep learning is great." Only one technologist attended professional meetings, and about her work's thoughts on professional involvement she said, "They really encourage us to do it."

**Luck**

The attainment of leadership was attributed to luck not as commonly as the factors already discussed but by five of the leaders in this study. As one expressed, "I've been really lucky." Of course, those leaders who mentioned luck must have considered it lucky to have the opportunity to advance, which probably relates back to their background. None of the technologists suggested being either lucky or unlucky.

**Mentor**

The presence of a mentor was not extremely common but was more obvious among the leaders than among the technologists. Three of the leaders voluntarily named specific mentors who had helped and encouraged them through their careers. As one replied, "There's always been someone older and wiser, you know, that's been there when you needed somebody." The same individual claimed that her major mentor had sparked her interest in medical technology and guided her through many of the steps of her career. And another leader explained, "I had a good mentor." Six of the other seven
leaders, when asked if they had individuals who guided them, named individuals who had been instrumental to their careers at some point.

Two technologists implied the presence of mentors. A doctor encouraged one to be involved in extra duties at work. Another was encouraged to become a medical technologist by her family physician.

**History of involvement in extracurricular activities**

History of involvement in extracurricular activities was greater among the leaders and appears to be somewhat related to the level of professional involvement. Four leaders had a history of involvement in extracurricular activities in high school and college. Two other leaders stated that they would have been more involved in high school had they not lived in rural or farming communities, which made traveling difficult or required chores at home. Only one of the technologists was active in extracurricular activities in high school, but the same individual is not active in professional organizations.

**Seniority**

The influence of seniority seemed to vary with individual situations in this study and does not seem to be strongly connected, especially alone, to leadership in medical technology. Three leaders and two technologists revealed that seniority was important to
promotions, while one leader and one technologist felt that seniority was not reason for promotion. (The leader had been promoted within eight months on the job, and the technologist had not been promoted at all after several years.) None of the other interviewees mentioned seniority or the lack thereof as relevant to promotions.

Technical competence

Technical competence was not a primary contributor to professional advancement. Only a few of the leaders cited technical competence as the main reason for their promotions to managerial positions in their respective laboratories. According to one, she had only been out of school for four months but was the only individual "who had had any recent...experience" when a position was vacant, so because of competence and necessity, she found herself in a supervisory position. Only one other leader indicated the importance of competence when she said that she did not know if she had more seniority than others, but she was referring to technical competence when she said she was "the most qualified" when she was promoted. Among the technologists only one individual felt that "being technically good" was a primary consideration for promotions. None of the other technologists made statements regarding technical competence.
Necessity/accident

Necessity/accident, like technical competence, was not a primary contributor to professional advancement. Only a few of the leaders spoke of necessity as a factor which contributed to becoming professionally involved or being promoted, and one claimed to have attained a leadership position "under protest." "They needed somebody" was the reason twice for work-related promotions, and one individual became involved in a project when the person originally involved was unable to attend a related meeting.

Only two of the technologists had been given extra duties in the laboratory because, "They needed someone to do it." And the extra jobs were not connected to promotions. Another technologist indicated that reasons for promotions were unclear but that one individual was promoted simply because a "Senior Tech" was needed in a particular area of the laboratory. None of the other technologists indicated that necessity was relevant to promotions.

Sex

One's sex was not commonly identified as helping or hurting his/her leadership development. However, medical technology is predominantly female, so it might seem that men might quickly achieve positions of leadership because of their sex. Indeed, two of the leaders interviewed were males, and both indicated that, for particular positions, being male was advantageous for them. One female leader stated that she thought historically men were considered advantageous for management positions, because "women just get
married and have babies and then quit." One technologist agreed that historically being male was advantageous to promotions but that the situation has changed. So, the influence of sex may be more historical than current.

It is also possible that being male might be a disadvantage in a primarily female profession. One female technologist and one male technologist believed that females were favored for promotions at their respective work places. But this also may be more historical than current.

Job security

Medical technology is a profession in which the capacity for jobs is generally high. According to three leaders and five technologists, they became medical technologists because of high potential to obtain jobs.

But within the profession some individuals may work toward job security, while others may sacrifice job security for the chance of advancement. Three of the leaders expressed concern for security and had selected or were seeking more secure positions. Two other leaders left secure positions for ones that were more insecure for the opportunity for professional advancement. As one explained, "So, I first of all had to decide that I was going to leave this comfortable little haven." None of the technologists had changed jobs, because they felt secure in the jobs they had.
Mobility

In this study mobility was not high among either the leaders or the technologists, so to provide information as to how increased mobility might have facilitated leadership is difficult. However, the lack of mobility has not prevented leadership activities. For, eight of the leaders and eight of the technologists had families nearby and were reasonably committed to their geographical locations, but the leaders were very active professionally. As one leader indicated, "The value of putting down roots is very strong."

Personality

Occasionally, individual personality characteristics had been helpful or detrimental to both leaders and technologists. One leader had been denied a promotion because of "a personality clash," while another had been promoted, because she "got along with the people." Three of the technologists attributed not being promoted to traits of their personalities, mainly lack of aggression.

Concern for personal growth

Concern for personal growth was not a major factor, but two of the leaders replied that part of the reason for their involvement was to develop or maintain themselves personally. One leader liked working, because it kept her "organized and efficient," while the other appeared to be deliberately placing herself in situations which might improve her "creativity." None of the technologists cited working to enhance themselves personally.
God/religious background

Two of the interviewees, both leaders, related their achievements to God and church. One felt that her religious background had been her "strongest influence," and the other believed that her abilities and opportunities were gifts from God which had enabled her to achieve her many accomplishments.

Physical health

Of the twenty individuals interviewed, only one had experienced serious health problems. The individual was a leader who would have pursued a doctorate, had priorities not been altered by the health problems.

Merit

Merit was not a major issue in this study. As an incentive to become a leader, merit was mentioned by none of the leaders. One leader even stated, "But I don't do what I do for the awards." And the lack of merit was cited as a disincentive by one technologist. According to the technologist, "I work harder than some people...and I never get anywhere, so I don't care anymore."

Monetary need

The desire for more money has not influenced any of the leaders to become so professionally active. Medical technology managers and educators generally have higher salaries than practicing technologists. However, none of the leaders were in their positions exclusively for the money. Four stated or implied that a monetary
need existed but one that could be met by doing routine work, and three leaders agreed to cuts in pay at certain points in their careers to advance professionally. As one leader stated, "I wasn't concerned about the money."

But money was more of an issue among the technologists. Seven of the technologists indicated a strong need or desire to leave their jobs for new jobs with lower pay. However, one answered that she "could be easily motivated by money" when asked if she would move for a better-paying job. When asked if attending graduate school had ever been a consideration, one technologist stated, "It's not worth the hassle. It doesn't pay more." Another technologist appeared frustrated and exclaimed, "It's terrible - everything's ruled by money." Two of the technologists were working to enhance their retirement and were not willing to sacrifice their accumulated retirement benefits for a different job position. One technologist did not express monetary need.

Management training

In this study management training appears to be more the result of an interest in management and a desire to learn more than a stimulant to leadership activities. By their own incentive three of the leaders had obtained Master's degrees in management, while five others had attended at least one management course. Five of the technologists were required to attend one or two seminars on management during medical technology training, but the seminars
had not convinced any of the technologists to want to manage.

16 Personality Factor Questionnaire

At the beginning of this chapter the accounts of the typical career patterns of leaders and technologists in medical technology provided an introduction to this section, which is a description of the results provided by the 16 PF. For the description the results obtained for each leader and technologist for each factor have been compiled onto separate histograms. The standard distribution of scores obtained by the general population for each factor is also included on each corresponding histogram. Hence, the description for each factor includes a comparison of the results obtained for leaders and technologists to each other and the standard distribution.

Factor A: Cool vs. Warm (Figure 1)

The overall distribution of the results for this factor closely resembled the sten distribution. The tendency for both leaders and technologists was slightly toward being cool, with no distinct difference in the results between leaders and technologists. Five of the technologists and four of the leaders tended toward being cool, while two of the technologists and three of the leaders tended toward being warm.
Figure 1. Histogram of Results for Factor A of 16PF.
Factor B: Concrete-Thinking vs. Abstract Thinking (Figure 2)

Both leaders and technologists tended toward abstract thinking. Two leaders and one technologist fell within the average of 5-6, but no one exhibited a tendency toward concrete-thinking.

Figure 2. Histogram of Results for Factor B of 16 PF.
Factor C: Affected by Feelings vs. Emotionally Stable
(Figure 3)

The leaders and technologists were similar to each other for this factor. There was a tendency for both leaders and technologists to be more emotionally stable than the normal distribution.
Factor E: Submissive vs. Dominant (Figure 4)

There was a slight tendency for the leaders to be more dominant than the technologists and the general population. Four of the leaders were strongly dominant, while two were average, and three tended toward submissiveness. The technologists tended to be distributed more normally for this factor. Five of the technologists were average, while only three tended toward dominance and not as strongly as the four dominant leaders.

