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Responsibilities and leadership styles of radiologic technology program directors: implications for leadership development

Laura S. Aaron

Louisiana State University and Agricultural and Mechanical College, lcarwi1@lsu.edu

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RESPONSIBILITIES AND LEADERSHIP STYLES OF
RADIOLOGIC TECHNOLOGY PROGRAM DIRECTORS: IMPLICATIONS
FOR LEADERSHIP DEVELOPMENT

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Educational
Leadership, Research and Counseling

by
Laura S. Aaron
B.S., McNeese State University, 1991
M.S., Midwestern State University, 1998
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ABSTRACT

Leaders in higher education serve in a variety of roles and many times have very little administrative experience for the positions in which they serve. Radiologic technology program directors are the types of leaders who need strong leadership skills to meet the challenges of their role as program chairs. This study examined the responsibilities of program directors and their satisfaction with their leadership skills in relation to the responsibilities. In addition, the leadership styles of program directors were investigated to determine how those styles are related to the responsibilities and their satisfaction with their leadership skills.

This study utilized a mixed methods approach in order to gain a better understanding of the responsibilities of program directors in radiologic technology and their level of satisfaction with their leadership skills as related to the responsibilities. An explanatory design was employed for this study in which qualitative data were used to expand the understanding of the quantitative data. The Multifactor Leadership Questionnaire (MLQ) was administered in order to determine the leadership style, and the Leadership Matrix was used to measure the level of importance of responsibilities and the level of satisfaction with leadership skills in relation to the responsibilities of program directors. The quantitative data were collected by surveys which were mailed to 590 program directors in Joint Review Committee on Education in Radiologic Technology (JRCERT) accredited programs. Two hundred and eighty four program directors responded for a 48% response rate. Interviews were conducted with 13 program directors who responded to the quantitative portion of the study. Multiple regression and two-way ANOVA procedures were used to analyze the quantitative data, and themes and patterns were identified in the qualitative data.

The findings of this study identified two responsibilities of program directors for professional development: budget and resources and faculty affairs. Additionally, relationships between program directors' ratings of the level of importance of the responsibilities and leadership style, institution type, and program type were discerned. Finally, relationships between program directors' levels of satisfaction with their leadership skills in relation to the responsibilities and leadership style, years of experience, and highest degree completed were established.

CHAPTER ONE

INTRODUCTION

Due to the challenges and unique situations presented in higher education settings, individuals in leadership positions need to have a strong set of leadership skills to affect positive change. In fact, Birnbaum (1988) suggests that leaders in higher education face obstacles that are very different from those in other settings. The leaders that must surmount these obstacles in higher education have a different role from faculty, although they may have similar backgrounds in regard to education and lack of preparation for their leadership role. Many leaders may have been high-performing faculty members, but this does not always translate into being strong leaders. It is often assumed that those in leadership positions have the appropriate skills for effective leadership, which requires them to provide guidance and use decision-making skills to make the changes that are necessary for success. However, many times leaders have very little administrative experience or training for the role (Tucker, 1993). These leadership skills need to be developed in order for the leader to be successful.

One type of leader in higher education institutions is the department chair. Del Favero (2003) posits that the role of department chair requires a balance between their leadership and faculty responsibilities. Wheeler (2002) states, “an institution’s department chairs or heads work to translate its vision and mission statements into the actual programs, services, and products that make a difference in the lives of the clientele both inside and outside the institution” (p. 451). Department chairs are expected to provide the leadership necessary to help their programs evolve to meet the challenges of the current environment. Successful chairs provide a vision that faculty can use to guide them in their tasks and create an environment where faculty are able to be involved and

have a role in the changes that are made. Chairs are expected to work with faculty, students, and higher-level administrators, to be scholars, and to be well informed regarding their program as well as the institution (Wheeler, 2002).

Department chairs are faced with day-to-day decisions necessary to run a program as well as to be prepared to handle the changes with which they are confronted. Lucas (2000) states,

chairs must accept that change is a constant, develop the flexibility to cope with change, and shape it rather than be shaped by it. A new leadership role is required of chairs, one that has not necessarily been entrusted to them in the past. (p. 10)

This “new role” requires department chairs to have strong leadership skills in order to meet the expectations of the position. Since the leadership requirements of the role are constantly changing, department chairs need to take an active role in developing their leadership skills to effectively respond to the needs of the department (Lucas, 2000).

Department chairs have many responsibilities associated with their leadership role. Tucker (1993) places these responsibilities into eight categories: department governance, instruction, faculty affairs, student affairs, external communication, budget and resources, office management, and professional development. Lucas (1994) developed a model to determine areas of professional development for department chairs in relation to their responsibilities. According to Lucas’ model, these responsibilities vary on two dimensions: the level of importance to the department and the level of satisfaction a chair has with his/her skills as related to the responsibility. These two dimensions are focused upon in this model to assist department chairs in prioritizing leadership skill development to the areas that will be most beneficial to the department. The difference in the level of the importance of the responsibility can be affected by institution type and department type (Lucas, 2000; Tucker, 1993) and may be affected by

leadership style, and gender. Additionally, department chairs will have differing levels of administrative experience; therefore, their level of satisfaction with their skills is also likely to vary significantly from one to the other. Department chairs' level of satisfaction with their skill level can vary based on years of experience, gender, leadership style, program type, institution type, and the discipline of highest degree.

The purpose of this study was to (a) identify responsibilities of radiologic technology program directors that are most important to the function of their department, and (b) ascertain the level of satisfaction of program directors with their leadership skills as they relate to their responsibilities. Thus, this chapter will provide an overview of a specific type of higher education program, radiologic technology, and the role of department chairs in those programs. Additionally, transformational and transactional leadership will be discussed as appropriate styles of leadership for department chairs to adopt for leading their department. The problem will be described and justification for the study will be provided. Research questions for this study will be presented and the significance of the study will be explained.

Radiologic Technology Programs

Radiologic technology programs provide students with the necessary knowledge and skills to become a radiologic technologist. Similar to other professional programs in higher education, educating students in radiologic technology is more than just imparting knowledge and skills of a particular profession. Students must also be afforded the skills to adapt to different patient conditions in a variety of healthcare settings. Radiologic technologists are healthcare professionals who perform diagnostic imaging examinations. Through clinical, didactic, and laboratory courses, students are educated in anatomy, radiation protection, patient positioning, imaging techniques, equipment operation, and

patient care (ASRT, 2004b). All radiologic technology programs have these basic components, but they can vary in their content beyond this. For example, some programs may have components for students to have learning experiences in other imaging modalities such as ultrasound or nuclear medicine, or other programs may have content involving advanced management skills.

Three basic types of radiologic technology programs exist in the United States: certificate, associate degree, and baccalaureate degree. Certificate programs are usually found in hospitals or medical centers. Associate degree programs are usually sponsored by two-year community colleges and baccalaureate programs are found in four-year universities. Each of these program types has the basic components mentioned previously, but vary in program length, additional education beyond the basic components, type of institution, and type of degree granted by the institution. Currently, the Joint Review Committee on Education in Radiologic Technology (JRCERT) is the only programmatic accrediting agency for radiologic technology programs. This organization sets standards for radiologic technology programs that

require a program to articulate its purposes; to demonstrate that it has adequate human, financial, and physical resources effectively organized for the accomplishment of its purposes; to document its effectiveness in accomplishing its purposes; and to provide assurance that it can continue to meet accreditation standards. (JRCERT, 2001, p. i)

All program types are required to meet the same JRCERT standards. Any student graduating from a JRCERT or regionally accredited institution (i.e. Southern Association of Colleges and Schools) is eligible to sit for the national certification examination developed by the American Registry of Radiologic Technologists (ARRT).

Radiologic Technology Program Directors

Program directors in radiologic technology are department chairs who have direct responsibility for the clinical and didactic portions of the program. These are the individuals who are ultimately responsible for overseeing that accreditation standards are met. Like other leaders in higher education, they serve as role models to faculty and students, share their vision of the program and the profession, supervise and evaluate faculty, and help to develop students into health care professionals. Thus, these individuals play a vital role not only in the education of students, but also as leaders of their programs and the profession. JRCERTs (2001) accreditation standards delineate the program director's responsibilities as follows:

- Organizes, administers, reviews, develops, and assures program effectiveness;
- Conducts on-going program assessment;
- Participates in budget planning;
- Evaluates and assures clinical education effectiveness;
- Maintains current knowledge of the professional discipline and educational methodologies through continuing professional development;
- Assumes the leadership role in the continued development of the program. (p. 7)

In short, the program director must oversee the entire academic program, which involves many responsibilities utilizing various leadership skills. While there are many aspects of a program director's role that are similar to the roles of other department chairs, there are also some unique challenges of their role. For example, as technology evolves, certain radiographic examinations become obsolete and new procedures are developed. Program directors must stay abreast of these changes and find ways to keep the faculty versed in new technology and procedures and subsequently prepare students to perform these procedures as well. Many times technology changes at a faster pace than the resources and textbooks. In order to meet the continuous changes in the healthcare environment, a program director must continually assess the academic program. The program director

must create a vision for the program that will provide the necessary components to prepare faculty and students to meet the needs for the future. Thus, it is critical to the success of the department that radiologic technology program directors know which responsibilities are most important to a particular department in their particular departmental context and which skills the program director needs to meet these responsibilities.

Challenges of Program Directors

Although educators in radiologic technology have a tremendous responsibility to help develop students as health care professionals, they usually do not have formal training in education (Hilton, 2003). Radiologic technology educators are trained as practitioners first. They begin their careers as technologists, graduating from the types of programs in which they may one day teach. They become educators after developing the desire to teach in radiologic technology. Joanne Greathouse, Chief Executive Officer of the JRCERT (personal communication, February 3, 2004) indicated that program directors become program directors through a wide variety of methods. Some have previous classroom experience, while others may have experience only as clinical instructors. Additionally, they may or may not have any administrative experience. Therefore, a program director may reach that position without any formal training in education or leadership. The lack of previous administrative experience or training is consistent with what we know about most other academic department chairs (Tucker, 1993).

Program directors of radiologic technology programs face two problems: their level and type of education, and their experience as administrators. The current *Standards for an Accredited Educational Program in Radiologic Sciences* requires that

program directors have a minimum of a master's degree (JRCERT, 2001). Prior to these standards, program directors were only required to have a bachelor's degree. However, the standards do not specify the major discipline of the master's degree. There are only two programs in the nation that offers a master's degree in radiologic science. Those programs have two tracks that a student may pursue: administration or education. Currently, 47% of program directors have only a baccalaureate degree or no degree at all (JRCERT, 2003). The culture of radiologic technology will change as program directors obtain higher levels of education.

The difference in level of education and type of education as well as lack of administrative experience of program directors presents professional development opportunities. Specifically, the development or improvement of the necessary leadership skills program directors need to meet the responsibilities which are critical to the success of the program should be the focus for professional development activities. Program directors need to understand what type of leadership behaviors will be effective in the context of higher education. Pernick (2001) believes that it is in the best interest of an organization to develop its leaders, and that leadership can be taught. Program directors of radiologic technology programs would benefit if their institutions took this stance and provided leadership training for program chairs to assist with the developing leadership skills.

In addition to their problems of education and experience, program directors are also faced with the challenges of a constantly changing healthcare environment. Many times these changes have dramatic effects on educational programs. For example, economic changes in healthcare can impact clinical education. As costs in healthcare institutions are being reduced or eliminated, one of the outcomes is a decrease in the

availability of clinical rotations for students (Johnson, 1999). This can be caused by institutions decreasing staff and, therefore, fewer students can be supervised due to the increased workloads of staff. In addition, the number of programs and students is increasing, which puts a further strain on clinical resources (Abrams, 1999). When institutions decrease or eliminate clinical rotations for students, program directors must find other sites to provide clinical experiences for students. If acceptable clinical sites cannot be found, then program directors must decrease the number of students who can be accepted to the clinical courses in their programs. Additionally, decreasing or eliminating clinical sites students utilize for clinical courses can have a negative effect on student outcomes due to the limited amount of clinical experiences that can be offered with fewer clinical sites.

Another example of the challenges faced by program directors is the rapidly changing technology. Sparks and Greathouse (2001) state, “maintaining a curriculum that keeps pace with changes in technology and job practices is a significant challenge for accrediting bodies and educational programs” (p. 285). Program directors must remain current in the discipline and be proactive in making changes to the curriculum in order to prepare students appropriately for the current healthcare environment. For example, many institutions are implementing computed radiography in their imaging departments. Film is no longer utilized to perform radiographic examinations. Instead, images are now displayed on high resolution computer monitors. Since the profession is in a time of major transition between these two methods of image acquisition, students must be knowledgeable about both systems. Certification examinations for graduates of radiologic technology programs test on both methods. This presents a great challenge to program directors because there may be few clinical facilities utilized by a program that

can provide students with experience involving traditional film imaging systems. Thus, students must know two systems without gaining much, if any, experience with film. These problems require program directors to use their leadership skills to find appropriate solutions. Program directors must create a vision that will lead and motivate faculty and students to make the changes that are necessary for success.