Figure 4. Histogram of Results for Factor E of 16 PF.
Factor F: Sober vs, Enthusiastic (Figure 5)

Both the leaders and the technologists were close to the normal distribution for this factor. The leaders were dispersed throughout the range somewhat more than the technologists, but especially at the extremes, the results for the leaders and the technologists were the same.

Figure 5. Histogram of Results for Factor F of 16 PF.
Factor G: Expedient vs. Conscientious (Figure 6)

Both the leaders and the technologists tended to be slightly more conscientious than the normal distribution. However, with the exception that one leader was strongly expedient, the leaders and the technologists were very similar to each other.
Factor H: Shy vs. Bold (Figure 7)

For this factor the leaders tended to be more bold than technologists and the standard distribution. Five of the leaders and three technologists were above average toward boldness, with two leaders being extremely bold. Four of the technologists, while only two of the leaders, tended toward shyness.

![Histogram of Results for Factor H of 16 PF.](image)
Factor I: Tough-minded vs. Tender-minded (Figure 8)

For this factor both leaders and technologists were not average, but in opposite directions. Five of the leaders were above average on tender-mindedness, and seven of the technologists tended toward being tough-minded.
Factor L: Trusting vs. Suspicious (Figure 9)

There was a tendency for both leaders and technologists to be more trusting than the standard population. The leaders and technologists were very similar to each other, although the technologists were slightly more suspicious.

Figure 9. Histogram of Results for Factor L of 16 PF.
Factor M: Practical vs. Imaginative (Figure 10)

Neither the leaders nor the technologists followed the standard distribution for this factor. The technologists had a strong tendency to be average, with little inclination toward practicality or imaginativeness. The leaders tended to be more imaginative, with five of them above-average toward imagination and only one below average.
Factor N: Forthright vs. Shrewd (Figure 11)

Four of the leaders and five of the technologists were above average toward shrewdness. Hence, both leaders and technologists appeared to be more shrewd and less forthright than the standard population. Also, only two leaders and two technologists tended toward being forthright.
Factor 0: Self-assured vs. Apprehensive (Figure 12)

The leaders were more self-assured than the technologists and the general population. Five leaders and only two technologists tended toward self-assuredness, and one technologist was strongly apprehensive.
Factor Q_1: Conservative vs. Experimenting (Figure 13)

Both leaders and technologists tended to be more conservative than the standard distribution. However, the leaders and the technologists were very similar to each other.

Figure 13. Histogram of Results for Factor Q_1 of 16 PF.
Factor Q₂: Group-oriented vs. Self-sufficient (Figure 14)

Neither the leaders nor the technologists tended toward the extremes as much as the standard distribution for this factor. However, the technologists tended to be more self-sufficient, while the leaders tended to be more group-oriented. Six technologists were above average toward being self-sufficient, while four leaders were below average, toward being group-oriented.
Factor Q$_2$: Undisciplined self-conflict vs. Controlled
(Figure 15)

Neither the leaders nor the technologists tended toward an undisciplined self-conflict. Instead, the technologists tended toward the average on this factor, with three being above average, and the leaders tended toward being controlled, with seven being above average.

![Figure 15. Histogram of Results for Factor Q$_2$ of 16 PF.](image-url)
Factor Q₄: Relaxed vs. Tense (Figure 16)

For this factor the leaders were distributed from one extreme to the other of the standard distribution, with four of them being average. The technologists were more relaxed than both the general population and the leaders. Only one of the technologists had a tendency toward tenseness.
This chapter has presented a composite hypothetical description of the career paths of a typical leader and technologist in medical technology. A description of the results of the personal interviews and the 16PF for the leaders and technologists who were subjects of this study was also provided.

Chapter V summarizes and draws conclusions from the results of this study. Additionally, recommendations regarding action which may be taken to promote medical technology leadership and for further studies are provided.
CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Overview

In this chapter this study and its findings are summarized. The findings include a discussion of the results of the personal interviews and the personality questionnaires. The chapter concludes with recommendations as to how the results of this study may be useful to the profession of medical technology and implications for further research.

Summary of the Study

This was a descriptive study of the factors which influence leadership in the profession of medical technology. The study group consisted of ten medical technologists who had been very active professionally and ten medical technologists who had not been professionally active. Because, according to a review of the literature, factors which only the medical technologist could describe and personality factors were both considered potential influences, the approach to this study was two-fold. Following personal interviews with each research subject, he/she was asked to complete a personality questionnaire, namely the Cattell 16 Personality Factor Questionnaire.
In the analysis, the interviews and the 16PF were analyzed separately. From the interviews all statements made by the interviewees which were indicative of a particular factor, anticipated or emergent, were extracted from transcripts of the interviews and analyzed. The relative importance of each factor was then determined. For the 16PF the results of each research group for each factor were described and compared to each other and to a standard distribution.

**Findings/Conclusions from the Interviews**

Much research has been done to determine the factors which influence leadership in general and in nursing. However, the rationale for conducting this present study was that, because of different needs of the profession, the factors which influence leadership in medical technology might be different from those in general and nursing. From the results of this study it appears that almost all of the factors which influence leadership in general and in nursing also influence leadership in medical technology. But there are some distinct trends regarding which factors are the most contributory to medical technology leadership. The importance of some factors seems to be related to the dynamic nature of medical technology.

It appears that opportunity is essential to the development of medical technology leadership. Each of the leaders volunteered the presence of opportunity as a major contributor, and none of the technologists indicated the presence of opportunity.
According to the literature opportunity is often present but must be sought. Some of the leaders did indicate that they sought particular opportunities. However, some indicated that the opportunities presented themselves.

From an objective perspective it would appear that the same professional opportunities, especially in the same geographical location, must be available to every medical technologist in that location. So, the leaders seem to be individuals who recognize opportunities as such and choose to take advantage of them.

In keeping with recognizing opportunities as such, the leaders had a distinct tendency to be interested in being professionally active and to be unsatisfied with performing only routine medical laboratory work. They were looking for ways to satisfy their own interests, and so they viewed professional activities as an opportunity to do so. On the other hand, the technologists generally liked and were satisfied with routine laboratory work or were not bored enough to seek other ways of feeling more professionally satisfied.

Interests and satisfaction levels might possibly correlate with ability, especially in view of the results of the interviews regarding ability. Talent/ability was the next most commonly recognized contributor to medical technology leadership. Almost all of the leaders believed that their abilities had helped them, and a few technologists implied that lack of ability was a reason for not advancing further. Perhaps ability is at least a partial motivator to want to be more active. If one thinks he/she can do more, he/she might have a stronger
desire to do more or might feel dissatisfied with not using all of his/her ability.

To some extent, ability was exhibited in this study by the capacity to perform well academically. Leaders experienced less difficulty with grades in school and achieved more advanced degrees. It seems quite possible that because of their ability levels, the leaders more easily obtained grades and advanced degrees which, according to the literature, are often prerequisites to positions in management or teaching.

Along with talent and ability, personal background, a factor which, according to general and nursing literature, is very important, is also very important to leadership in medical technology. Almost all of the medical technologists were encouraged by their parents to attend college, and parental support was high. For the leaders there was extra parental encouragement to work hard. The parents were often examples of active, contributing participants. It appears that strong parental encouragement might have, along with ability, increased the interests and satisfaction levels of the leaders to the point where they needed to be active to feel content.

The factor of family support is related to personal background to the extent that the parents of both the leaders and technologists were supportive of attending college. But some of the leaders seemed to receive additional family support to be active in events at school and in the community.
More currently, family support from spouses and children was necessary for medical technologists to be professionally active. General literature indicates that a husband can be crucial to a woman's career, and the female leaders generally indicated support from their husbands to a much greater extent than the technologists.

Time and personal freedom to become a leader are as important as talent/ability and personal background, according to the results of this study. And family support often helped to provide the time and personal freedom to become a leader. The evidence of time and personal freedom is much stronger among the leaders than among the technologists, even though married females predominated in both groups.

One of the leaders volunteered that independence was probably the one common element to leadership in medical technology. The literature agrees that independence is important, and it does appear in this study that the single leaders had generally accomplished more professionally than the married leaders, even the ones with family support. However, two of the technologists were also single, so independence may be important, but it does not always correlate directly with professional leadership.

From the interviews it appears that the amount of time and personal freedom available for leadership activities was somewhat correlated to the extent of personal interest and desire to be professionally involved. For the individuals who were interested in professional growth were more willing to alter their schedules as much
as possible to be professionally active. They were less likely to say that they could not take part in an activity and then just adjusted their schedules accordingly.

Professional involvement and growth are important in medical technology because of the dynamic nature of the technology. Concern for professional growth was usually acquired after becoming a medical technologist and realizing the necessity for such growth. Medical technology is a profession in which professional maintenance is essential to the integrity of the profession, and professional contributions are highly valued. Therefore, employers tend to encourage and support activities such as teaching, researching, publishing, and being active in professional organizations. For this reason, individuals who are concerned about their own professional maintenance as well as advancing their employment often become involved in professional activities.