Those who are program directors, or are considering becoming program directors, need an appropriate avenue through which to develop their leadership skills necessary to fulfill the responsibilities of the position. The changing healthcare environment makes the development of leadership skills of program directors even more critical. Since program directors are trained in clinical practice and not in education, curriculum, or leadership, program directors may become frustrated or overwhelmed by their responsibilities and the challenges of managing an educational program. Armed with the necessary leadership skills, radiologic technology program directors may be more successful in leading their departments to meet the responsibilities and challenges of the position and achieving positive program outcomes.

Transformational and Transactional Leadership

If leadership skills are imperative for a program director, the question becomes, what type of leadership style would be most effective in this environment? Leaming (2002) states, “all leaders, must have a basic set of leadership skills, and they must find ways to create leaders, not followers” (p. 438). A leadership model consistent with that statement is transformational leadership, which is currently one of the most commonly advocated approaches to leadership. In fact, Lucas (1994) suggests that transformational leadership is a model that department chairs should adopt in order to address the challenges of their position.

Bass (1985) defines a transformational leader as

someone who raised their awareness about issues of consequence, shifted them to higher-level needs, influenced them to transcend their own self-interests for the good of the group or organization, and to work harder than they originally had expected they would. (p. 29)

Transformational leadership involves motivating and empowering employees to work toward a common goal. Transformational leaders help followers move beyond the minimum expectation by using charisma, inspiration, intellectual stimulation, and consideration (Bass, 1998). This type of leadership is in line with a participatory style where individuals are provided the opportunity to give input into planning and decisions.

Another type of leadership is transactional leadership, which consists of contingent reward and management by exception (Bass, 1998). According to Rosener (1990), transactional leaders “view job performance as a series of transactions with subordinates—exchanging rewards for services rendered or punishment for inadequate performance” (p. 120). Contingent reward involves a leader who uses rewards or threats in order to get followers to comply with demands or requests of the leader (Bass, 1998). Management by exception involves a leader who identifies errors of followers and takes measures to correct them.

In order to achieve the best outcomes, contingent reward and transformational leadership should be utilized together. For example, transformational leadership has been associated with several benefits including increased satisfaction of followers (Ross & Offermann, 1997) and increased effectiveness (Lowe & Galen Kroeck, 1996). Additionally, transactional leadership has also been associated with effectiveness (Lowe & Galen Kroeck, 1996). Specifically, contingent reward has been positively related to effectiveness. Lowe and Galen Kroeck (1996) suggest that by offering rewards for

desired performance, a transformational leader can increase the likelihood of positive outcomes. Due to the benefits of transformational leadership, the use of these leadership strategies would be beneficial to department chairs. Additionally, transformational leadership skills can be improved through training (Barling, Weber, & Kelloway, 1996). Therefore, leaders can adopt transformational leadership skills and develop those skills through training.

Transformational Leadership in Radiologic Technology

Radiologic technology is currently facing many challenges with which program directors must contend. For example, technology is rapidly evolving—images which were once stored on film are now stored digitally. Additionally, new roles are developing for technologists. Legislation is being introduced to set basic education standards for radiologic technologists (ASRT, 2004a). Program directors must be proactive and have a vision for their program where these and other issues can be adequately addressed. In higher education, transformational leadership is very useful when change is desired (Bensimon, Neumann, & Birnbaum, 2000). In fact, Bass (1998) states, “transformational organizational cultures are more likely to bring about quality improvements” (p. 71). By utilizing transformational leadership, program directors can motivate faculty and students to work toward a common goal and meet the challenges of the changing healthcare environment. Therefore, the utilization of transformational leadership skills may prove to be a successful strategy for program directors to create the necessary changes.

Purpose of the Study

Radiologic technology program directors are just one example of department chairs. This group will serve as an example of department chairs and will provide insight into other healthcare disciplines which share some of the same challenges presented in

the healthcare environment. The purpose of this study was to identify the responsibilities that program directors indicate as most important to their departments and the satisfaction of radiologic technology program directors with their current leadership skills as related to the responsibilities. Additionally, the leadership styles of program directors were identified in order to determine what effect leadership style had on the importance of the responsibilities and satisfaction with leadership skills. The level of importance of each responsibility to the department helped to identify what leadership skills should be developed. For example, responsibilities ranked as most important to a department would be ones initially targeted for leadership development. Additionally, the responsibilities and the level of satisfaction of program directors with their leadership skills are related. The level of satisfaction of program directors with their leadership skills will serve to focus leadership development efforts on those skills that will be of most benefit to a department. Therefore, responsibilities that are most important to the department which program directors have the least satisfaction with their skills would be the first ones a leader should seek leadership development to improve.

This study demonstrated the relationship of program directors' leadership style to their responsibilities and level of satisfaction with their leadership skills in relation to the responsibilities. Different responsibilities will require the use of different leadership skills. Each leader has a specific leadership style and a unique set of leadership skills. Therefore, leaders ranked their satisfaction with their leadership skills as related to their responsibilities based on their leadership style. For example, a leader whose style is transformational might rank his or her leadership skills with faculty affairs high, whereas a transactional leader might rank his or her leadership skills low in relation to this responsibility.

The relationship between the level of importance of the responsibility for a department and the variables of leadership style, program type, institution type, and gender was examined. Additionally, the relationship of the level of satisfaction of program directors with their skills as they relate to the responsibilities and the variables of leadership style, gender, discipline of highest degree, years of experience as a program director, program type, and institution type was evaluated. This information will help to identify areas for potential professional development among leaders in radiologic technology and serve as a model for further study of other disciplines.

Problem Statement

Similar to other higher education program chairs, radiologic technology program directors are required to utilize many leadership behaviors in order to guide their programs. However, the majority of them may not have received formal education to develop their leadership skills. Program directors in radiologic technology must successfully work with faculty and students and contend with accreditation, curriculum, and other administrative issues. Program directors are unique, in that they are involved in a profession which is tightly coupled with technology advancements, where the technology and the healthcare environment are rapidly evolving. Additionally, the level of formal education in their field is extremely variable among program directors. There has been limited study of the leadership skills of program directors or of the responsibilities with which they are faced. Two dissertations related to leadership in the radiologic sciences were identified (Kistler, 1988; Shaver, 2003). Both studies had samples which were limited to specific groups of program directors. Kistler (1988) examined program directors in California and Shaver (2003) examined program directors from associate degree programs. The intent of Kistler's study was to identify areas of

professional development for program directors in California. Shaver's purpose was to determine if there was a relationship between program director's leadership styles and program outcomes, effectiveness, faculty satisfaction, and the willingness of faculty to exert extra effort. Both studies were limited by their sampling strategies and neither study examined the responsibilities of program directors. By identifying the responsibilities most important to radiologic technology programs and the level of satisfaction program directors have with their leadership skills as they relate to these responsibilities, suggestions for professional development of leadership skills that would be most beneficial to program directors can be made. This could provide program directors with targeted programs to improve leadership skills that can be utilized in the operation of their programs. Studies of this nature will be important to add to the body of knowledge for the profession.

Research Questions

This study examined the responsibilities of program directors of radiologic technology programs and was guided by the following research questions:

Research Question 1: Which responsibilities are perceived as most important to radiologic technology program directors?

Research Question 2: With which of their leadership skills are radiologic technology program directors least satisfied?

Research Question 3: How well does leadership style explain program directors' perceived level of importance of their responsibilities?

Research Question 3a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior),

idealized influence (attributed) (transformational factors) explain program directors' perceived level of importance of their responsibilities?

Research Question 3b: How well do contingent reward, active management by exception, and passive management by exception (transactional factors) explain program directors' perceived level of importance of their responsibilities?

Research Question 4: How well do leadership style, discipline of highest degree, program type, and years of experience as a program director explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4b: How well do contingent reward, management by exception (active), and management by exception (passive) (transactional factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 5: Does the level of importance of the responsibilities vary based on gender, institution type (hospital, 2 year, 4 year, or vocational/technical), or due to an interaction between institution type and gender?

Research Question 6: Does the level of satisfaction with program directors' leadership skills as related to their responsibilities vary based on gender, highest

degree completed (baccalaureate, masters, or PhD, EdD), or due to an interaction between highest degree completed and gender?

Research Question 7: How does program type influence the leadership skills utilized by radiologic technology program directors?

Research Question 8: Why have the responsibilities that have been identified as very important to the department received those rankings?

Significance of Study

This study will provide information that will be useful to radiologic technology as well as other allied health professions. Since program directors are program chairs, the insight gained from this study may be applicable to other disciplines, particularly those in the health sciences due to the similarity of these disciplines. Prioritizing the responsibilities of program directors and identifying their level of satisfaction with their skills related to the responsibilities will provide an understanding of the type of leadership skills used to meet the responsibilities. Identifying the leadership skills of program directors will help to create an understanding of which leadership skills are utilized in order meet the responsibilities of the position. This information can then be used to create professional development activities that can improve program directors' leadership skills in areas that are of most importance to the department. Additionally, this study will build on the work of Lucas (1994) to demonstrate the variables that are related to the level of importance of responsibilities in a department and the variables that are related to the level of satisfaction of program directors with their leadership skills. Specifically, the relationship of transformational and transactional leadership to program directors' responsibilities and the level of satisfaction of their leadership skills in relation to their responsibilities will be demonstrated. Thus, this study will add to the

understanding of the responsibilities of department chairs and the leadership skills necessary to meet their responsibilities. By developing the leadership skills that will be most beneficial in responding to the responsibilities of program directors, radiologic technology program directors will be better equipped to meet the challenges of the changing healthcare environment.

Definition of Terms

For the purpose of this study, the following terms are defined:

Joint Review Committee on Education in Radiologic Technology-programmatic accrediting agency for radiologic science programs.

Program director-individual designated by the radiologic technology program to have the leadership role of the program.

Radiologic technology program-a program accredited by the JRCERT whose primary purpose is to teach radiologic technology to students.

Transactional leadership-leadership behavior that utilizes rewards or threats in order to have followers comply with the demands of the leader and includes three factors: management by exception (passive), management by exception (active), and contingent reward (Bass & Avolio, 1999).

Management by exception (passive)-leaders react to a problem after it occurs.

Leaders tend to avoid decisions until forced by circumstances of a problem (Bass & Avolio, 1999).

Management by exception (active)-followers are monitored for errors to correct or prevent problems (Bass & Avolio, 1999).

Contingent reward-the leader provides either positive or negative incentive to followers for performance (Bass & Avolio, 1999).

Transformational leadership-leadership behavior that creates an atmosphere where followers do more than is expected and move beyond their own needs (Bass, 1995). Bass & Avolio (2000) include five factors in their model of transformational leadership: individualized consideration, intellectual stimulation, inspirational motivation, idealized influence (attributed), and idealized influence (behavior).

Individualized consideration-leaders show empathy for followers that is individualized based on the needs of the follower (Bass & Avolio, 1999).

Intellectual stimulation-leaders encourage followers to be creative and examine different perspectives in relation to a problem (Bass & Avolio, 1999).

Inspirational motivation-leadership behaviors that inspire and motivate followers to high levels of achievement (Bass & Avolio, 1999).

Idealized influence (attributed)-the impact of how a leader is perceived that creates an environment where followers become interested in a greater good (Bass, 1998).

Idealized influence (behavior)-behaviors of a leader that role model to followers a clear vision and purpose (Bass & Avolio, 1999).

Laissez-faire leadership-leaders take no action and provide no guidance to followers (Bass & Avolio, 1999).

Chapter Summary

This chapter provided a basic background of radiologic technology and the role of program directors in that profession. Their responsibilities are very similar to program chairs in other higher education disciplines. The purpose of this study is to examine the responsibilities of program directors and their satisfaction with their leadership skills as related to the responsibilities in order to target areas for professional development.

Additionally, this study will examine the leadership styles of program directors in order to learn how those styles are related to the responsibilities and their satisfaction with their leadership skills related to the responsibilities. In the next chapter, the literature related to program chairs, leadership, and transformational and transactional leadership will be discussed to provide a foundation for the study.

CHAPTER TWO

LITERATURE REVIEW

This chapter will present the literature that is related to department chairs and transformational leadership. First, the role of department chairs is discussed, since this is the population that is being examined in this study. Next, a summary of literature related to leadership is presented to provide a historical context for the development of transformational leadership. Transformational and transactional leadership are described at length, including the development of the theory of transformational and transactional leadership, the components of the two types of leadership and a summary of the studies that have been conducted in relation to transformational and transactional leadership. Finally, a discussion of the studies conducted in radiologic technology that are related to leadership is offered. The review of literature is intended to provide a foundation and context for the current study.

Department Chairs

Radiologic technology program directors serve as department chairs of radiologic technology programs. Thus, the literature on department chairs is relevant and useful to describe the roles in which radiologic technology program directors serve. This section will provide a background on the research that has been conducted in relation to department chairs and provide a foundation for the conceptual framework that will be utilized in this study.

Roles and Responsibilities

Department chairs in higher education serve in a role that is multifaceted and critical to the effective functioning of a program. Carroll and Wolverson (2004) state, “typically, mid-career faculty members become chairs, most often motivated by a sense

of duty or a desire to help a department grow and improve” (p. 8). In working to improve a department, chairs must serve in a variety of roles. Tucker (1993) lists 28 roles that a department chair must assume and states “in dealing with various kinds of persons, the chairperson assumes those roles most appropriate to accomplish his or her objectives” (p. 32). He asserts that the responsibilities of department chairs are increasing within institutions. Therefore, chairs are required to have many leadership skills in order to meet the challenges of their role. Since department chairs are called on to fill so many roles, “it will be essential for chairs to have the necessary skills to perform effectively in each of these diverse roles” (Lindholm, 1999, p. 3). Hecht (2004) suggests three important areas of skill development for department chairs: working with groups, making decisions, and managing budgets and resources. Since these are areas that are of great importance to a department, it is critical that the department chair work towards strengthening these skills in order to function most effectively. Bowman (2002) states, “the real work of academic chairs demands a diverse set of leadership capabilities: well-honed communication skills, problem-solving skills, conflict resolution skills, cultural-management skills, coaching skills, and transition-management skills” (p. 162).

Due to the complexity of their role, department chairpersons must find a way to contend with the issues associated with that role. In fact, Del Favero (2003) indicated that the role of department chair is difficult because the chair must serve both faculty and administrators simultaneously. Additionally, Warren (1993) asserts, “dealing with ambiguity and competing principles is a realistic component of almost all campus administrative leadership positions. That is especially true for the department chairperson” (p. 34). Balancing faculty and administrative roles can be very difficult, which requires effective leadership skills to meet the demands of their position. For

example, leading a department requires the leader to provide a vision which will guide faculty and students. Tucker (1993) indicates that many department chairs struggle with whether their primary responsibilities are those of a faculty member or an administrator. In fact, in a sample of over 800 program chairs, Gmelch (1991) found that 60% of program chairs identified themselves as faculty and 23% as administrators. This supports the contention that the role of department chair is ambiguous and difficult to balance with the challenges of the position.

Researchers have provided numerous lists of the roles, responsibilities, and duties of department chairs. For example, Carroll and Gmelch (1994) delineated 26 duties of department chairs and asked a sample of 800 department chairs to indicate the level of importance of these duties within their department. Additionally, this study examined the relationship between the level of importance of the duty and other variables such as gender, discipline, hiring practices, and faculty/administrative orientation. Department chairs in this study ranked duties that affected faculty and the department higher than duties that were more beneficial to the university as a whole. Further, the variables of gender, discipline, hiring practices, and faculty/administrative orientation had very little effect on the rankings of the duties. Finally, department chairs ranked duties in which they were more effective higher than duties in which they were less effective. This study provides some understanding of how department chairs view the duties of their position. And while the variables of gender, discipline, hiring practices, and faculty/administrative orientation had very little effect, other variables that were not examined may have some effect.

Another listing of responsibilities of department chairs is provided by Tucker (1993). Tucker (1993) has delineated eight categories of responsibilities of department

chairs, which help to define their role. These categories include: department governance, instruction, faculty affairs, student affairs, external communication, budget and resources, office management, and professional development. Within each of these categories of responsibilities, duties are described which would be related to the responsibility. For example, department governance includes tasks such as department planning, conducting meetings, accreditation, and establishing committees. Instruction responsibilities involve curriculum issues, scheduling classes, and supervising department examinations. Faculty affairs relates to hiring faculty, assigning faculty responsibilities, evaluating faculty, handling poor faculty performance, and keeping faculty informed. Some of the responsibilities associated with student affairs include recruitment, advising, and working with student organizations. External communication involves issues such as communication with the dean and upper level administration, department correspondence, completing forms and surveys, and serving as a liaison for the department with external agencies. Budget and resources tasks include grant writing, preparing budgets and annual reports. Some of the responsibilities mentioned for office management are maintaining department records, monitoring building security or maintenance, and managing equipment and inventory. The final category, professional development, involves encouraging faculty research, developing faculty talents, and representing the department at professional meetings. Tucker's categories provide a comprehensive delineation of department chair responsibilities. As chair duties increase, the new duties can be easily added to the eight categories of responsibilities.

In another listing of department chair responsibilities, Lucas (1994) delineates nine responsibilities of department chairs. However, these responsibilities are different from the responsibilities identified by Tucker. The responsibilities chosen by Lucas are

related to two roles of department chairs—the leader and the faculty developer. Thus, her list of responsibilities breaks down faculty affairs into smaller units than Tucker and eliminates some areas and categorizes them as administrative tasks rather than responsibilities. Therefore, the responsibilities chosen by Lucas are less comprehensive than Tucker.

To add to the understanding of the responsibilities of department chairs, Lucas (1994) developed a leadership matrix for department chairs to identify their strengths and weaknesses and to prioritize areas for professional development. The matrix involves two rankings of each of the responsibilities. For the first ranking, the department chair indicates the level of importance of the responsibility to the department. Department chairs are asked to rank each responsibility on a likert scale (1=very little importance to department-4=very important to department). For the second ranking, the department chair rates the level of satisfaction with his/her skills as it relates to the responsibility. Department chairs are asked to rank their leadership skills on a likert scale (1=low satisfaction with skills-4=very satisfied with skills). Each of these rankings is then transferred to the leadership matrix (see Figure 1). Responsibilities that fall in quadrant A can then be prioritized for professional development. These will be the responsibilities the department chair should focus on developing first since the responsibility is important to the department and the level of satisfaction with their skills related to the responsibility is low. Quadrant B responsibilities show the strengths of the department chair that are of high importance to the department. Therefore, these are areas for the department chair to maintain. The responsibilities in quadrant C signify areas that are not important to the department and are not strengths of the department chair. Thus, these are areas that can be the last to focus on for development. Finally, quadrant D depicts areas of low

importance to the department but are leadership strengths of the chair. Therefore, these responsibilities do not need to be developed.

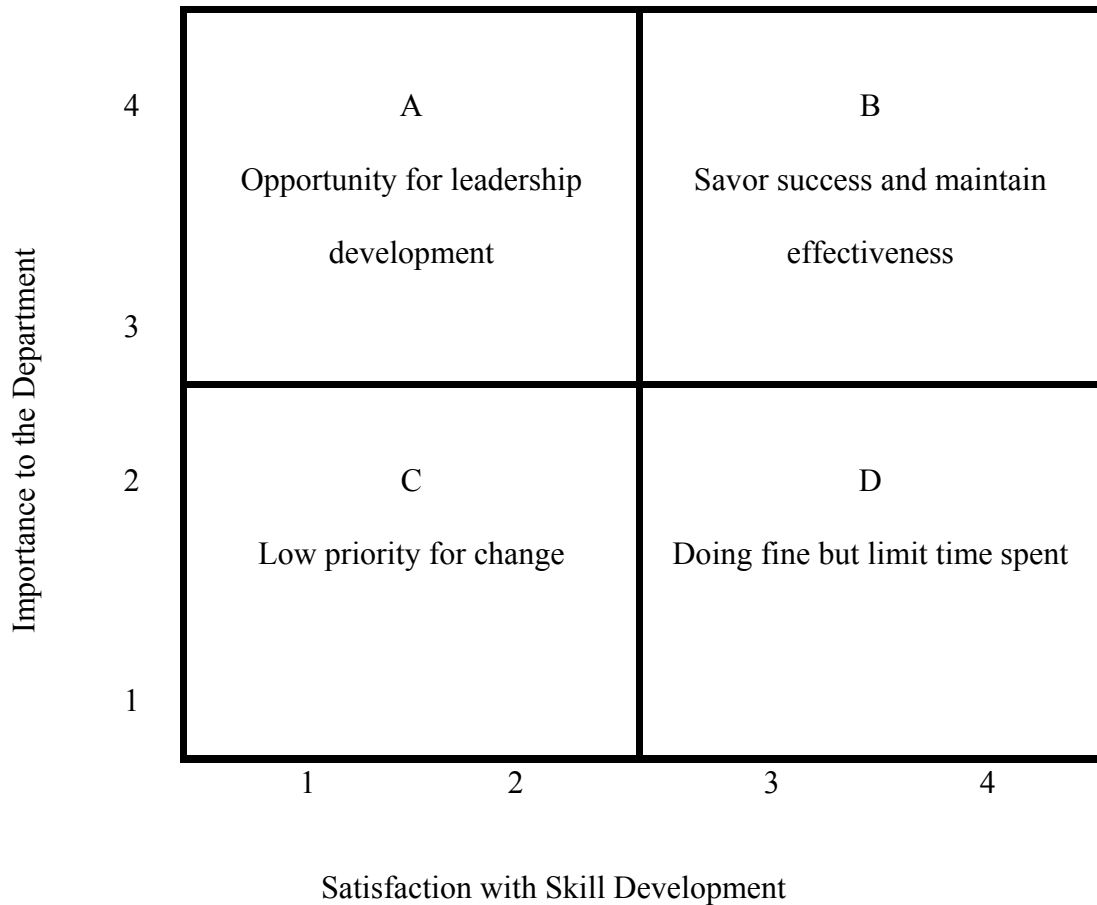


Figure 1: Leadership Matrix (Lucas, 1994)

Tucker (1993) contends that the responsibilities of department chairs will vary depending on the setting, which adds to the ambiguity of the position. Differences in the responsibilities of department chairs can vary, depending on the type of institution

(Lucas, 2000). Seagren (1993) believes,

the roles and responsibilities of and expectations for the chair are all influenced by the type of institution and by differences in methodology and body of knowledge of specific academic disciplines. The chair must recognize how institutional type, history, and culture, model of governance, and discipline can influence what is expected of him or her, in turn determining the most effective strategies to use. (p. 2)

Therefore, the contextual variables will affect the responsibilities of a chair. In fact, Lucas (2000) indicates that the role of department chair not only varies from institution to institution, but also between departments in the same institution. For example, a department chair in an allied health discipline may see external communication as a very important responsibility, since regular interaction with hospital administration in clinical agencies associated with the program is necessary. However, the significance of this responsibility may be less within another discipline such as history.

Further adding to the complexity, department chairs usually rise to this position from a faculty position and do not have administrative experience (Tucker, 1993). This adds to the difficulty associated with this role, since department chairs may not be adequately prepared to handle the administrative and faculty responsibilities associated with the role. Chairpersons are likely to have little administrative experience, but, as indicated by the numerous responsibilities discussed, they need a wide variety of leadership skills in order to be successful.

Stressors of Department Chairs

As one might conclude from the numerous responsibilities and leadership skills necessary for department chairs, there can be a significant amount of stress associated with the position. Gmelch and Burns (1993) conducted a study to determine stressors of department chairs and to investigate if those stressors were different from those identified by faculty. The most common theme among the stressors ranked as most serious for department chairs involved time pressures. Other themes that department chairs indicated as serious were confronting colleagues and organizational constraints. For each of the stressors, the percentage of department chairs indicating it was a serious problem

was higher than the percentage of faculty—signifying the increased pressure of the position.

Another stressor for department chairs is lack of time (Gmelch, 1991; Gmelch & Burns, 1993). Gmelch (1991) identified three professional activities that department chairs felt they had less time to pursue. Those included: research, keeping current in the discipline, and teaching. Department chairs also had less time in their personal life, particularly for leisure time and family. When chairs were asked if they were satisfied with the decrease in time for these activities, the vast majority indicated they were not satisfied. The only exception was for time spent teaching—55% were satisfied with the decreased time spent on this activity.

Since the role of the department chair is complex and stressful, it would seem apparent that different coping strategies would need to be adopted in order to be most effective in the position. Miller and Seagren (1997) conducted a survey of department chairs to identify strategies that were effective in coping with their job challenges. Department chairs were asked to indicate how important a strategy would be in coping with job challenges. Thus, a strategy which was ranked highly indicated a strong agreement among department chairs that the strategy would be effective in coping with a job challenge. Three top ranked strategies dealt with responsiveness to external constituents such as business. These strategies included: program relevance, business and industry partnerships, and monitoring employment trends. Program relevance involves keeping the focus of the program where it is applicable to industry demands. By focusing on these areas, department chairs are providing programs that meet the needs of outside constituents; thus, their graduates' skills are relevant to the demands of the market. Another area of strategies ranked highly by department chairs involved

professional development in order to cope with the demands of the position. By developing their skills, department chairs are better equipped to respond to the challenges of the position. These findings suggest that by addressing strategies related to responsiveness and professional development, department chairs might be more effective in dealing with their job challenges.

To summarize the literature on department chairs, the role is very complex due to the numerous responsibilities and may be affected by contextual variables. The responsibilities of the position require strong leadership skills. In fact, there is a need for strong leadership in this position in order to affect positive changes within the department or program and within disciplines (Lucas, 1994). However, department chairs have little, if any, training for the complex role with which they must contend, which may be a contributing factor in the stress associated with the position.

Leadership

This section will provide a background of the approaches that have been used to study leadership. This review will present the underpinnings for transformational and transactional leadership by describing the different types of leadership research prior to the development of the transformational leadership model. An explanation of transformational leadership and a discussion of research conducted in relation to transformational and transactional leadership will follow.

Although leadership is a topic that has been written about and studied extensively, Burns (1978) states “leadership is one of the most observed and least understood phenomenon on earth” (p. 2). The fact that there are many definitions of leadership indicates that this statement has some significant support. Bass (1990) defines leadership as

an interaction between two or more members of a group that often involves a structuring or restructuring of the situation and the perceptions and expectations of the members. Leaders are agents of change—persons whose acts affect other people more than people's acts affect them. (pp. 19-20)

Tucker (1993) suggests that a leader must have followers and then lead them in a direction to meet a specific goal. Astin and Astin (2000) state that a leader “can be anyone—regardless of formal position—who serves as an effective social change agent” (p. 2). Indeed, department chairs are leaders who must provide direction for their department, faculty, and students, and, as such, require strong leadership skills.