The factor of luck is somewhat less important than the other factors already discussed but was voluntarily indicated as present by five of the leaders and none of the technologists. Luck, as opportunity, appears to be a factor that depends on the viewpoint of the individual. The leaders viewed chances for involvement as lucky and were glad to be involved.

The presence of a mentor is considered very important in nursing and was the next most frequently mentioned contributor to professional accomplishments in medical technology. Three of the leaders had at least one individual who was a prominent influence on them
professionally, and the presence of a mentor among the technologists was less common and to a much less extreme. It seems as though the mentor often took the place of an encouraging and supportive parent by helping aspiring leaders to realize opportunities and to use abilities to take advantage of them. In some cases, such as when the mentor was an instructor, the mentor was available to all students, but the leaders were the students who had the ability to and were interested in pursuing the encouragement and support from the mentor. Perhaps because of a history of encouragement and support, the leaders were more likely to accept the encouragement from a mentor.

In keeping with a history of interest, encouragement, support, and time resulting in involvement, literature has implied that a history of involvement in extracurricular activities might be a means of identifying potential leaders. However, the results of this study indicate that the lack of a history of involvement does not indicate that an individual will not be professionally involved, because an individual may have more personal freedom as an adult and may be strongly encouraged by work to be involved. Also, concern for professional growth, a primary reason for professional involvement, may be acquired after becoming a medical technologist. Some leaders who were not active in high-school activities are now very active in professional organizations because of encouragement from their jobs and a concern for professional growth.
Seniority, technical competence and necessity are all somewhat relevant as suggested in the literature, especially the nursing literature, but usually in conjunction with each other. If an individual is needed for a particular position, that individual is usually selected on the basis of a combination of seniority and competence. But necessity alone was never a reason for placement in a position, and competence was more important than seniority. Competence was considered instead of seniority when there was a choice. These three factors might have been more major influences in nursing than in medical technology because of a shortage in the number of nurses, which is not the case with medical technology.

Sex does not appear to be too important to leadership in medical technology, at least not currently. The male leaders did think that their sex helped them professionally, but the influence appears to be more historical than current. The practice of recognizing the ability and credentials of an individual rather than his/her sex seems to be increasing.

Job security prompted individuals to be interested in medical technology but did not often prompt leaders to seek supervisory positions. The literature indicates that leaders tend to leave secure positions for the chance to advance professionally, and in this study this is what some of the leaders did. The technologists, on the other hand, were generally of the opinion that they should stay in the jobs they had to maintain their job security.

Mobility does not seem to be crucial to the attainment of leadership in medical technology. It appears that professional advancement
for the subjects in this study was often possible without physically relocating to another city or state. This is probably because jobs in managing or teaching, which could be considered promotions, were usually available locally. Also, professional organizations have local chapters, research can be performed on almost any job location, and articles for professional publication can be written from almost anywhere.

Some emergent themes other than those already discussed were mentioned but not frequently. Personality conflicts had been detrimental to two individuals when promotions were available. A concern to grow personally was twice a reason for leaders to be professionally active, and a religious influence upon careers was evident for two of the leaders.

Physical health does not appear to be crucial in this study, but that is probably because only one research subject had health problems. For that one individual the health problems did cause her to alter her career plans. So, potentially, health may be a very important influence upon leadership in medical technology.

Neither merit nor monetary gain seemed to be incentives to achieve. Monetary need was an incentive to work for both leaders and technologists, but leaders did not seek jobs managing or teaching to earn higher salaries. Jobs in managing or teaching in medical technology do not often pay much more than jobs working as a technologist. Sometimes, the leaders were willing to sacrifice money for advancement, but the technologists were not willing to
do the same. Merit was the other extrinsic reward which was not highly valued by the leaders, who seemed to be more concerned about achieving intrinsic rewards, such as personal satisfaction.

Management training in which students are taught procedures such as how to plan schedules and prepare budgets does not seem to prompt involvement in management positions in medical technology. In nursing, such management training is indicated to encourage individuals to be effective managers. In reality such training in medical technology might produce a more effective manager if the individual was already interested in managing, but different means are needed to promote enthusiasm to manage.

Findings/Conclusions from the 16PF

According to the literature a leader should be intelligent, decisive, self-assured, ambitious, assertive, and enthusiastic, and should have high self-esteem and exhibit initiative. In this study many of these qualities and some others were exhibited by the leaders. The leaders were more intelligent (abstract-thinking and self-assured) than the standard distribution. They were also more impersonal, emotionally stable, assertive, conscientious, bold, sensitive, trusting, imaginative, shrewd, conservative, controlled, and relaxed than the standard distribution. But interestingly enough, for many of the factors, the technologists were also above the standard distribution. The leaders are different from the technologists on only some of the characteristics. The leaders are more assertive, bold,
sensitive, imaginative, self-assured, controlled, and relaxed than the technologists. On the other traits, the technologists deviate from the standard distribution to the same extent as the leaders. Especially interesting is the result that the leaders and the technologists have the same tendency toward abstract-thinking, which relates to intelligence.

Some of the results could be anticipated, but some do not correlate with the literature or the results of the interviews. The results for abstract-thinking exemplify this. Because of academic accomplishments, one might expect the leaders to have more tendency than the technologists for abstract-thinking, but such was not the case. Also, according to these 16PF results, the leaders are more relaxed than the technologists, indicating that the leaders have lower drive than the technologists. And on enthusiasm, the leaders are comparable to the technologists and the standard distribution. One might expect the leaders to have higher drive and to be more enthusiastic than the technologists, according to the satisfaction levels and concern for professional growth expressed by the leaders in the interviews.

The results of the 16PF may not correlate with the results of the interviews as anticipated because of the small size of the sample group. Sometimes the trends with only ten subjects in each of the study groups are not very apparent. Perhaps with a larger sample group trends in the results of the 16PF would be more obvious and would more closely resemble the trends of the interviews.
Generalizability of the Results

This was a descriptive study of the factors which influence leadership in the profession of medical technology. The subjects for the study were systematically and purposefully selected to form a diverse group to optimize variety and, thereby, the possibility of identifying any factors which contribute to medical technology leadership even to a small extent. A purposive sampling design was appropriate for this purpose of exploration. The cases studied represent a wide range of careers in medical technology, but the degree to which they are "typical" or "average" was not investigated. For this reason, the generalizability of these findings is not known. Determining the relative frequency or distribution of factors influencing the development of leaders will require further research using probability sampling or multiple replications. The results of this study, however, do provide a foundation of "leading hypotheses" for further testing and refinement. Consequently, the results of this study should be considered as a warranted information base for use in furthering our understanding of leadership in medical technology.

Medical technology is similar to other health professions with respect to the needs and demands of the profession. However, the results of this study should not be generalized to other health professions. Even though the health professions are similar to each other, unique demands of each may affect leadership uniquely. Also, because of the uniqueness of the profession, the personal
characteristics and backgrounds of medical technologists might be different from the personal characteristics and backgrounds of other health professionals.

**Recommendations**

From the results of this study several recommendations may be made to schools, work places and professional organizations. The first recommendation is that schools of medical technology should, if possible, emphasize or continue to emphasize to an even greater extent recruiting and selecting students who have a history of academic achievement and encouragement from their respective families to be active, contributing members of society. In this study academic achievement is high among current leaders, and parental encouragement seems to contribute to fostering the perspectives and satisfaction levels of leaders. Also, a history of involvement in extracurricular activities should be considered an indication that an individual might have an interest in being involved in professional organizations and activities.

Once students have been selected, schools should encourage students to be professionally active. The importance of professional maintenance and involvement to a dynamic profession should be emphasized in discussions and by example. Instructors should not only advocate professional leadership. They should demonstrate the benefits and importance of professional leadership through their own involvement.
Instructors should also serve as mentors by encouraging students to realize and utilize their full potentials. The potentials of aspiring medical technologists may not be fully realized or developed, and the instructor may facilitate this process and help students to channel their potentials toward management, teaching and professional involvement.

Even though management training seminars do not contribute strongly to the desire to be professionally active, seminars may be designed to encourage managing and teaching. Such seminars might include more than specifics about scheduling and financial planning. Instructors might emphasize the specifics of how to develop interpersonal skills to help students acquire or increase their abilities and desires to use those skills. The students might then have an increased interest in management or teaching, because they might not find those activities such unattainable and impractical career options.

After students have graduated and begun working, places of employment should continue the support and encouragement started by the schools. Supervisors should, as the instructors did, serve as examples and mentors to emphasize the importance to medical technology of maintaining progress and keeping pace with that progress.

Both schools and places of work should also make a deliberate effort to make professional involvement as convenient as possible. The time and monetary support needed for involvement should be provided.
Providing time and monetary support substantiates the need for involvement and increases the feasibility for involvement.

Once the schools and places of employment have provided encouragement and developed interest, the professional societies have some major responsibilities. They should reinforce the encouragement of the schools and work places by making the need for leaders realized. If the need for leadership is unanimously expressed, potential leaders might be more likely to become involved. Then, the professional organizations should provide opportunities for and continue to challenge growing leaders, because once the interest is developed, the opportunity to nurture the interest might promote further interest.

Professional organizations should also encourage professional and scholarly contributions to the organizations and the profession by commending such contributions. Even though the leaders did not cite merit as a motivator, rewards for service are an incentive to promoting more service.

Incentive to be active is also increased if the programs for professional meetings consist of relevant, timely topics, offered at a feasible price and time and in a feasible location. If involvement is worthwhile and convenient, individuals may be more likely to be involved.

**Implications for Further Research**

From the results of this study there are some implications for further research. Even though Stogdill (1974) indicated that
personality characteristics were less important than other factors, more work needs to be done to determine if the results obtained for the personalities of medical technology leaders in this study are accurate, since the results regarding intelligence, levels of drive and enthusiasm do not correlate with the results of the interviews or the literature. The sample group for this study might have been too small and might have consisted of too much purposeful variety to make generalizable trends obvious, so the 16PF may be administered to a larger, randomly sampled study group. Also, other testing instruments or criteria to measure drive, intelligence, or enthusiasm may provide more useful information and may be used as a comparison.

Regardless of the instrument used or the number of subjects in the study group, a major constraint upon determining personality characteristics of individuals who are already leaders is that some of the characteristics may be the result of the leadership rather than a cause. To determine the personality traits which prompt leadership, subjects should be tested before and after becoming leaders rather than just after becoming leaders.

Interviewing was the method of choice for the other major portion of this study, because the purpose of the study was to provide a description regarding any factors which might influence medical technology leadership. An open-ended format of questioning was used to promote emergent themes. Now that the initial information has been gathered, a different methodology may be used for furthering understanding of the factors which influence leadership.
in medical technology. For example, a written questionnaire including questions about all of the factors identified in this study may be administered to a larger, random sample of leaders and technologists, and more quantitative and generalizable results could, thereby, be obtained about the factors which influence individuals to become leaders in medical technology.

One factor which might, in retrospect, have influenced the results of this study is the age of the research subjects. For this study there was no restriction upon age. Instead, the age was varied intentionally to add variety to the study group and potential variety to the findings. Perhaps the older technologists were more influenced by personal restrictions and being female than younger technologists as society has changed perceptions of the roles of women. More research should be done with the research groups restricted by age to indicate historical versus current trends.

Another implication for further research is with respect to selection of the study group. Subjects were subjectively selected for this study who were at the extremes of the continuum of leadership in medical technology. Many individuals are somewhat active in leadership activities. A study similar to this one should be performed on the individuals who are somewhat active to determine the factors which encourage some involvement but prevent further involvement.

This study has fulfilled its intended purpose. It has provided a description of the factors which influence leadership in the profession of medical technology from which future research may build,
because, as stated in the Introduction, the need for medical technology leaders is increasing, and the studies that provide information about the factors which influence leadership in medical technology are thin. Hopefully, further research will be conducted to verify and expand upon the results of this study.
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APPENDIX A

INTRODUCTORY LETTER
May 24, 1984

Dear

I am currently working on my dissertation toward completion of my Ph.D degree at The Ohio State University. You have been specifically selected to participate in my research in which I am attempting to enumerate the factors which influence the career pattern of medical technologists.

I would be very grateful for your participation in the study, which will involve a one hour personal discussion with me and 30-45 minutes to complete a multiple choice questionnaire to delineate a list of your personality traits. Both can be scheduled together or independently at a time and place of your convenience.

Your anonymity regarding participation in this study is assured. Only compiled results will be reported and in numerical form. I will gladly share the results of your personality questionnaire with you and upon completion of the study, a summary of the results.

Please complete the enclosed biographical sheet, and return it in the enclosed, stamped envelope by June 11, 1984. Be as inclusive as possible, without concern about blank areas, as they are important to the study. If you have a current resume' including the information requested on the form, the resume' may be sent instead of the form.

After receiving your biographical data, I will contact you to schedule the interview and completion of the personality questionnaire. Thank you in advance for your participation. I am looking forward to meeting with you.

Sincerely,

Bethany Wise, M.S., MT(ASCP)CL.S.(NCA)
Instructor
Medical Technology division
School of Allied Medical Professions

Enclosure
APPENDIX B

BIOGRAPHICAL QUESTIONNAIRE
BIOGRAPHICAL QUESTIONNAIRE

Name: ____________________________

Address: ________________________________________________

Telephone Number (work or home): ___________________ (circle which)

POST-SECONDARY EDUCATION (from most recent)

<table>
<thead>
<tr>
<th>College</th>
<th>Degree</th>
<th>Date of Degree</th>
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CERTIFICATION

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<th>Agency</th>
<th>Date</th>
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WORK EXPERIENCE (from most recent)

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<tr>
<th>Place</th>
<th>Title/Job Description</th>
<th>Date (from-to)</th>
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</table>

RESEARCH (Brief summary of any projects, completed or on-going, and state if funded and by whom) (from most recent)

PUBLICATIONS (books, journal articles, book reviews)
CONTINUING EDUCATION ACTIVITIES (activity, location and date, from most recent)

As Faculty

As Participant

PROFESSIONAL ACTIVITIES (List membership to professional organizations, offices held, committee membership and other activities, including location and date)

PUBLIC SERVICE (List activity, location, and date)
APPENDIX C

EXAMPLE FOLLOW-UP QUESTIONS
EXAMPLE FOLLOW-UP QUESTIONS

1. What factors might have contributed to your promotion?
2. What has influenced you to be so active in ASMT?
3. What if someone offered you a job as a supervisor in another state?
4. Were you active in extracurricular activities in high school or college?
5. Was there ever anyone outside your family who encouraged you or inspired you?
6. What does your husband think about you being so active?
7. Has it been difficult for you to work full-time?
8. Would you consider moving if you were offered a job as a supervisor in another state?
9. What makes you want to get involved initially?
10. What did you like about it?
11. Wouldn't it be a lot easier to just do a lot less?
12. What about monetary consideration?
13. How do you feel about coming to work?
14. What influenced you to stay here?
15. Has the fact that you are male/female ever affected your career?
APPENDIX D

16 PERSONALITY FACTOR QUESTIONNAIRE, FORM A

SELECTED QUESTIONS
1. I have the instructions for this test clearly in mind.
   a. yes, b. uncertain, c. no.

2. I am ready to answer each question as truthfully as possible.
   a. yes, b. uncertain, c. no.

3. I would rather have a house:
   a. in a sociable suburb, b. in between, c. alone in the deep woods.

4. I can find enough energy to face my difficulties.
   a. always, b. generally, c. seldom.

5. I feel a bit nervous of wild animals even when they are in strong cages.
   a. yes (true), b. uncertain, c. no (false).

6. I hold back from criticizing people and their ideas.
   a. yes, b. sometimes, c. no.

7. I make smart, sarcastic remarks to people if I think they deserve it.
   a. generally, b. sometimes, c. never.

8. I prefer semi-classical music to popular tunes.
   a. true, b. uncertain, c. false.

9. If I saw two neighbors' children fighting, I would:
   a. leave them to settle it, b. uncertain, c. reason with them.

10. On social occasions I:
    a. readily come forward, b. in between, c. prefer to stay quietly in the background.

11. It would be more interesting to be:
    a. a construction engineer, b. uncertain, c. a writer of plays.

12. I would rather stop in the street to watch an artist painting than listen to some people having a quarrel.
    a. true, b. uncertain, c. false.

13. I can generally put up with conceited people, even though they brag or show they think too well of themselves.
    a. yes, b. in between, c. no.

14. You can almost always notice on a man's face when he is dishonest.
    a. yes, b. in between, c. no.

15. It would be good for everyone if vacations (holidays) were longer and everyone had to take them.
    a. agree, b. uncertain, c. disagree.

16. I would rather take the gamble of a job with possibly large but uneven earnings, than one with a steady, small salary.
    a. yes, b. uncertain, c. no.

17. I talk about my feelings:
    a. only if necessary, b. in between, c. readily, whenever I have a chance.

18. Once in a while I have a sense of vague danger or sudden dread for reasons that I do not understand.
    a. yes, b. in between, c. no.

19. When criticized wrongly for something I did not do, I:
    a. have no feeling of guilt, b. in between, c. still feel a bit guilty.

20. Money can buy almost everything.
    a. yes, b. uncertain, c. no.

21. My decisions are governed more by my:
    a. heart, b. feelings and reason equally, c. head.

22. Most people would be happier if they lived more with their fellows and did the same things as others.
    a. yes, b. in between, c. no.

23. I occasionally get puzzled, when looking in a mirror, as to which is my right and left.
    a. true, b. uncertain, c. false.

24. When talking, I like:
    a. to say things, just as they occur to me, b. in between, c. to get my thoughts well organized first.

25. When something really makes me furious, I find I calm down again quite quickly.
    a. yes, b. in between, c. no.

(End, column 1 on answer sheet.)
26. With the same hours and pay, it would be more interesting to be:
   a. a carpenter or cook,
   b. uncertain,
   c. a waiter in a good restaurant.