A review of the literature demonstrates a wide variety of approaches that have been used to study leadership. According to Vecchio (1995), leadership has been studied utilizing three paradigms: trait approaches, behavioral approaches, and situational approaches. The following sections are intended to provide a historical context to the study of leadership.

Trait Approaches

Early study of leadership centered on trait approaches, which attempted to identify qualities of leaders (Bass, 1990). Different studies identified numerous traits which were deemed as important qualities for a leader. For example, intelligence has been linked many times to leaders (Vecchio, 1995). Bass (1990) asserts, “it would appear that successful leadership involves certain skills and capabilities—interpersonal, technical, administrative, and intellectual—that enable leaders to be of value to their group or organization” (p. 86). Some traits which have been demonstrated to be associated with leadership are self-confidence, persistence, and determination. The difficulty with the trait approaches was that the list of traits that were associated with leadership seemed to be endless and did not take into account specific situations. Thus,

the results of the trait studies did not demonstrate a consistent group of qualities necessary for a leader and thus this line of inquiry began to lose favor (Vecchio, 1995).

Recently, there has been renewed interest in trait approaches in relation to leadership (Silverthorne, 2001). In fact, Judge, Bono, Ilies, and Gerhardt (2002) conducted a meta-analysis of trait approaches to leadership. Their results indicated that extraversion ($\rho=.31$) was most strongly correlated with leadership across all the studies examined. The authors contend that this finding demonstrates that there may be some merit to trait approaches.

Trait approaches provided a litany of traits that could be linked to leadership. However, the list of traits associated with leaders could be endless and different for each leader and each situation. While there is a renewed interest in traits associated with leadership, there are other approaches which provide a more comprehensive view of a leader.

Behavioral Approaches

The decline of the trait approaches gave rise to the behavioral approaches, which examined the actions of leaders (Vecchio, 1995). Bass (1990) contends that behavioral approaches are still the most popular. For example, the University of Iowa leadership studies used a behavioral approach to determine whether a democratic, authoritative, or laissez-faire style of leadership was most effective in a controlled situation involving boys in after school activities. In this situation, boys in the democratic group were most satisfied and displayed lower aggression than boys in the authoritative group (Vecchio, 1995). The democratic group also produced higher quality items than the other groups.

Another important group of behavioral studies of leadership were the Ohio State Leadership Studies. These studies described two factors related to the behavior of

leaders: consideration and initiating structure. Consideration is described as “the extent to which a leader exhibits concern for the welfare of the other members of the group” (Bass, 1990, p. 511). Initiating structure was described as “the extent to which a leader initiates activity in the group, organizes it, and defines the way work is to be done” (Bass, 1990, p. 512). These two factors captured many aspects of leadership, however, “it was recognized that some important elements might still be missing” (Bass, 1990, p. 543). The Leader Behavior Description Questionnaire (LBDQ) was developed to measure consideration and initiating structure (Bass, 1990). A leader is scored on each of these factors, which is then used to describe their style of leadership. The behavioral approaches were important because they examined the actions and interactions with followers of leaders rather focusing on specific traits. Leaders could then focus on specific behaviors that could be utilized to improve outcomes of the organization. However, as with the trait approaches, the behavioral approaches still did not encompass all aspects of leadership.

Situational Approaches

Vecchio (1995) indicates that researchers realized that the behavioral approaches did not address the contextual issues of leadership. In other words, the specifics of a given situation were not examined in relation to the leaders’ actions. Researchers realized that the situation could dictate which leadership skills should be utilized. Therefore, the next studies conducted to understand leadership took situational approaches. Bass (1990) states, “situational theorists suggested that leadership is all a matter of situational demands, that is, situational factors determine who will emerge as leader” (p. 38). One situational approach to leadership is Fiedler’s contingency model, which has been “the most widely researched model on leadership” (Bass, 1990, p. 494).

This theory examines the leadership style of the leader and the situation. The leadership style is measured utilizing the Least Preferred Coworker (LPC) scores (Vecchio, 1995). The rater is asked to score an individual whom they consider to be their least preferred coworker. The least preferred coworker is an individual with whom the rater presently or in the past has had great difficulty in their working relationship. An individual who gives higher marks to their least preferred coworker would be considered relationship oriented and will perform well in a situation which is favorable to them (Bass, 1990). These individuals are more motivated by having positive work relationships. Conversely, a low LPC score, which is consistent with lower marks for the least preferred coworker, is indicative of an individual who is less relationship oriented and works best in situations which are very favorable or unfavorable to the individual. Low LPC individuals are motivated by accomplishing a task rather than by relationships.

Situational favorableness is based on: the relationship between the leader and the followers; the type of task to be performed; and the power the leader has in the position (Vecchio, 1995). Therefore, in a favorable situation, the leader and members would have a good relationship, the task would be clearly defined, and the leader would be in a position that has the power to reward or punish subordinates; whereas, an unfavorable situation might involve a poor relationship between the leader and the followers. High and low LPC individuals are more effective in different situations. This model still leaves some unanswered questions regarding why some leaders are better in some situations than others.

Another situational approach is the path-goal theory. This approach suggests “leaders can affect the satisfaction, motivation, and performance of group members in several ways” (Vecchio, 1995, p. 368). A leader creates a “path” in order for followers to

achieve “goals”. In order to create the paths to achieve the goals set forth, a leader will utilize different styles of leadership depending on the situation which is present.

Hersey, Blanchard, and Natemeyer (1979) also presented a situational model to leadership. Their model suggests that a leader should utilize different leadership strategies depending on the level of maturity of follower (Bass, 1990). A follower with a low maturity level would require a directive form of leadership and a more mature follower could function under a delegating form.

The situational approaches all focus on various aspects of a particular situation. These approaches suggest that the situation dictates what type leadership is necessary to be effective. However, as with the trait and behavioral approaches, the situational approaches do not take all aspects of leadership into consideration. By concentrating on situations, these approaches lose sight of the characteristics of the leader.

Leadership Development

The approaches to the study of leadership lead to the question of whether or not leadership can be developed. To some extent, leadership is something that is part of an individual’s genetic make-up and life experiences (Avolio, 1999; Bass, 1990). However, there are methods that can be utilized to develop leadership skills in individuals.

Developmental issues are one set of factors that influence leadership (Bass, 1990). Studies have examined family influences, birth order, family size, treatment by parents, childhood and adolescent leadership opportunities, and other factors related to the development of leadership. Some of these factors have been demonstrated to have a positive relationship to the development of leadership. For example, individuals who are either first born or last born in a family tend to emerge as leaders. However, this factor alone may not be a strong indicator of leadership. The size of a family has also been

linked to leadership. Individuals from larger families tend to develop as leaders. Parents also can have a great effect on the development of leadership. Individuals with parents who allowed them to participate in decision making developed leadership skills. Additionally, individuals who were given opportunities to take risks and make mistakes, develop leadership skills from these experiences. All of these experiences provide individuals with a better understanding of how to interact with others and approach problems. Another factor associated with the development of leadership skills are opportunities in childhood and adolescence to practice as leaders. Extracurricular activities such as team sports and other group activities foster the development of cooperation and social interaction skills that are useful in learning leadership.

Education can also have a positive impact on the development of leadership (Bass, 1990). Secondary and higher education institutions have made efforts to educate individuals in leadership. There are also continuing education programs and workshops that have the aim of leadership development. Thus, training can positively affect leadership development.

Bass (1990) contends,

whatever the education or training effort, its effectiveness in improving leadership performance depends first on identifying what needs improvement and then on demonstrating or helping the trainee or student discover how to change his or her perceptions, cognitions, attitudes, and behavior. (pp. 817-818)

Therefore, in order to focus leadership development to those skills which will be most appropriate for an individual, the specific needs of that person must be identified.

Leadership training can be conducted in a variety of formats, including: lecture, discussion, role play, and computer-based instruction. Positive effects from leadership

training depend on the willingness of an individual to change behaviors and opportunities to apply leadership skills in real-life settings.

As this review outlines, the study of leadership has progressed through three major paradigms: trait, behavioral, and situational approaches and leadership can be developed through training. Each of the paradigms describes some aspects of a leader, but none are comprehensive or capture the complete essence of leadership. For example, behavioral approaches provide an understanding of the typical actions of a leader, but do not account for different situations that leaders may face. As such, a combination of these approaches may offer a more complete picture of a leader. In fact, Hunt (1999) suggested that in the 1970s and 1980s the study of leadership had become static. Then, transformational leadership was introduced and created a new interest in the study of leadership (Hunt, 1999). Bass (1990) states, “transformational leadership is closer to the prototype of leadership that people have in mind when they describe their ideal leader” (p. 54). The description of a transformational leader provides a comprehensive view of leadership that can apply to any setting. The following sections describe transformational leadership and the research that has been conducted in relation to the theory.

Transformational and Transactional Leadership

Currently, transformational and transactional leadership are one of the most common approaches to the study of leadership. The transformational and transactional leadership model has been widely studied and transformational leadership has been linked to positive employee behaviors and work unit effectiveness. Therefore, these leadership practices can be useful for department chairs to adopt. Transformational leadership is a hybrid leadership theory blending trait and situational approaches to understand leadership (Bass, 1990). Bass (1997) contends that transformational and

transactional leadership are universal and can, therefore, be observed in all organizations and cultures. Numerous studies examining transactional and transformational leadership have been conducted in a wide variety of organizations and in numerous countries. The evidence from these studies indicates that transformational leadership is identified universally except in extreme contexts where the relationship of the leader and followers is unimportant.

Hunt (1999) posits that the advent of transformational leadership theory created a renewed interest in the study of leadership. Research that was conducted by scholars in relation to transformational leadership was accepted by those who practiced in management because the description of transformational leadership more closely depicted what practitioners viewed as leadership from their experiences. Thus, transformational leadership presented an approach that is realistic to individuals—one which describes leadership in terms that relate to leaders that one has encountered.

The first description of transformational leadership was provided by Burns. Burns (1978) conceptualized leadership on a continuum with transformational on one end and transactional on the other. He felt that most leaders were transactional, in which there is an exchange between leaders and followers, whereas transformational leadership involves leaders having a relationship with followers through which they inspire and motivate them to reach their full potential. In the early 1980s, Bernard Bass read Burns' work and began his own study of transformational and transactional leadership (Bass, 1995). Bass conducted many studies and eventually developed the Multifactor Leadership Questionnaire (MLQ) to measure transformational and transactional leadership. From Bass' early work, transactional leadership was conceptualized as an exchange of rewards for positive performance. Transformational leaders were able to get

followers to do more than was expected and put the organizational needs above their own needs (Bass, 1995). He contends that transformational leaders are not rare and that everyone has had interactions with leaders who possess these qualities.

Bass began to try to measure transformational and transactional leadership with the Leader Behavior Description Questionnaire (LBDQ)(Bass, 1995). This proved to be unsuccessful since the instrument did not distinguish between transformational and transactional leaders. The lack of success with the LBDQ motivated Bass to develop his own instrument to measure the concepts.

One primary difference in Burns' and Bass' conceptualization of transformational and transactional leadership is that Bass did not view these two constructs to be at opposite ends of a continuum. In fact, Bass (1995) posits that leaders can utilize both forms of leadership and should do so in order to be most effective. Different situations require different leadership approaches. This supports the hybrid nature of transformational leadership—consisting of trait and situational approaches. Specifically, different situations will require different types of leadership. Thus, a leader will need transformational and transactional skills in order to use both effectively. Additionally, leaders have common traits and behaviors that can be linked to leadership. Thus, this leadership approach does what trait, behavioral, and situational approaches do not do alone—transformational leadership can provide a comprehensive view of leadership by recognizing not only the traits of leaders, but also acknowledging the situational aspects of leadership.

Transformational leaders create an atmosphere where followers are compelled to be more productive and move beyond their own needs (Bass, 1995). Transformational leadership is a leadership style that can be applied to any setting. In higher education,

leaders face numerous situations in which transformational leadership would be appropriate. This clearly relates to radiologic technology program directors. Radiologic technology program directors are in a profession that has rapidly changing technology, cyclical periods of workforce shortages and gluts, and a constantly changing healthcare environment. In order to contend with these and many other challenges, one approach which could be adopted is that of transformational leadership. Transformational leadership creates an organizational culture that is adaptive to the environment (Bass, 1998). Therefore, this approach could be utilized to create an environment where the change that is necessary for success is possible.

Factors of Transformational and Transactional Leadership

Transformational and transactional leadership are further conceptualized by examining the factors derived from factor analysis associated with each as discussed in the literature. An understanding of the factors that comprise these leadership behaviors forms a foundation on which skills to increase effective leadership strategies can be built. The following section outlines the factors related to transformational and transactional leadership and presents the model which encompasses all of the factors.

Bass (1998) describes transformational leadership as having four main factors as determined from factor analysis: charisma, inspiration, intellectual stimulation, and consideration. The first factor Bass (1995) described was charisma. Charismatic leaders create an atmosphere where followers want to imitate the leader. They serve as role models that are “admired, respected, and trusted” (Bass, 1998, p. 5). Charisma is broken down into attributed charisma and behavioral charisma (Antonakis & House, 2002). Attributed charisma refers to how a follower perceives a leader’s power and confidence, whereas behavioral charisma refers to specific behaviors the leader displays related to

their mission and vision. Charisma is now referred to as idealized influence (Bass & Avolio, 2000). According to Bass (1998), charisma and inspiration go hand in hand. Transformational leaders motivate followers by providing enthusiasm for the goals that have been set. By sharing goals and expectations, leaders can inspire followers to work as a team to meet the goals of the organization. Transformational leaders also provide intellectual stimulation by encouraging creativity, new ideas, and looking at problems in a unique way. Additionally, mistakes are not criticized with others present—instead, followers’ suggestions are considered in order to solve problems (Bass, 1998). Finally, these leaders show consideration for followers. Bass (1998) states, “transformational leaders pay special attention to each individual follower’s needs for achievement and growth by acting as coach or mentor” (p. 6). Consideration can be either positive or negative feedback, both of which are intended to help the follower grow (Avolio & Bass, 1995). All of these characteristics help to form the basis for transformational leadership.

Transactional leadership also has several factors as identified from factor analysis: contingent reward, management by exception (active) and management by exception (passive) (Bass, 1998). Contingent reward is the most easily recognizable and most positive of these factors. With this type of leadership, the leader provides some sort of incentive, whether it is positive or negative, to followers for their behavior. For example, a faculty member who agrees to take a heavier teaching load than normal may be rewarded by receiving a less strenuous schedule the following term. Management by exception involves close supervision of followers and is considered to be more negative than contingent reward (Bass, 1998). Followers who do not follow procedure or make errors will be corrected. Management by exception can be either active or passive (Avolio, Bass, & Jung, 1999). With active management by exception, followers are

monitored in order to correct or attempt to prevent problems, whereas with passive management by exception, the leader waits for problems to occur and then takes action to correct them. Passive leaders only react when a problem is so large that they must take action. These types of leaders try to avoid making decisions until forced by the circumstances of a problem.

Finally, there is laissez-faire leadership. This form of leadership is a lack of leadership—the leader takes no action and does not provide any guidance to followers. Antonakis and House (2002) state, “these types of leaders avoid taking positions or making decisions, and abdicate their authority” (p. 10).

All of the factors of transformational, transactional, and laissez faire leadership are encompassed in the Full Range of Leadership Theory (FRLT). According to the FRLT, leaders demonstrate all of these leadership styles to some degree (Bass, 1998). An optimal leader will rarely display laissez-faire leadership, moderately display transactional characteristics, and most often demonstrate transformational leadership.

Effects of Transformational Leaders

There has been considerable research conducted in relation to transformational and transactional leadership. Much of this research associates transformational leadership with positive outcomes. For example, in an early study of transformational leadership, the relationship of the behavioral constructs of initiation and consideration and follower outcomes was examined (Seltzer & Bass, 1990). This study demonstrated that transformational leadership, as measured by the MLQ added to the variance explained by initiation and consideration. Additionally, transformational leadership had a positive impact on the effectiveness of the leader and the followers’ satisfaction. Therefore, transformational leadership adds to the understanding of leadership beyond

the constructs of initiation and consideration. One criticism of the behavioral constructs of initiation and consideration is that it did not fully describe leadership (Bass, 1990). Since transformational leadership provides information regarding leadership beyond the behavioral constructs of initiation and consideration, a more complete description of leadership is given. The study of transformational leadership has taken many directions. The following sections summarize some of the research conducted in relation to this concept of leadership and the positive relationship with followers and other leadership outcomes.

One positive effect of transformational leadership that has been identified is follower satisfaction and trust (Podsakoff, MacKenzie, & Bommer, 1996; Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Podsakoff, MacKenzie, and Bommer (1996) collected data from 1539 employees in different organizations regarding the effects of transformational leadership. The results of the study demonstrated that transformational leadership was positively related to employee satisfaction and trust. In another investigation, Podsakoff, MacKenzie, Moorman, and Fetter (1990) had similar findings. In this study, 988 employees were surveyed regarding the transformational and transactional leadership behaviors of their leaders. The results of the study suggested that transformational leadership behaviors were positively related to employee satisfaction and trust. Additionally, transactional leadership behavior, specifically contingent reward had no effect on employee satisfaction and trust. Combined, these studies provide significant support for utilizing transformational leadership behaviors to positively impact employee satisfaction and trust.

There have also been studies of transformational leadership and personality traits (Judge & Bono, 2000; Ross & Offermann, 1997). Ross and Offerman (1997) collected

data from 4200 cadets in the U.S. Air Force regarding the transformational leadership behaviors and personality of their squadron leaders. The results of the study indicate that transformational leadership was positively related to feminine attributes, pragmatism, and nurturance. Additionally, there was a negative relationship between transformational leadership and the personality attributes of criticalness and aggression. These findings are consistent with one of the constructs of transformational leadership—consideration. When a transformational leader displays consideration, it would be expected that nurturance would be identified. It would also hold true that there would be a negative relationship between consideration and criticalness and aggression. The study also demonstrated that transformational leaders' followers were more satisfied than followers of other types of leaders. In another study of traits related to transformational leadership, Judge and Bono (2000) found agreeableness, extraversion, and openness to experience positively correlated to the construct. For this study, a sample of participants and alumni of a leadership program were asked to complete a personality survey. Additionally, employees of the participants and alumni were asked to complete a survey regarding the transformational leadership behaviors of these leaders. Of the three personality traits which were determined to be positively related to transformational leadership, agreeableness showed the strongest relationship. The authors of this study contend these traits may be useful in selecting transformational leaders.

Another benefit of transformational leadership is related to the effectiveness of the leaders. Transformational leadership has been linked to effective leadership, but transactional leadership is also necessary in certain situations (Lowe & Galen Kroeck, 1996). The results of Lowe and Galen Kroeck's (1996) meta-analysis indicate that the transactional component, contingent reward, has a positive relationship with employee

perceptions of effectiveness. This was found primarily in public organizations. Specifically, the contingent reward component of transactional leadership is most important in regard to leadership effectiveness. Bass (1995) asserts “the best leaders are both transformational and transactional” (p. 474). Hater and Bass (1988) found that leaders who were rated as more effective had higher transformational leadership scores than leaders rated as less effective. In this study, 54 leaders were evaluated utilizing the MLQ by 362 subordinates regarding the leadership behaviors of the leaders. The leaders who were selected for the study were a combination of top performers and ordinary managers. The top performers had higher transformational leadership ratings than did the ordinary managers. Additionally, those leaders who had higher transformational ratings also had higher subordinate satisfaction ratings and work unit effectiveness ratings.

In addition, research has demonstrated that transformational leaders tend to have more committed followers than transactional leaders (Bass, 1998). This is achieved through charisma and inspiration of the followers. Bass also contends that different situations call for different types of leadership. Both transformational and transactional can be effective, depending upon the situation. Bass indicates that stronger, more stable organizations are better suited for transformational leadership. Since transformational leadership is a hybrid model of leadership, it would be expected that there would be situational components in the model. Thus, different organizations may be better suited to transformational leadership than others. Additionally, the trait portion of the model would help to explain why transformational leaders are associated with certain traits, perceived to be more effective, and evoke follower trust and satisfaction.

Transformational leaders have been found in educational settings as well. Kirby, Paradise, and King (1992) conducted a mixed methods study to examine transformational

leadership in educational settings. The study utilized a sequential QUAN/QUAL design using the MLQ for the quantitative data and interviews for the qualitative data. The intent of the interviews was to explain the quantitative data and examine aspects of leadership beyond those measured by the MLQ. The results of the study indicate that transformational leadership was positively related to perceptions of leader effectiveness and follower satisfaction. In particular, the transformational factor of intellectual stimulation had a positive correlation with effectiveness and satisfaction. Additionally, the factor of individualized consideration was positively related to effectiveness. This study demonstrated the use of transformational leadership by educational leaders and the benefit of a mixed methods approach to the study of leadership.

Leaders can increase their transformational leadership skills through training. This is a critical consideration in determining whether to utilize this leadership model in an organization. To demonstrate this concept, Barling, Weber, and Kelloway (1996) conducted a pretest-posttest experiment. Managers were placed in two groups—a control group and an experimental group. Both groups completed the MLQ. The experimental group then received training on transformational leadership consisting of a one day workshop and additional personalized sessions designed to aid in implementing strategies learned in the workshop. A posttest was administered to both groups. Results indicated that managers who received training through leadership workshops did increase their transformational leadership skills. This supports the notion that transformational leadership can be learned. Therefore, transformational leadership skills can be taught to individuals as an effective leadership style to adopt.

Transformational leadership has a positive effect on follower satisfaction and trust (Podsakoff, MacKenzie, & Bommer, 1996; Podsakoff, MacKenzie, Moorman, & Fetter,

1990) and on the overall effectiveness of the leader (Hater & Bass, 1988; Lowe & Galen Kroeck, 1996). In order to create an environment with increased follower satisfaction and trust and improved work unit effectiveness, educational leaders should consider utilizing transformational leadership. Since transformational leadership skills can be increased through training (Barling, Weber, & Kelloway, 1996), even leaders who are not strong transformational leaders can develop those skills.

Radiologic technology program directors are in a profession that would benefit from the use of transformational leadership. The challenges of the evolving healthcare environment necessitate the need for change. Transformational leadership creates an organizational culture that is adaptive to a changing environment (Bass, 1998).

Therefore, transformational leadership could be adopted to meet the challenges that radiologic technology program directors face. Those skills could then be used to better meet the responsibilities of their positions. For example, transformational leaders utilize charisma, motivation, intellectual stimulation, and consideration. The use of these skills will create an environment where faculty are encouraged to share new ideas that can be implemented to meet the challenges of the ever changing healthcare environment. After faculty members have developed ideas, they will hold a shared vision for the department. The program director can then use his or her transformational leadership skills to inspire individuals to work toward achieving these goals. In order to increase the transformational leadership skills of program directors, implementation of transformational leadership training could meet this need.

Gender and Transformational Leadership

Gender is a topic that has been studied extensively in relation to leadership in general and to transformational and transactional leadership. Since radiologic technology

is a profession that is predominantly female (71.8%) (Bureau of Labor Statistics, 2005), the role that gender can play in relation to transformational and transactional leadership should be examined. Women's and men's leadership styles have been shown to be quite different. Studies have shown women's leadership styles to be more interpersonal, participatory, democratic, and transformational than men (Eagly & Johannesen-Schmidt, 2001; Eagly & Johnson, 1990; Rosener, 1990). Most often men's leadership styles have been shown to be more autocratic, hierarchical, and task oriented or transactional than that of women (Eagly & Johannesen-Schmidt, 2001; Eagly & Johnson, 1990). In a recent meta-analysis conducted by Eagly, Johannesen-Schmidt, & Van Engen (2003), women's leadership styles were shown to be more transformational than men's. In addition, women also demonstrated more contingent reward behaviors of transactional leadership than men. Both of these behaviors have been associated with effective leadership. It is important to note, however, is that the effect sizes of the differences between males and females were small ranging from $d=0.05$ to $d=0.27$.

Rosener (1990) found similar findings in a study on the leadership styles of women. Data were examined which was obtained from a survey conducted by the International Women's Forum. The findings from this survey demonstrate that women have different leadership styles from men, in that men tend to be transactional leaders and like to use their position and authority, while women are more likely to be transformational leaders and believe their power comes from personal characteristics. Women were then interviewed to examine their leadership styles. These women described their style as one that incorporated participation and encouraged others to succeed. Overall, these women did not use formal authority as men did. Jablonski (1996) also performed a qualitative study on women in leadership, in particular on

women college presidents. Seven presidents and 35 faculty members from those campuses were interviewed for the study. Just as in Rosener's study, the presidents described themselves as participatory leaders who liked open communication and collaboration, which is a significant factor in transformational leadership.

Bass (1998) contends women tend to have more transformational leadership characteristics than men. This is primarily because women tend to demonstrate more caring attitudes than men do. In fact, Bass, Avolio, and Atwater (1996) found in three separate samples that women were rated as more transformational than men. Women were also reported to utilize passive leadership styles less often than men. However, the effect sizes for the differences found were small.

Carless (1998) conducted a study to examine if the rater had any effect on whether an individual was rated as a transformational leader. The study demonstrated that superiors rated female managers as more transformational than male managers. Additionally, female managers rated themselves as more transformational than male managers. However, subordinates of the same managers did not show the same effect and rated males and females similarly. The difference in the ratings suggests that the perspective of the rater should be considered when examining the results of transformational leadership measures.

However, there is opposition to this view of women as more successful leaders. Vecchio (2002) argues that many of the studies related to gender and leadership have flawed conclusions. In fact, he states,

In summary, it has not been demonstrated that either sex is clearly advantaged with respect to operating as a leader. Strong claims of masculine or feminine advantage do not have data to support them. While the behaviors of the sexes differ stylistically, the overlap of the two groups should not be ignored in favor of claims based on small mean differences in these distributions. (p. 655)

Therefore, any difference in leadership behavior based on gender should examine the effect size of the difference in order to draw reasonable conclusions.