27. I have been elected to:
   a. only a few offices,
   b. several,
   c. many offices.

28. "Spade" is to "dig" as "knife" is to:
   a. sharp,    b. cut,    c. point.

29. I sometimes can't get to sleep because an idea keeps running through my mind.
   a. true,    b. uncertain,    c. false.

30. In my personal life I reach the goals I set, almost all the time.
   a. true,    b. uncertain,    c. false.

31. An out-dated law should be changed:
   a. only after considerable discussion,
   b. in between,
   c. promptly.

32. I am uncomfortable when I work on a project requiring quick action affecting others.
   a. true,    b. in between,    c. false.

33. Most of the people I know would rate me as an amusing talker.
   a. yes,    b. uncertain,    c. no.

34. When I see "sloppy," untidy people, I:
   a. just accept it,
   b. in between,
   c. get disgusted and annoyed.

35. I get slightly embarrassed if I suddenly become the focus of attention in a social group.
   a. yes,    b. in between,    c. no.

36. I am always glad to join a large gathering, for example, a party, dance, or public meeting.
   a. yes,    b. in between,    c. no.

37. In school I preferred (or prefer):
   a. music,
   b. uncertain,
   c. handwork and crafts.

38. When I have been put in charge of something, I insist that my instructions are followed or else I resign.
   a. yes,    b. sometimes,    c. no.

39. For parents, it is more important to:
   a. help their children develop their affections,
   b. in between,
   c. teach their children how to control emotions.

40. In a group task I would rather:
   a. try to improve arrangements,
   b. in between,
   c. keep the records and see that rules are followed.

41. I feel a need every now and then to engage in a tough physical activity.
   a. yes,    b. in between,    c. no.

42. I would rather mix with polite people than rough, rebellious individuals.
   a. yes,    b. in between,    c. no.

43. I feel terribly dejected when people criticize me in a group.
   a. true,    b. in between,    c. false.

44. If I am called in by my boss, I:
   a. make it a chance to ask for something I want,
   b. in between,
   c. fear I've done something wrong.

45. What this world needs is:
   a. more steady and "solid" citizens,
   b. uncertain,
   c. more "idealists" with plans for a better world.

46. I am always keenly aware of attempts at propaganda in things I read.
   a. yes,    b. uncertain,    c. no.

47. As a teenager, I joined in school sports:
   a. occasionally,
   b. fairly often,
   c. a great deal.

48. I keep my room well organized, with things in known places almost all the time.
   a. yes,    b. in between,    c. no.

49. I sometimes get in a state of tension and turmoil as I think of the day's happenings.
   a. yes,    b. in between,    c. no.

50. I sometimes doubt whether people I am talking to are really interested in what I am saying.
   a. yes,    b. in between,    c. no.
APPENDIX E

16 PERSONALITY FACTOR QUESTIONNAIRE, ANSWER SHEET
**EXAMPLES**

1. I like to watch tennis games.
   a. yes, b. occasionally, c. no.

2. I prefer people who:
   a. are reserved.
   b. are in between.
   c. are timid.
   d. make friends quickly.

3. Money cannot bring happiness.
   a. yes, b. true.
   c. in between.
   d. this is not so true.

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**ANSWER SHEET: THE 16 P F TEST, FORM (A OR B)**

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**FILL IN THE BOX COMPLETELY, ERASE ENTIRELY ANY ANSWER YOU WISH TO CHANGE**

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**END OF TEST**

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*Do not write here.*

**NORMS USED**

- M
- N
- O
- Q
- G
- Q
- Q
- Q
- Q

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APPENDIX F

16 PERSONALITY FACTOR QUESTIONNAIRE

STEN SCORE DISTRIBUTION
### Table 13: Norms for General Population

**Female: Form A**

*(Based on age 30 years; N = 729)*

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### Table 16: Norms for GENERAL POPULATION

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*(Based on age 30 years; N = 2255)*

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APPENDIX G

16 PERSONALITY FACTOR QUESTIONNAIRE, REPORT FORM
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<th>MEANING OF SCORE ON RIGHT</th>
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<td>Cool, Reserved, Impersonal, Detached, Formal, Alloidal</td>
<td>- - - - - A</td>
<td>Warm, Outgoing, Kindly, Easy-going, Participating, Likes People</td>
</tr>
<tr>
<td>B</td>
<td>Concrete-thinking, Less Intelligent</td>
<td>- - - - - B</td>
<td>Abstract-thinking, More Intelligent, Bright</td>
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<tr>
<td>C</td>
<td>Affected by Feelings, Emotionally Less Stable, Easily Annoyed</td>
<td>- - - - - C</td>
<td>Emotionally Stable, Mature, Faces Reality, Calm</td>
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<td>D</td>
<td>Submissive, Humble, Mild, Easily Led, Accommodating</td>
<td>- - - - - D</td>
<td>Dominant, Assertive, Aggressive, Stubborn, Competitive, Bossy</td>
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<tr>
<td>E</td>
<td>Sober, Restrained, Prudent, Taciturn, Serious</td>
<td>- - - - - E</td>
<td>Enthusiastic, Impulsive, Needless, Expressive, Cheerful</td>
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<td>F</td>
<td>Expedient, Disregards Rules, Self-indulgent</td>
<td>- - - - - F</td>
<td>Conscientious, Persistent, Moralistic, Staid, Rule-bound</td>
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<td>G</td>
<td>Shy, Threat-sensitive, Timid, Resistant, Intimidated</td>
<td>- - - - - G</td>
<td>Bold, Venturous, Uninhibited, Can Take Stress</td>
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<td>H</td>
<td>Tough-minded, Self-reliant, No-nonsense, Rough, Realistic</td>
<td>- - - - - H</td>
<td>Tender-minded, Sensitive, Over-protected, Intuitive, Refined</td>
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<td>I</td>
<td>Trusting, Accepting Conditions, Easy to Get on with</td>
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<td>Suspicious, Hardly Trust, Dishonest, Skeptical</td>
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<td>J</td>
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<td>Imaginative, Absent-minded, Absorbed in Thought, Impractical</td>
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<td>K</td>
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<td>Shrewd, Polished, Socially Aware, Diplomatic, Calculating</td>
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<td>Relaxed, Tranquil, Composed, Has Low Drive, Unflustered</td>
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</tr>
</tbody>
</table>

Name: 
Score: 
Extraversion: 
Optimism: 
Openness to Change: 
Agreeableness: 
Conscientiousness: 
Neuroticism: 
Stability: 
Intellect: 
Emotionality: 
Adaptability: 

Date: 

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APPENDIX H

THANK YOU LETTER TO PARTICIPANTS
Dear

Thank you for so kindly participating in my dissertation research in which I am studying the factors which influence the career patterns of Medical Technologists. I enjoyed talking with you.

The results of the personality test which you completed, including an explanation of the results, are enclosed. Please remember that only compiled results will be reported in my writings. Your anonymity is assured.

I am still analyzing the data and will be doing so for the next few months. I will share the results with you when possible.

Again, thank you for your generosity.

Sincerely yours,

Bethany L. Wise, M.S., M.T. (ASCP) CLS
Instructor
Medical Technology Division
School of Allied Medical Professions

BLW/eja
APPENDIX I

16 PERSONALITY FACTOR QUESTIONNAIRE

EXPLANATION OF RESULTS
SIXTEEN PERSONALITY FACTOR INVENTORY

The 16 PF is designed to measure sixteen basic personality traits plus seven more general traits. The instrument is scored separately for males and females. The normative sample is based on data collected from the general population.

Your sten scores are reported on the attached profile sheet. A brief explanation of each trait is given on the attached page.

Sten scores (the term comes from "Standard Ten") are derived from raw scores and are distributed over ten equal-interval standard score points from 1 to 10, with the population average or mean fixed at sten 5.5. Sten scores of 4 and 7 are considered only slightly below and above the mean, respectively. Those with scores of 2, 3, 8, and 9 are considered to have a strong tendency toward low and high, while scores of 1 and 10 are considered to have extremely strong tendency towards low and high, respectively.
BRIEF DESCRIPTION OF WHAT THE 16 PF MEASURES