There are some studies that did not find any difference in transformational and transactional leadership based on gender. Maher (1997) conducted a study involving gender and transformational and transactional leadership that did not illustrate any difference in transformational leadership based on gender. The author contends that stereotypes may be responsible for differences demonstrated in other studies.

As is demonstrated by these studies, there are discrepancies as to whether gender plays a role in leadership behavior and effectiveness. There are quantitative and qualitative studies that support a difference between males and females. Most effect sizes have been shown to be small for the differences found in the studies. Therefore, while there may be some difference, how important this difference is, is not clear.

Critiques of Transformational Leadership

While there are many positives associated with transformational leadership, there have also been some criticisms of the approach. Hunt (1999) examined the development of transformational leadership from a historical perspective. He contends that a construct must go through three stages in its development: introduction, evaluation, and consolidation. According to his assessment of transformational leadership, it is currently in phase two, evaluation. In this stage, a construct is tested and changed based on findings of the research conducted. This would appear to be accurate due to some of the criticism of transformational leadership. For example, Boas (1999) indicates that some of the constructs of the theory are ambiguous and overlap. In fact, several studies examining the factor structure of the Multifactor Leadership Questionnaire, which is used to measure transformational and transactional leadership have shown that some of the

factors overlap (Bycio, Hackett, & Allen, 1995; Hartog & Van Muijen, 1997; Tejada, Scandura, & Pillai, 2001; Tepper & Percy, 1994). In response to these criticisms, the MLQ has been revised several times since its original conception. Antonakis, Avolio, and Sivasubramaniam (2003) have answered these criticisms by re-examining the factor structure of the current version of the MLQ—the MLQ Form 5X-Short. The results of their study add further support to the factor structure of the MLQ and therefore, indicate that the instrument is valid and reliable. Additionally, Antonakis and House (2002) state, “there are ample theoretical arguments and empirical results to support the validity of the FRLT” (p. 27). However, there have been suggestions that researchers utilize additional methods to confirm the findings of the surveys (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio, Bass, & Jung, 1999). Bass and Avolio (2001) indicate that confirmatory factor analysis was used to establish the convergent and discriminatory validity of the scales of the MLQ-5X. The goodness of fit index was 0.91 for the nine factor model which is higher than the 0.90 that is recommended. Additionally, alpha reliability coefficients for each of the factors range from 0.74 to 0.94.

Antonakis, Avolio, and Sivasubramaniam (2003) state, “any survey can at best tell what a leader is doing, but it cannot explain why” (p. 286). One method to answer the criticism and support the data derived from the MLQ would be to utilize an additional source of data. In fact, Berson (1999) took this approach by conducting a mixed methods study to evaluate the usefulness of using qualitative methods (interviews) to support and enhance quantitative methods (MLQ). He concluded that qualitative methods provided a better understanding of quantitative results as well as providing additional information not provided from quantitative data.

In fact, Conger (1998) indicates that qualitative studies of leadership are seldom conducted and when they are, they do not provide adequate detail in the investigation of leadership. One shortcoming of a qualitative investigation is the large amount of data that must be organized. However, the benefit of the rich data that is generated outweighs this drawback. Therefore, by collecting qualitative data, a better understanding of transformational leadership and how it relates to radiologic technology program directors' responsibilities can be gained. Qualitative data can help to explain why leaders choose leadership behaviors in specific situations. Additionally, qualitative data can add support and confirm quantitative results.

Leadership Skills of Department Chairs

Due to the constant change in higher education, leaders, including department chairs, need to be prepared to meet the challenges of the future with strong leadership skills. The need for strong leadership skills is a common theme in literature related to department chairs. Lucus (1994) states, "when departmental leadership is strong, the climate exudes excitement and enthusiasm about the work in which the department is engaged" (p. 45). Diamond, Gardiner, and Wheeler (2002) discuss several characteristics that a higher education leader should possess. They suggest that leaders should have a vision, support collaboration, utilize data, and encourage professional development. Sharing a vision for the future is essential for leadership. Without sharing a vision, faculty, students, and any other individuals affected by a program would not be able to understand the goals for that program, and, therefore, be unable to assist in reaching those goals. By sharing the vision for a program, a leader can receive input from those who will be involved with the project and, thus, gain their support in achieving the goals.

Another important concept that leaders should embrace is that of collaboration. Collaboration helps faculty and students feel like a part of the program (Diamond, Gardiner, & Wheeler, 2002). Rather than being reactive, leaders play a proactive role in changes that are made by listening to the ideas of others. For example, when sharing the vision the leader has for the program, the leader can utilize ideas from faculty and students to make them a part of the process. This will create a vision that everyone can more readily support since all parties played a role in creating the vision.

An additional skill that leaders should develop and utilize is using data to improve a program. Data can help to identify deficiencies and illuminate strategies that might be successful for improvement. If data is collected and not analyzed or utilized to affect positive change for a program, then the collection of the data serves no purpose. There are many ways that data can help a leader in identifying areas for improvement. For example, data can be collected related to student learning outcomes and be analyzed to identify areas within a curriculum that can be strengthened.

Finally, professional development is not only important for faculty and staff, but also for the leader (Diamond, Gardiner, & Wheeler, 2002). Since the skills of department chairs vary widely, there is often a need for leadership development (Filan, 1999; Smith & Stewart, 1999). Gillett-Karam (1999) describes a training program for department chairs that was designed to help develop the skills necessary for the position. Leadership training was one of the key components of the program. The professional development program is intended to better prepare chairs for their leadership role within the department and institution. Gmelch (2004) indicates that department chairs can acquire leadership skills through lectures and workshops, but it is also necessary for there to be application of the skills that are learned. Being able to utilize the skills in department

chairs' jobs helps to improve skills. Lucas (2000) suggests that department chairs must be committed to their own professional and personal development in order to be most effective and successful. By targeting their leadership skills for improvement, the leader may learn more effective strategies for long range planning or handling conflict among faculty. This will provide the leader with skills that can improve their effectiveness. While these skills can be utilized by any leader, they are especially applicable to department chairs since their leadership development is usually limited.

Other research on department chair leadership has identified some strategies which may be effective for leading a department. For example, in a study comparing U.S. and Australian department chairs, there was a great deal of similarity of the roles of department chairs (Wolverton, Gmelch, Wolverton, & Sarros, 1999). In this study, department chairs from the United States and Australia were surveyed regarding the importance of and their effectiveness in the tasks they perform. In most regards, the two groups of department chairs shared a similar vision of their role as department chair. One difference between the two groups involved leadership. Chairs in the U.S. considered getting input from others in the department as one of the leadership tasks of a department chair, whereas, Australians viewed soliciting input as an administrative task. The authors speculate that U.S. department chairs have a more collaborative perspective than the Australians. The Australians may not view faculty input as important due to an unwillingness to allow faculty to be involved in decisions affecting the department or protecting faculty time for teaching and research endeavors. Wolverton, et al. (1999) felt that this difference "may stimulate overall department productivity" (pp. 348-349) for U.S. departments by utilizing a wider variety of ideas through faculty input.

In another study, Leftwich (2001) conducted a study of transformational leadership of North Carolina community college department chairs. This study examined department chairs that had been identified by their administration as “exceptional” during a major change. A survey of the department chairs and their faculty was conducted to determine the department chairs’ transformational leadership behaviors. The performance or outcomes of the exceptional chairs was not studied—only their leadership behaviors were examined. Twenty-seven department chairs participated in the study and were found to be ethical, confident, had good relationships with faculty, and were good implementers of change. All of these behaviors are indicative of transformational leaders. The transactional leadership factors were not explored in this study. Although the sample size for this study was small, the findings of this study indicate that transformational leadership is a positive leadership style for leaders who are faced with change. In fact, Lucas (1994) posits that transformational leadership provides an excellent model for department chairs that can be applied to the responsibilities with which they are faced. Transformational leadership would be useful because it is positively related to follower satisfaction and trust, and work unit effectiveness. Followers are inspired by transformational leaders to work harder to achieve goals. It is important in radiologic technology programs that faculty be inspired since the changing healthcare environment demands that programs meet the needs of the environment. This requires change and innovation from radiologic technology programs which comes from faculty input and implementation. Thus, this type of leadership would be useful for department chairs in radiologic technology.

Department Chair Satisfaction with Leadership Skills

Since the leadership skills of department chairs are important to the effective function of a department and positive outcomes, some researchers have examined department chairs' satisfaction with their leadership skills in relation to the responsibilities of the position (Carroll & Gmelch, 1994; Lucas, 1994). Carroll and Gmelch (1994) collected data from 539 department chairs regarding the importance of the duties of their position and their effectiveness with each of the duties. In this study, department chairs identified duties which they were most effective as the duties that were most important to the department. While this study did not specifically address satisfaction, department chairs who rate themselves as effective in relation to a duty could be considered "satisfied" with their skills in relation to the duty as well.

Lucas (1994) developed a leadership matrix to determine the level of importance of department chair responsibilities to the department and department chair satisfaction with their skill development in relation to the responsibilities. The ratings are used to identify areas for professional development of department chairs. The degree of satisfaction is the department chair's perception of their skills. Lucas (1994) suggests that department chairs also have their deans and faculty perform the same evaluation of the department chair in order to provide feedback to the department chair. This opens the lines of communication and gives the department chair an opportunity to view others' perspectives of their skills.

Carroll and Gmelch (1994) and Lucas (1994) used the satisfaction ratings in different ways. Carroll and Gmelch (1994) used the ratings to determine a relationship between department chairs' ratings of the level of importance of responsibilities and their effectiveness. Lucas (1994) utilized the ratings to identify areas for professional

development. Both of these applications are beneficial and could be used to provide a better understanding of department chairs. Combining the approaches of Carroll and Gmelch (1994) and Lucas (1994) would provide information regarding the relationship between the level of importance of responsibilities in a department and the level of satisfaction of program directors with their leadership skills as they relate to the responsibilities, as well as demonstrate potential areas for leadership development.

Leadership in Radiologic Technology

After extensive review of the literature related to radiologic technology, two studies were identified that related to leadership. Both studies were dissertations, but were conducted utilizing different leadership approaches. The earliest study was limited to one state and the later study involved a national sample. Therefore, the generalizability of these studies to the population of program directors will vary based on the samples utilized in each study. Details of the two studies are discussed in the following sections.

One leadership study in radiologic technology was conducted by Kistler (1988) in which the leadership behaviors of program directors in California were examined. The Leadership Behavior Description Questionnaire (LBDQ) was utilized for this quantitative study. The LBDQ does not identify leaders as transformational or transactional; rather, it identifies the behavioral constructs of initiating structure and consideration of a leader using 12 subscales.

This study identified a difference in how program directors perceived their leadership behavior as compared to the ratings of their faculty (Kistler, 1988). Program directors rated their leadership behaviors higher as measured by the LBDQ than did their faculty. Only two types of radiologic technology programs were surveyed in the study:

associate and certificate. The overarching intent of the research was to identify behaviors that could be developed further in the program directors. Recommendations were made based on these ratings for professional development activities to improve program directors' leadership abilities. However, interviews with the program directors regarding specific job skills that related to the leadership behaviors needing improvement were not conducted. The examples provided were based on the author's own knowledge of the position. Interviews with the program directors may have provided additional area for professional development. Additionally, since the study was conducted over 15 years ago and only in California, the generalizability of the findings is very limited.

Another study of leadership in radiologic technology was conducted by Shaver (2003). This study examined the relationship between transformational and transactional leadership styles of program directors, faculty satisfaction, and program effectiveness. Additionally, the willingness of faculty to put forth extra effort and the effectiveness of the program director was studied. This study utilized the MLQ to collect the quantitative data related to the leadership style of the program directors. The demographic data related to the programs, faculty, and program director was collected with an instrument designed by the researcher.

All associate degree programs (n=321) accredited by the JRCERT were included in the study and there was a 47% response rate (n=151) (Shaver, 2003). Baccalaureate and certificate programs were not considered for this study. Faculty were asked to assess the leadership style of their program directors and to complete a demographic survey. Program directors were asked to complete a demographic survey. The results indicated that program directors were most often identified as transformational and sometimes identified as transactional. The findings suggested that transformational, transactional,

and laissez-faire leadership were predictors of program director effectiveness, faculty satisfaction, and the willingness of faculty to put forth additional effort. Age, years as program director, highest academic degree earned, discipline of the highest degree earned, and leadership training were the demographic variables of program directors collected for this study. None of the demographic data collected on program directors was correlated to the directors' leadership style.

This study serves as an excellent entrance into the study of leadership styles of radiologic technology program directors. Shaver (2003) suggests that additional studies should be conducted in order to examine the leadership styles of program directors of programs other than associate degree. Additionally, the author called for qualitative studies as well as studies that examined the difference between faculty ratings of program directors and program directors' self-ratings.

While both of these studies present information related to the leadership styles of program directors, neither utilized a sample that included all program types. Thus, the results cannot be generalized to all programs. Additionally, both studies incorporated quantitative measurements of program directors' leadership styles, but did not use any qualitative methods. Qualitative data could have supported or added to the understanding of the quantitative findings. Kistler's study did make suggestions for leadership development, but since this study was published in 1988 and only examined program directors from one state, the applicability of these findings to current program directors is unlikely. Shaver's study did identify a positive relationship between transformational leadership and effectiveness, faculty satisfaction, and the willingness of faculty to put forth extra effort. However, this study did not examine the relationship of program directors' responsibilities and leadership style.

Concept Map

This study will be guided by the conceptual map presented in Figure 2. The conceptual map will be explained in detail by the narrative that follows. While there have been numerous delineations of the responsibilities and duties of department chairs, Tucker's (1993) provides a comprehensive list that can be applied to any context. Thus, this will be the model utilized for this study. Tucker (1993) outlines the eight categories of responsibilities of a department chair: department governance, instruction, faculty affairs, student affairs, external communication, budget and resources, office management, and professional development. Each of the responsibilities has duties that may be associated with the responsibility.

To further understand the responsibilities of department chairs, Lucas (1994) describes a leadership matrix that examines two dimensions of each responsibility. First, the level of importance of a responsibility to a department is determined by ranking each responsibility on a likert scale (1=little importance to department-4=very important to department). Second, the level of satisfaction of the radiologic technology program director with their leadership skills as related to the responsibility is determined by a similar ranking (1=low satisfaction with skills-4=very satisfied with skills). Since Lucas' listing of responsibilities is less comprehensive than Tucker's, this study will combine the responsibilities determined by Tucker (1993) and the leadership matrix presented by Lucas (1994) to examine program directors in radiologic technology.

The data gathered from this study will be used to demonstrate the relationship of program directors' leadership style to their responsibilities and level of satisfaction with their leadership skills in relation to the responsibilities. Different leadership skills are required for different responsibilities. Additionally, each leader has a specific leadership

style and a unique set of leadership skills. Therefore, leaders will rank their satisfaction with their leadership skills as related to their responsibilities based on their leadership style. For example, a leader whose style is transformational might rank his or her leadership skills with department governance high, whereas a transactional leader might rank his or her leadership skills low in relation to this responsibility.

The level of importance of the responsibilities to the department can be affected by leadership style, program type, institution type, and gender (Lucas, 2000; Tucker, 1993). Therefore, the relationship of the level of importance of the responsibilities to leadership style, program type, institution type, and gender will be examined. Additionally, it is hypothesized that the level of satisfaction of radiologic technology program directors with their leadership skills as related to the responsibilities will be affected by leadership style, gender, years of experience as program director discipline of highest degree, program type, and institution type. Therefore, these relationships will be explored. The level of importance of the responsibilities can also be affected by the department chairs' level of satisfaction with their leadership skills in relationship to the responsibility (Carroll & Gmelch, 1994). Thus, this relationship will be explored as well. This information can then be used to develop the leadership skills of radiologic technology program directors that will benefit the areas of responsibility that are most important to their departments.

Chapter Summary

The literature presented in this chapter builds the foundation for this study. This chapter provided a review of the literature related to department chairs and leadership. More specifically, transformational and transactional leadership were discussed. Additionally, studies conducted on leadership in radiologic technology were reviewed.

The concepts presented in the literature review were connected to form the conceptual map which will guide this study. The next chapter will provide the details as to how the study will be conducted.

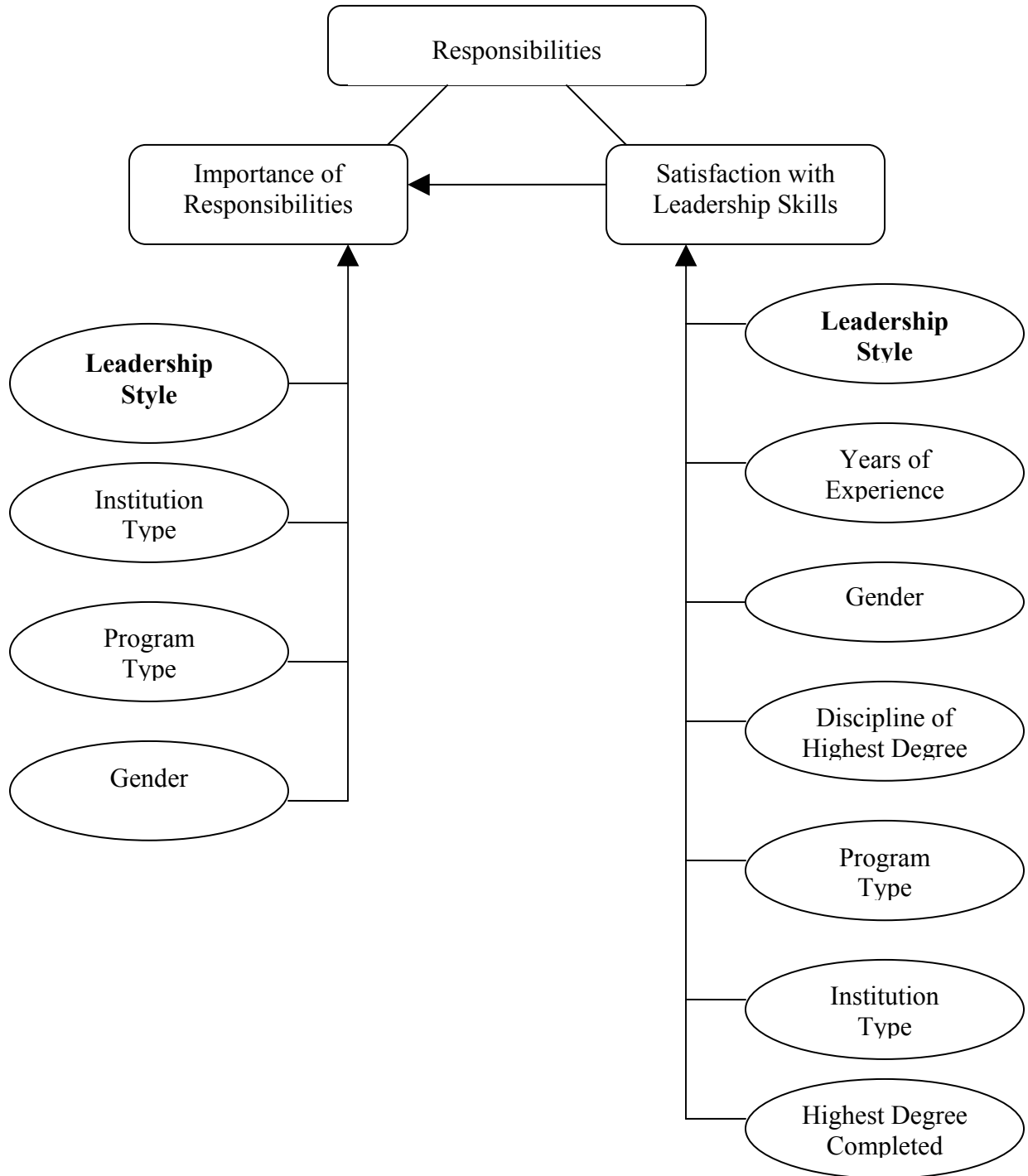


Figure 2: Conceptual map of program director responsibilities

CHAPTER THREE

METHODOLOGY

This chapter outlines the methods which were utilized to conduct this mixed methods study. The overarching research questions for the study are presented, as well as the hypotheses that guided the quantitative portion and the research questions that were specific to the qualitative portion. Additionally, sampling strategy, data collection and analysis are discussed. Finally, the inference quality and transferability of the results are addressed.

Research Design

As suggested by Avolio, Bass, and Jung (1999), studies utilizing mixed methods approaches should be considered when studying leadership behaviors. By using more than one method, a greater understanding of the topic can be gained. This study is approached from the pragmatic paradigm, which posits that quantitative and qualitative methods can be used together (Tashakkori & Teddlie, 2003a). Pragmatists hold the view that the research question should guide the method employed in a study (Tashakkori & Teddlie, 2003b). The philosophy of pragmatists can be summarized with this statement, “study what interests and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system” (Tashakkori & Teddlie, 1998, p. 30). Additionally, in applied fields such as education, pragmatism lends itself to answering the complex phenomena under study because multiple sources of data can be analyzed to answer the research questions posed. As such, this study utilized a mixed methods approach in order to gain a better understanding of the responsibilities of program directors in radiologic technology and their level of satisfaction with their leadership skills as related to the responsibilities. An

explanatory design was employed for this study, in which qualitative data were used to expand the understanding of the quantitative data. The first strand of the study was quantitative, involving the collection of survey data. In order to confirm and provide a better understanding of the responsibilities and leadership styles measured quantitatively, qualitative methods were used to support and add depth to the quantitative data.

This study utilized Tashakkori and Teddlie's (2003b) sequential mixed model design. Further, the design involved qualitative and quantitative portions receiving equal status (QUAN/QUAL). Since this project involved both quantitative and qualitative research questions, a mixed model design is appropriate. This type of design is characterized by the development of research questions based on the data collected in the first portion of the study. Figure 3 represents the research design which was utilized for this study. The first portion of this study was quantitative and identified both the responsibilities that program directors identified as most important to their department, as well as their level of satisfaction with their leadership skills as related to the identified responsibilities. Additionally, the MLQ was administered in order to determine the leadership style of the program directors. The second portion of the study was qualitative, which was developed from the findings of the first portion of the study. The intent of the qualitative portion of the study was to enrich the findings from the quantitative portion of the study. The qualitative data further explored how the leadership styles and responsibilities were used in program directors' roles as department chairs. Therefore, the qualitative portion of the study answered questions involving the context of the program director's role. Specifically, is leadership style related to the type of program? Why are certain responsibilities more important to some programs than others? What opportunities for leadership development have the program directors had?

And, which have been most helpful? Other questions were formulated from the results of the quantitative data. The inferences for the study were based on both sources of data.

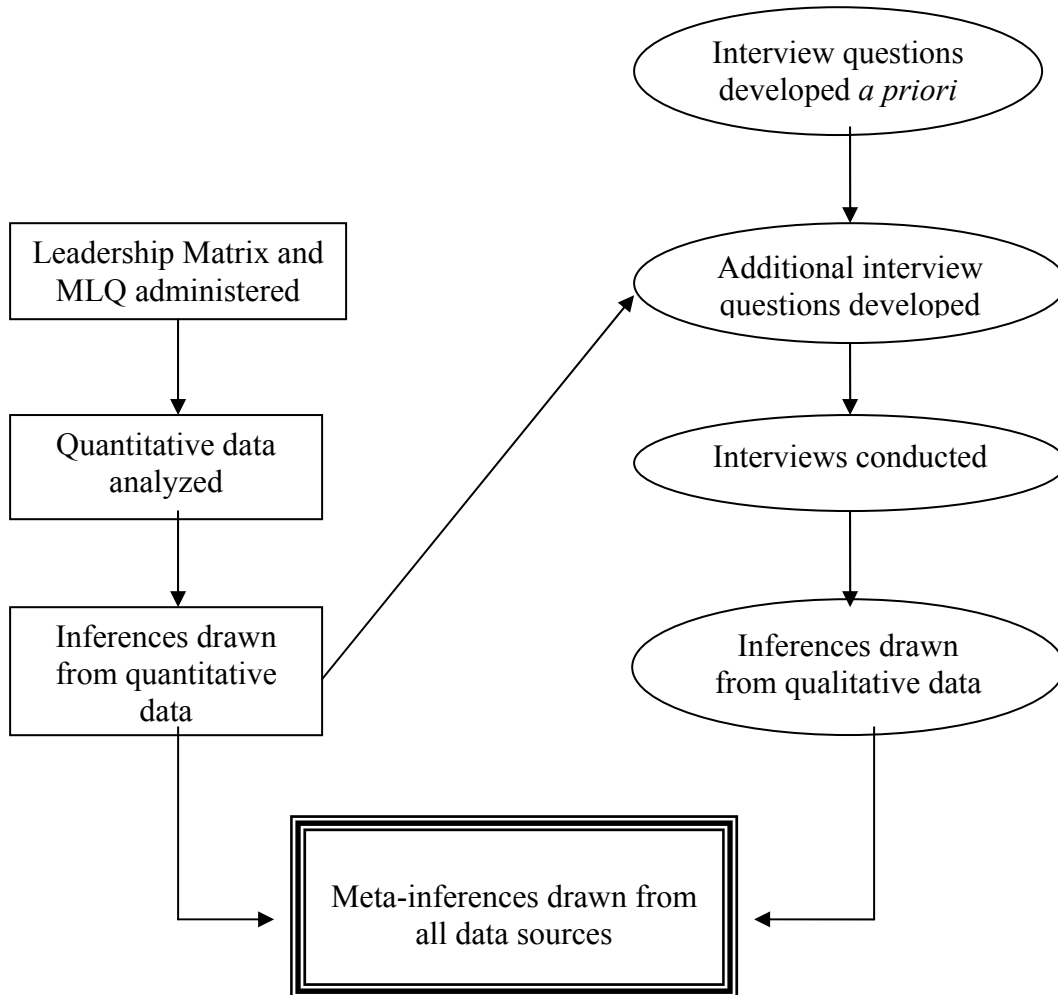


Figure 3: Research design

Note. Adapted from Tashaakkori and Teddlie, 2003, p. 688.

Research Questions

This study examined the responsibilities and leadership behaviors of program directors of radiologic technology programs and was guided by eight overarching research questions:

Research Question 1: Which responsibilities are perceived as most important to radiologic technology program directors?