**THE PRIMARY FACTORS**

<table>
<thead>
<tr>
<th>Factor</th>
<th>A person with a low score is described as:</th>
<th>A person with a high score is described as:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>RESERVED, detached, critical, cool</td>
<td>OUTGOING, warmhearted, easy-going, participating</td>
</tr>
<tr>
<td>B</td>
<td>LESS INTELLIGENT, concrete-thinking</td>
<td>MORE INTELLIGENT, abstract-thinking, bright</td>
</tr>
<tr>
<td>C</td>
<td>AFFECTED BY FEELINGS, emotionally less stable, easily upset</td>
<td>EMOTIONALLY STABLE, faces reality, calm</td>
</tr>
<tr>
<td>D</td>
<td>HUMBLE, mild, obedient, conforming</td>
<td>ASSERTIVE, independent, aggressive, stubborn</td>
</tr>
<tr>
<td>E</td>
<td>SOBER, prudent, serious, taciturn</td>
<td>HAPPY-GO-LUCKY, heedless, gay, enthusiastic</td>
</tr>
<tr>
<td>F</td>
<td>EXPEDIENT, a law to himself, by-passes obligations</td>
<td>PROPER, overly conscientious, persevering, staid, rule-bound</td>
</tr>
<tr>
<td>G</td>
<td>SHY, restrained, diffident, timid</td>
<td>VENTUREOME, socially bold, uninhibited, spontaneous</td>
</tr>
<tr>
<td>H</td>
<td>TOUGH-MINDED, self-reliant, realistic, no-nonsense</td>
<td>TENDER-MINDED, dependent, over-protected, sensitive</td>
</tr>
<tr>
<td>I</td>
<td>TRUSTING, adaptable, free of jealousy, easy to get on with</td>
<td>SUSPICIOUS, self-opinionated, hard to fool</td>
</tr>
<tr>
<td>J</td>
<td>PRACTICAL, careful, conventional, regulated by external realities, proper</td>
<td>IMAGINATIVE, wrapped up in inner urgencies, careless of practical matters, bohemian</td>
</tr>
<tr>
<td>K</td>
<td>FORTHRIGHT, natural, artless, sentimental</td>
<td>SHREWY, calculating, worldly, penetrating</td>
</tr>
<tr>
<td>L</td>
<td>PLACID, self-assured, confident</td>
<td>APPREHENSIVE, worrying, depressive, troubled</td>
</tr>
<tr>
<td>M</td>
<td>CONSERVATIVE, respecting established ideas, tolerant of traditional difficulties</td>
<td>EXPERIMENTING, critical, liberal, analytical, free-thinking</td>
</tr>
<tr>
<td>N</td>
<td>GROUP-DEPENDENT, a &quot;joiner&quot; and good follower</td>
<td>SELF-SUFFICIENT, prefers own decisions, resourceful</td>
</tr>
<tr>
<td>O</td>
<td>CASUAL, careless of protocol, untidy, follows own urges</td>
<td>CONTROLLED, socially-precise, self-disciplined, compulsive</td>
</tr>
<tr>
<td>P</td>
<td>RELAXED, tranquil, torpid, unfrustrated</td>
<td>TENSE, driven, overwrought, fretful</td>
</tr>
</tbody>
</table>
APPENDIX J

EXCERPTS FROM INTERVIEWS BY FACTOR
FACTOR 1

HISTORY OF INVOLVEMENT IN EXTRACURRICULAR ACTIVITIES

Leaders

The kinds of things that I was interested in getting into extracurricular activities in high school...

But I've never been a joiner. In college, the only thing I was in was honoraries.

Yes, I've always been active. I joined a lot of clubs, because I liked it.

Not really. I'm active in ASMT, because it's so related to my work.

Not much at all. Some sports but not any clubs or anything like that.

Not at all.

No, I lived in a rural area, and though it was only a couple of miles to town, transportation was always a problem for me. You know, my father wasn't really interested in chauffering us around, and so basically, anything that I did was very difficult. I was in a few activities - things that everyone did - Y-Teens and Spanish Club -

Oh, yes. I've always enjoyed being active.

I've always done a lot of other things besides medical technology.

In high school, minimally. I grew up on a farm where we did chores morning and evening, and that meant that we couldn't be involved in any clubs.
No.

No, I never did much. There wasn't so much to do like there is now.

Yes, I did a lot in high school. I did some in college but less than I did in high school.

No.

I never got into that.

Not really.

Just a few things. Not anything special.

Not really. I was never interested in that. I spent a lot of time with my husband-to-be in college.

No, I just studied.
FACTOR 2

COLLEGE GRADES

Leaders
Mostly A's.

I was in honoraries.
I got a scholarship...

I've always been good in science, and I've always done well academically.

I always did well in school.
Yes, I studied hard.

Some A's, mostly B's.

I'd say better than average. We got letter grades at the time.

I've always had high grades.

I was a good student and was fortunate in that. I liked my studies, and I did well.

I was not a real strong undergrad student.

Technologists

Mostly B's - some C's.

They were good. I always did well in science. I enjoyed it and spent a lot of time reading about it.

Mostly B's.

Mostly B's.

I decided that my grades weren't good enough.
Oh, I'd say B.

My grades weren't high enough.

Mostly B's, some C's.

Yes, I was very aggressive and ambitious.

Mostly A's, some B's.
FACTOR 3 *

HIGHEST ACADEMIC DEGREE EARNED

Leaders
Ph.D. - 2
M.S. - 3
M.A. - 2
B.S. - 3

Technologists
M.S. - 1
B.S. - 9

*For this factor the information obtained is from the resumes or biographical questionnaires.
Leaders

The money wouldn't be it and neither would the position. Having more money for somebody to inherit doesn't phase me a bit. Having enough to live - that worries me.

You work hard, and you are not satisfied with what you make for working hard. Now, you have to be realistic. You have to consider the money, which is part of the reason for wanting a career that would provide that kind of potential for more money. I agreed to take the position for less money than I was making... So, as you can see, I was looking more at the potential than I was at making more money immediately...

We do need the money. But, I could work less hard and make the same money in a different position.

It was for economic reasons. But not exclusively.

I wasn't concerned about the money - not with respect to the promotion.

So, I had to give up the supervisor's job, take a bench job at another hospital across town, with some trepidation, you know, there was a salary cut, etc.

When I went to [this city], I took a...cut in pay.

Technologists

But, I'm not willing to cut back my life style in order to go somewhere. It's hard to cut back from what I'm making here.

Well, the money doesn't hurt. But I don't really need it. But if I keep working for a few more years, my retirement will be a lot more.
I would probably have to move to get a better job, and the money probably wouldn't be worth it. I didn't think it was worth complaining about. It doesn't pay that much more. I couldn't move and make any more money anywhere else.

I think I could be easily motivated by money, to tell you the truth. I don't really want to work full time, but I don't really have any choice. It's terrible - everything's ruled by money.

The money surely didn't hurt. I really didn't do it for the money, but I liked it. I checked into other jobs a few times, but they always paid less. The benefits and money are both better here.

I really liked working. Plus, we kind of missed the money. The money is really extra now. We're going to use it for retirement.

...after I found out how much more money I could make and everything, I thought it'd be silly to waste myself working in a bank or, you know, something like that.

*Brackets indicate editing.*
Leaders

I really don't think that's ever had any influence on anything. I've never felt that I was not chosen for anything because I'm a woman.

...since I've always been in a supervisory position, I have to say no.

No - I don't think being female has kept me from getting any promotion.

No, I've never really considered that. I don't think it's had anything to do with anything.

I really think it (being male) worked to my advantage in this case.

I really don't ever think about that much. I really think if it was a consideration, I would have realized it.

But I think there's a lot of unspoken obstacles in the work place as to how you're perceived. I used to sense that very strongly in the beginning, you know, like decisions made about who would be in charge... It was kind of like, you know, women just get married and have babies and then quit. But I think that attitude's changing. Women aren't leaving the work place.

I had a suspicion that perhaps the [one] position catered more to a male than a female.

Technologists

I think that when I first came here ten years ago that that had something to do with it, but I don't think it does anymore.
At times I've thought that being female was an advantage here. I don't think they really base promotions on it, though. It's hard to say. Sometimes it seems like they unconsciously tend to favor females, but I'm not sure about that.

I think they have a prejudice against men here.

I don't really think so. I never had trouble getting a job. I figured that was because I was a M.T. I think that affected things more than being female.

There's mostly women anyway, but that's not it.

*Parentheses are for clarification. Brackets indicate editing.*
FACTOR 6

PHYSICAL HEALTH

Leaders

I've had a couple of health problems..., and I think that changed my perception of my priorities. If I hadn't had the health problems, I'd probably be working on a doctorate by now.
Leads

I am more and more convinced that what happens in early childhood has a great bearing on one's career.

Uh, I don't know that my home was that unique, but I have some very strong values that I developed very early that I know had a tremendous impact on my wanting to better myself.

My Dad was very much interested in learning. He was always trying to find out new things, and anything that had an educational potential, he would encourage us to try out. And I think that's why I have done so much with education, even though I started out in a very scientific field.

Well, I think because [my parents] were independent.

My parents were always highly motivated, now that I think back. They were always active in the community - held offices and such, and they always involved the children in their projects.

Satisfaction levels come to you from your family.

My mother used to say, over and over again, "Education is the one thing no one can take away from you."

I guess I could be considered to have kind of a workaholic type of philosophy, and that probably comes from family upbringing, whatever. You know, we were taught you give your best at whatever you endeavor.

I always felt I didn't want to disappoint my mother.

I'm sure that my upbringing influenced me the most.

I guess it all starts back at your home level. I think basically our parents instilled in each one of us very young that when you're part of something, you need to be an active participant and not just to have a passive role in anything.
Technologists

My parents encouraged all three of us to do what we wanted. If we wanted to go to school after high school, that was fine. As long as we were happy with what we were doing, that was O.K. with them.

Well, my mother was a nurse, and my Dad was always for higher education. They didn't tell me to go to college. They just made me realize the value of it.

Both of my parents have college educations. It didn't seem like they were intentionally encouraging us.

...my parents always encouraged us to go to college.

My parents both have college educations.

98% of my high-school class went to college.

*Brackets indicate editing.*
FACTOR 8

FAMILY SUPPORT

Leaders
He knows me well. And he's very supportive of my meeting my needs.
I've had a lot of support from my husband and family.
I've always had a lot of encouragement from my family. My parents were always highly motivated, now that I think back.
My family encouraged me to go to college. But, they couldn't be supportive financially.
My husband had to do a lot of things himself.
I guess I'd say he's supportive. I think it's less that he's so supportive. He's just never presented any obstacle...

Technologists
My parents put us through and were supportive.
My parents always encouraged us to go.
My husband wasn't too crazy about it, because he knew how much time I spent at it before.
Well, Mom did all the applying. In fact, I wrote my resume, and my Mom corrected it. But she was a big influence.
And my Father said, "If you go to college, I'll pay for it if you do something practical."
Factor 9*

Mobility

Leaders

...it would depend on where it was.

Well, I really can't do that, because of my family. Well, [my husband's] retired now. And he likes it here. I don't think he will want to move.

I've always been real close in the community...if you stay in that community, you contribute something...

I had the opportunity...to go [out of state]. So, I did that. [This city] is my home. So, honestly, I have strong roots here.

The value of putting down roots...is very strong.

Technologists

The decision would be partly the job and partly the income, and partly the area.

But I would probably have to travel. I don't want to do that with my family.

I like Columbus. I don't think I'd want to move. I guess my family's here, and I like that.

If I was independent of my family situation.

See, I'll always fall for more prestige. I'll figure out how to do it later.

*Brackets indicate editing.
Leaders

I've been really lucky. I've never even had to apply for a job. I've been really lucky in that regard.

Sorta lucked into that.

I think it's been luck, though, too.

And again, it turned out to be probably more good luck than anything.

...and so, it was just coincidental that being promoted... I kind of fell into some of those (publications).

*Parentheses are for clarification. Brackets indicate editing.
Leaders

The longevity of staying around has gotten me in charge of the program here.

They just gave us all titles contingent on our degrees and years of experience.
And it's difficult, because I don't have enough seniority.

I think just by virtue of seniority, it was expected...
But everyone who had been there as long as I had was involved.
I guess I think seniority had something to do with it - probably mostly to do with it.

And I really don't know if I was in line for the Supervisor's position or not...

Technologists

Well, it's definitely not seniority.

I think seniority had something to do with it. I don't think they promote people on seniority alone.

I suppose how long you've been here more than anything else.
FACTOR 12*

MERIT

Leaders
But I don't do what I do for the awards.

Technologists
I work harder than some people who are [promoted], and I never get anywhere...

*Brackets indicate editing.
Leaders

So, things have fallen in my lap, so to speak. I always looked at it as an opportunity for growth.

You just have to find your niche and volunteer.

They just gave us all titles...
Then, the money crunch hit, and the number of positions had decreased.
Going to college was easy.

And she asked me if I wanted to work on [the project]. And I said, "Yes."

I just applied for it when it was available.

...it was kind of when a position presented itself, who was there and eligible.
...they needed someone to teach...
The other articles that I've written or have been involved in writing have actually been requested.

You know, the society's provided a unique opportunity...

...so involved with the opportunities that were there - educationally...
...and He's given me the opportunity...
I had many professional opportunities.
I had a lot of opportunities...
And with the opportunity of staying with that or moving into a different direction in the future...

After about seven months in that...position, there was a vacancy in the...supervisor position. And they asked me if I wanted that, and of course, I offered to do that.
Technologists

I heard...that [they're] not allowed to refill some of the ones.
I know there aren't any positions.

*Brackets indicate editing.*
FACTOR 14 *

TALENT/SKILL/ABILITY

Leaders

I'd like to think that they were pleased with my previous work, so they asked me to do something else.

So, all you've got to do is volunteer, and if you've got the potential...
I have a philosophy that if you're qualified to do a job, you do it or keep your mouth shut.

I think that I was born to know how to delegate.

So, to expand and utilize the skills you have already, I think the society was great.

I'm a firm believer that people who work harder accomplish more - within the limitations of their abilities, you know.

I was regarded as an individual to be called upon...

I think it's primarily on competence.

You know, He's given me a certain amount of abilities...

Technologists

I'm not a person with a lot of energy.

I asked [the Supervisor] for a [promotion] a few years ago. She said that she didn't think I could do it.

Well, compared to some people I think I have done really well. But then I think perhaps compared to what I'm capable of, I've only done fifty percent.

*Brackets indicate editing.
FACTOR 15*

CLINICAL EXCELLENCE/TECHNICAL COMPETENCE

Leaders

I'm sure competence was a consideration.

...it was kind of when a position presented itself, who was there and eligible. I would say without hesitation that at that time I would have been the most qualified, because I worked in [the area] almost all the time.

And they needed somebody in [the area] because there were no certified med techs there at that time, and I was the only one in the lab who had had any recent experience, and so four months after I was out of school, they put me down in [the area] to take charge.

Technologists

I guess I'd say that dedication to your work and being technically good are probably the most important.

I don't think how well you do your work is as important as how long you've been here.

*Brackets indicate editing.
FACTOR 16 *

NECESSITY/ACCIDENT

Leaders

I [got the position] under protest.
I then became the expert, because no one else had done it.

She couldn't go, so she asked me to go, and I did, and probably
got involved in the whole [project] that way.

And as it turned out, they needed someone to teach...

And they needed somebody in the [lab]...
...and I know I was firmly convinced by the time the meeting was
over that I really needed to be active and involved...

Technologists

...at one time there was a [position] open, and they decided that
they didn't have [someone in charge of that area]. So they chose
someone [who worked in that area] for the [position].
I did it when she was on vacation and stuff. Then, when she was
getting ready to leave, they said "Oh, would you take over?" And
I said I would.

They needed someone to do it. And I liked it, and I just kept
doing it.

*Brackets indicate editing.
FACTOR 17

MENTOR

Leaders

Dr. [X] told me there was a fellowship...
Dr. [X] asked me if I would take over her responsibilities...

Was sorta my idol. But that probably got me more interested...

But I'd say she's my role model.

I think you could say that [X] has been my mentor here. He has helped me to realize my capabilities and has encouraged me a lot.

Well, I think I can contribute that to having an Education Coordinator when you're in school that was very active in the society. I think that [X] had a large impact in relation to medical technology. But it was kind of interesting - another person that had a significant impact was a friend - an older med tech...

I guess I'd have to say that Dr. [X] is my mentor. He really taught me a lot and encouraged me.

It's hard to put my finger on something like that. I think it's the case in selected areas. But as far as technical areas, I don't think so.

There was one [teacher] who I had in high school who I really admired.

There's always been someone older and wiser that's been there when you needed somebody.

I had a good mentor. I think he probably - well, one of the first things he did with our class was he asked us what our goals were - what we wanted to do with med tech down the road. And he recruited people to be involved at all levels, and encouraged us to be involved in the local organization and so forth.
Technologists

Dr. [X]... asked me... to teach at the school.

I got interested in medical technology from my doctor when I was in high school.

*Brackets indicate editing.
FACTOR 18

JOB SECURITY

Leaders

But after five years, they could tell you "No go," and that doesn't attract me. The main reason why I came into medical technology in the first place is that that's one of the possibilities you could go into when you had a major such as I had...

It's just that, all of a sudden, I realized that I wanted to establish myself somewhere, because I wasn't getting any younger. I want to establish myself in a position.

I decided if I was going to be...moving around the country, I certainly couldn't get a job teaching. So, I decided on med tech. It was really a tie with teaching med tech is transferrable, or work part-time if I had a family, or whatever.

So, I told him at that time I was interested in it. I found out that the job prospects in [science] were very limited.

...and I realized I wasn't getting anywhere...So, I first of all had to decide that I was going to leave this comfortable little haven.

I left because I saw the handwriting on the wall that the [job] was a luxury, and they might or might not want to keep it. So, it was a situation that was bad and getting worse, I think and it was time to move.

Technologists

My advisor in [science] said that I could get a job if I had a certificate in med tech.

And another thing that appealed to me was that you could be trained for something that you could get a job right out of college.

I never would have done it had I been able to find a teaching job.
I couldn't get a job with the [science] degree.

...I just thought [med tech] sounded like a good way to put science to work in a practical way.

*Brackets indicate editing.*
FACTOR 19 *

MANAGEMENT TRAINING

Leaders
Three have Master's degrees in management.
Four have completed graduate-level courses.
One had some formal management training in school.
Two had no formal management training.

Technologists
Five had some management in their undergraduate curriculum.
Five had no formal management training.

*For this factor the information obtained is from the resumes, biographical questionnaires, or summarized from the interviews.
Leaders

In terms of working full-time, it could be a problem.

Then, as the children got older, I went full-time. I think it's because I'm willing to spend time, if I can.

Well, I haven't had many constraints on me.

I like twelve hour days...

It worked out very nicely with a child at home to have the time.

You have to be organized. You have to manage your time. You have to set your priorities...

I guess I go back to the fact that I was willing to do the extra stuff.

Technologists

And my husband said, "You better stay home." So, I stayed home for six years.

Yes, when we started a family, I stopped working for six years, until the children started school.

And, I just didn't feel like I had the time to do that. I just didn't have the time to devote to it.

I thought about applying to medical school, but I realized the hours the doctors had to keep, and I decided I didn't want to do that.

If I was independent of my family situation.
Because you have different responsibilities and different things you have to consider and plan.

Now, if she finishes school, and I was still at [here], and I got a promotion, I'd love it. It's because I'd have more time to put into my job...

By that time, we had two small children, so I cut back to part-time.

And as soon as I was pregnant, my husband wanted me to stop working, so I did.

It would be very possible for me to get another degree if I was willing to invest the time, but so far, I think I haven't seen - I haven't decided what direction I want to go...

*Brackets indicate editing.*
Leaders

Well, the main reason I was so interested in being active was that I wanted to be informed, and the only way you could know what was going on was to go to the meetings and keep in touch. So, I've always believed in that and keeping up and studying and all that.

I like the changes and having to keep up.

And the support from the labs to keep learning is great. And I liked going to the workshops and keeping current.

...and I realized I wasn't getting anywhere professionally or any other way...

But after a couple of years there I also realized that there wasn't much of a future for me professionally, because the positions that were open to me above the level that I was at seemed to have people in them who were going to be there for a while.

...and it was a really good opportunity for me to spread my wings a little bit and broaden my scope using my med tech background.

Then I had a T.A. who changed my philosophy. He said, "If you want to be on the cutting edge, you teach college students, because it will force you to stay in front of them in terms of knowing the material.

I think I was basically lazy, and I wouldn't take the initiative to read the journals and so forth without that kind of prodding. And again, there's an area now that I try to keep up on...

Well, in terms of the workshops, that becomes my learning environment. I learn probably ten times as much as I would learn sitting in the office on that same date."
Technologists

I take classes, but not in med tech. I think I would have been more ambitious about my career had I not been married. It would have mattered more to me, you know, whether I got promoted or succeeded in my job.

Sometimes, I don't feel like I'm going anywhere. I'm kind of in a box right now, I think. I'm not doing anything about it, because I'm kind of close to retiring. If I were ten years younger, I would think about getting my Master's or pushing for a better position. If I were coming out of school right now, I would want to get another degree. Just to do bench work for all those years is a little boring.

I just wanted to stay current. I wanted to work as much as I could so that I wouldn't get outdated. Everything kept changing so fast that I thought, if I don't stay in there, I'll lost track of everything, you know, and not be able to work.

When I was first married, I was very aggressive and ambitious. I would have gone through more school, but that was - uh - contrary to public opinion.

I think it's good to have contact with the people in other hospitals.
FACTOR E2

CONCERN FOR PERSONAL GROWTH

Leaders

I've realized their creativity and their willingness to adjust, and I've tried to model myself after them, because I'm not.

I like working. It keeps me organized and efficient -

*Parentheses are for clarification. Brackets indicate editing.
Leaders

I really wasn't too active...until I started the job I have now. Everyone else at work was going, so I thought I'd better go, too. Work really encouraged the activity.

...the professional activities you've undertaken - the things the hospital wants. Encouragement from work, mostly. They like you to be involved. And work really encourages them (publications).

And the support from the labs to keep learning is great. But everyone who had been there (at work) as long as I had was involved.

In some cases I just felt kind of an obligation. Yea, I think it was more expected, though, because the Senior level staff always did the teaching. It's either because I've been asked or told to (publications). ...the way I saw it was that these were the kind of talks that physicians were asked to give, and the idea that they were asking me, I felt that I had to do it, because it was an honor to be asked.

They always encouraged us to be active in organizations...

...there were a few people at the hospital who went to the local scientific meetings and so, they invited the students to go along, and we did. They believe that involvement in one's professional organization is very important to keep the hospital progressive and in tune with things. So, they've been supportive.

And it wasn't till I got [there] that I realized that the name of the game was to get your doctorate if you want to stay.
Technologists

They really encourage us to do it (Med Tech Society).

*Parentheses are for clarification. Brackets indicate editing.
FACTOR E4*

PERSONAL INTERESTS/PRIORITIES

Leaders

You might as well be in charge. It's much better than following. Then, you can make the rules up as you go along. And it's by choice here that I didn't go to the top. I like what I'm doing here. It's different.

I keep working, because I enjoy it so much. I like being involved. I like people, and I like to treat them as equals. That's why I like to supervise. ...and I would enjoy teaching...

I didn't want to settle down in one high school and teach for the rest of my life. Not as a bench tech. I just knew that I really didn't want to do that. I just didn't want to do the same thing over and over again. I like having to figure out something... I enjoy teaching, but I don't think I'd enjoy being a supervisor.

But I've always been the kind of person that likes to work hard. I enjoy going to the (ASMT) meetings. ...

...if I get involved in something, I get very involved. And once I got started, that made a big difference. I liked so many of the activities (ASMT). I really like organizing and coordinating.

Well, I would say most of the things I've done, it's been because I was interested in taking on that kind of job. I've always liked the profession. ...feeling very determined that the kind of information I gave led people to become knowledgeable...
I always volunteered to help at those if they needed extra help, cause I always liked to do that.
You have to set your priorities and decide what's important to you and just follow it, and that's what I've done.
...I always wanted to try pure research.

I guess I go back to the fact that I was willing to do the extra stuff.
That was just an interest - really understanding people I found extremely interesting.
Quite frankly, the journal articles - I enjoy writing.

Technologists
I don't like sitting around. This job gives me more to do.

I guess I've always chosen my family over work.
I really like it here. I like the work in this lab. I think there's a lot of variety in the things you can do. And I really like the bench work.

So, I decided I'd go to graduate school. I wanted to prove to myself [that I could do it].

I'm enjoying chemistry, and I like it.
But, I really didn't look at salary. I looked at what I liked to do.
If I hadn't had [the baby] I was more concerned about my job...

I really liked working.

But I've always thought that the supervisors really deal with a lot of problems, and I don't know if I would enjoy having that kind of - you know - it's hard working with people.
...and it's work that I enjoy.

*Parentheses are for clarification. Brackets indicate editing.
FACTOR E5

SATISFACTION LEVELS

Leaders

I'd be bored if I was a bench tech. To some extent, I think it has to do with the want for a better place - it's called satisfaction levels. Because when you're satisfied with the way things are, you don't strive to make change. I've always cared about doing a job well from start to finish.

I was itching for more upward career mobility or position or whatever.

I don't feel comfortable with just halfway participating.

It would have been very boring and unstimulating to just stay working at the bench.

I've always enjoyed being active. I've always enjoyed a challenge and doing all I could.

...and I realized I wasn't getting anywhere professionally or any other way, and I wasn't getting a great deal of satisfaction out of it, and the future didn't look too great, either. ...I sort of had visions of upward mobility here.

Technologists

After they were in school, I was bored, so then I wanted to work. I think there's a lot of variety in the things you can do. And I really like the benchwork.

...if you wanted to advance any, the supervisor's positions were pretty well set. There wasn't any place to go. I thought I could be satisfied with coming in and doing a couple of tests and then going home. But I'm not the kind of person that is satisfied doing that.
Leaders

[My religious background] has been my strongest influence.

It just seems like, you know, my mother always taught us that God doesn't close a door where he doesn't open a window. All kinds of things have happened. God's been very good to me. I can't deny that. He's given me a certain amount of abilities, and He's given me the opportunity to use those abilities.
Leaders

Actually, I might have gotten a promotion where I'm at now, but I have had a personality clash with [someone in charge]. I got along with the people. I think that's mainly why I was asked.

Technologists

Personal preference has a lot to do with it. I guess I just don't have the right friends here. Plus, I'm not aggressive. I didn't push the situation. I just don't speak out enough.

*Brackets indicate editing.
...you're really a button pusher right now. I just don't think it's much fun. So I think you'd wind up with a Bachelor's degree kind of job. It wouldn't matter what it was. But I don't think you'd be real satisfied at a low paid, low esteem job for very long.

I think there's a lot of variety here, anyway. There are always new things to learn. That makes it interesting.

No, I've never really wanted to be [in charge]. I just enjoy doing my job. But I really don't want to be [in charge], because they usually have to do things that are headaches in one way or another.

I enjoy it. I'd probably be very bored at home, since the children are gone.

I don't think I really want to be a Supervisor...so basically, I'm satisfied...we're given a lot of responsibility. I can't complain about not being challenged or anything for the present time, anyway.

So many people feel like it is not - like they want so much more - and really I'm pretty content.

*Brackets indicate editing.*