Research Question 2: With which of their leadership skills are radiologic technology program directors least satisfied?

Research Question 3: How well does leadership style explain program directors' perceived level of importance of their responsibilities?

Research Question 3a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain program directors' perceived level of importance of their responsibilities?

Research Question 3b: How well do contingent reward, active management by exception, and passive management by exception (transactional factors) explain program directors' perceived level of importance of their responsibilities?

Research Question 4: How well do leadership style, discipline of highest degree, program type, and years of experience as a program director explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4b: How well do contingent reward, management by exception (active), and management by exception (passive) (transactional factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 5: Does the level of importance of the responsibilities vary based on gender, institution type (hospital, 2 year, 4 year, or vocational/technical), or due to an interaction between institution type and gender?

Research Question 6: Does the level of satisfaction with program directors' leadership skills as related to their responsibilities vary based on gender, highest degree completed (baccalaureate, masters, or PhD, EdD), or due to an interaction between highest degree completed and gender?

Research Question 7: How does program type influence the leadership skills utilized by radiologic technology program directors?

Research Question 8: Why have the responsibilities that have been identified as very important to the department received those rankings?

Research questions one and two were answered by analyzing the frequency of responses of program directors. Additionally, data from the interviews was utilized to provide a better understanding of the rankings by program directors. Research questions three and four utilized multiple regression to answer the questions. Multiple regression was used to explain the effects of the independent variables of leadership style, years of experience, and discipline of highest degree and on the dependent variables of importance of leadership responsibilities and satisfaction with leadership skills. Research questions five and six were answered by utilizing a two-way ANOVA to examine if gender and institution type affected the level of importance of the responsibilities and the level of

satisfaction of program directors with their leadership skills. The quantitative data were not intended to provide information on how program directors utilized leadership behaviors in their roles or why a responsibility was important to a department. Therefore, the qualitative portion of this study answered research questions seven and eight to further explore the particular situations that program directors must address in their leadership position that required the use of their leadership skills and what current conditions affected the level of importance of their responsibilities.

Sampling

This study utilized probability and purposeful sampling strategies. Kemper, Stringfield, and Teddlie (2003) suggest that mixed methods studies necessitate the use of multiple sampling strategies to strengthen inference quality and inference transferability. The population for this study was program directors of radiologic technology programs in the United States and Puerto Rico accredited by the JRCERT. A national sample of the accessible population of program directors was utilized. Gall, Borg, and Gall (1996) define accessible population as “all the members of a set of people, events, or objects who feasibly can be included in the researcher’s sample” (p. 753). Therefore, for this study, the accessible population was the entire population (n=591).

At the start of the study there were 591 programs accredited by the JRCERT, of which there were 28 baccalaureate (4.7%), 335 associate degree (56.7%), and 228 certificate (38.6%). A list of programs and program directors was obtained from the JRCERT and all were included in the study, excluding the program of the researcher. The intent of surveying the entire population was to obtain an adequate response rate and to help insure that the results could be generalized. By examining the JRCERT listing of program directors, the gender of the program directors was determined to be

approximately 65% female and 35% male. The program directors had a variety of degrees, including 225 baccalaureate (38%), 298 masters (51%), 37 doctorate (6%), and 31 with no degree or an associate degree (5%) (JRCERT, 2005).

Stratified purposeful sampling was utilized to collect the qualitative data. This sampling strategy is designed “to capture major variations rather than to identify a common core, although the latter may also emerge in the analysis” (Patton, 2002, p. 240). In this case, the subgroups were transformational and transactional leaders, and the intent was to identify differences between transformational and transactional leaders. After the quantitative data were analyzed, program directors were selected who were identified as primarily transformational or transactional leaders as determined by the scores obtained from the MLQ. Two program directors identified as transformational leaders and two identified as transactional leaders were interviewed from each program type, with the exception of associate degree program transformational program directors. Due to a late response from an associate degree transformational program director, three were surveyed in this category. This provided a total of 13 program directors who were interviewed (see Table 1).

Table 1: Number of program directors interviewed

Program Type	Transformational	Transactional	Total
Baccalaureate	2	2	4
Associate	3	2	5
Certificate	2	2	4
Total	7	6	13

Multifactor Leadership Questionnaire

Bass (1995) began to study transformational leadership over 20 years ago. After realizing that the Leader Behavior Description Questionnaire did not demonstrate transformational or transactional leadership behaviors, he decided to develop his own instrument. In 1990, Bass developed the Multifactor Leadership Questionnaire, which has undergone several revisions to improve its factor structure. The MLQ is the most widely used instrument to measure transformational leadership (Tejeda, Scandura, & Pillai, 2001).

The current form of the MLQ—the MLQ Form 5x-Short measures transformational leadership, transactional leadership, passive avoidant leadership and outcomes of leadership utilizing twelve subscales (Mindgarden, 2003). The instrument consists of 45 items designed to measure the constructs of transformational and transactional leadership. For transformational leadership, the MLQ has five subscales: idealized influence (attributed), idealized influence (behavior), inspirational motivation, intellectual stimulation, and individual consideration. In relation to transactional leadership, the MLQ has three subscales: contingent reward, management by exception (active), and management by exception (passive). The MLQ also has a sub-scale to measure laissez-faire leadership. Finally, the MLQ has three subscales to measure outcomes of leadership: extra effort, effectiveness, and satisfaction. Responses to the items range on a Likert scale from 0 corresponding to “not at all” to 4 corresponding to “frequently, if not always”. Responses were summed for each of the subscales and a mean was determined for each. Bass and Avolio (1999) provide descriptions and ideal ratings for each of the transformational and transactional subscales measured by the MLQ (see Table 2).

Table 2: Descriptions and ideal ratings for MLQ subscales

Leadership Subscale	Ideal MLQ Rating
Individualized consideration-leader shows empathy for followers that is individualized based on the needs of the follower	> 3.0
Intellectual stimulation-leader encourages followers to be creative and examine new perspectives in relation to a problem	> 3.0
Inspirational motivation-leader inspires and motivates followers to high levels of achievement	> 3.0
Idealized influence (attributed)-impact of how a leader is perceived	> 3.0
Idealized influence (behavior)-behaviors of a leader that serve as a model to followers	> 3.0
Contingent reward-leader provides positive or negative incentives for performance	> 2.0
Management by exception (active)-leader monitors followers for errors	< 1.5
Management by exception (passive)-leader reacts to a problem after it occurs	< 1.0
Laissez-faire-leader takes no action and provides no guidance	< 1.0

Note: Adapted from Bass and Avolio, 1999, p. 29.

Validity and Reliability of the MLQ

There has been some debate as to whether the constructs represented in the questionnaire may still need some refinement. According to Tejeda, Scandura, and Pillai (2001), transformational leadership is a concept that is still being evaluated and may need to evolve more as a theory. Specifically, the authors contend that there is some overlap in the constructs measured by the MLQ. They suggest some revisions to the instrument in order to improve its psychometric properties.

There are other studies that support the factors utilized by the MLQ. Avolio, Bass, and Jung (1999) examined studies utilizing the MLQ to determine which factor structure was the best fit for the MLQ. The study supported the use of six factors, which include: charisma/inspirational, intellectual stimulation, individualized consideration, contingent reward, active management by exception, and passive avoidant leadership. Charisma/inspirational, intellectual stimulation, and individualized consideration are transformational leadership constructs. Contingent reward and active management by exception are transactional leadership constructs and passive avoidant leadership is non-leadership. A suggestion was made for studies to use mixed methods in order to confirm the findings of studies utilizing the MLQ. This may provide more insight into professional development needs of leaders.

The most recent evaluation of the factor structure of the MLQ supports the current structure (Antonakis, Avolio, & Sivasubramaniam, 2003). The results of this study indicate that the instrument is valid and reliable. Additionally, Bass and Avolio (2000) indicate that confirmatory factor analysis was used to establish the convergent and discriminatory validity of the scales of the MLQ-5X. The goodness of fit index was 0.91 for the nine factor model, which is higher than the 0.90 that is recommended. Finally, alpha reliability coefficients for each of the factors ranged from 0.74 to 0.94. This reliability was not based on any self ratings, but rather on ratings from others. Nunnally (1978) indicates that a reliability of 0.70 or higher is adequate for early stages of research on a test and anything above 0.80 is usually unnecessary. Reliability of the MLQ was also determined for this study.

Leadership Matrix

The leadership matrix instrument developed for this study was adapted from Lucas' (1994) leadership matrix and Tucker's (1993) listing of program chair responsibilities and duties associated with those responsibilities. The first portion of the instrument collected data related to the demographic variables involved in the study: gender, program type, institution type, highest degree obtained and discipline of the degree, and years of experience as a program director. The second portion of the instrument collected data related to the responsibilities of program directors. Each responsibility was rated on two dimensions: level of importance to the department and the program director's satisfaction with their leadership skills as related to the responsibility. The level of importance of the responsibility to the department was rated on a scale of 1-4, with one corresponding to low importance to the department and four corresponding to very important to the department. Additionally, the program director's satisfaction with their leadership skills as related to the responsibilities will be rated on a scale of 1-4, with one corresponding to low satisfaction and four corresponding to very satisfied. Finally, the instrument contained a section for comments from program directors.

Data Collection

After approval was received from the Institutional Review Board, and the list of program directors for the sample was obtained from the JRCERT, data collection proceeded. Program directors were contacted with a letter describing the study (see Appendix A). The introductory letter was designed utilizing methods suggested by Gall, Borg, and Gall (1996) to increase response rate. Accordingly, the letter outlines the purpose of the study, a time frame for returning surveys, assurance of confidentiality, and

information on informed consent. Also included in this package was a consent form, detailed instructions for completion of the instruments, the MLQ, a leadership matrix for the program director and a return postage envelope for return of the completed instruments (see Appendixes B, C, and D). A follow-up postcard was sent one week after the initial package was sent in order to improve the response rate (see Appendix E). These procedures yielded a 48.1% response rate (n=284).

The quantitative data were collected from two instruments, specifically, the MLQ and the leadership matrix. Johnson and Turner (2003) describe several strengths of using tests to provide quantitative data. Some of these were applicable to this study, including: having a high validity and allowing for simplified data analysis.

The quantitative data were collected first, utilizing the MLQ and leadership matrix. The MLQ has been used in numerous research studies to determine leadership style and is the primary instrument that has been used to measure transformational leadership (see Appendix C for examples of questions). While instruments have been utilized to measure transformational leadership, none have the extensive amounts of published literature regarding their effectiveness as the MLQ. The quantitative data were collected from each program director. The program directors' responses were a self-report of their perceptions of their leadership style. While this self-report of program directors' leadership styles will be a limitation in the information that was collected, the purpose of the data gathered from the MLQ is to examine how leadership style affects how program directors rate the level of importance of the responsibilities and the level of satisfaction with their leadership skills. Bass and Avolio (1999) suggest that a minimum of six individuals rate the leader for optimal results. Most radiologic technology programs have small faculties, and, in fact, Shaver (2003) listed this as a limitation in his

study. Therefore, due to the small number of faculty in radiologic technology programs, it was determined that a self-report should provide adequate information on how to assess the relationship of leadership style to the ratings for the responsibilities. In addition, program directors were asked to complete a leadership matrix (see Appendix D). The quantitative data collected was used to address the research questions and to develop questions to be examined in the qualitative phase of the study.

After collection and preliminary analysis of the quantitative data, the stratified purposeful sample was selected. The qualitative data consisted of interviews conducted after the compilation of the quantitative data. Johnson and Turner (2003) describe strengths and weaknesses of interviews. The strengths that apply to this study are: providing in depth information, allowing for probing, and improving the confirmation of the quantitative data. The weaknesses that were able to be addressed in this study are: the expense of in-person interviews and a perceived lack of anonymity by respondents. Interviews were conducted by telephone to eliminate the expense of in-person interviews and respondents were assured of their anonymity prior to beginning the interview.

Participants were contacted via email and asked to participate in the interviews. Those participants who responded positively to this request were then scheduled for interviews. Interviews were conducted via the telephone, due to geographic distance between the researcher and the interviewees. Interviews lasted approximately 30 to 45 minutes. Interview questions were determined prior to the interview (see Appendix F for examples of questions). Some questions were developed *a priori* and others were determined after initial analysis of the quantitative data. Preliminary analysis of the quantitative data identified the responsibilities that program directors rated as most and least important to their departments. Questions were developed to confirm the ratings

and to provide a better understanding of why program directors chose those ratings. Additionally, questions were developed to determine which transformational or transactional leadership behaviors were most and least important in their role as program director. Finally, questions were developed to determine how program directors preferred to develop and improve their leadership skills. After the interview questions were developed, a pilot was conducted with a former program director in order to determine if any changes were needed in the interview protocol. After the pilot, minor changes were made to some of the questions to clarify the intent of the questions. Each of the interviews was recorded and fully transcribed.

Interviews allowed for exploring the results of the quantitative data in more depth. A standardized open ended interview approach was used for this study. As such, the questions were determined prior to the interview. Patton (2002) indicates this method allows for the data to be organized for easier analysis. Additionally, the standardized format increases the ease of comparison, since participants answer the same questions. While this format facilitates data analysis, it limits the flexibility of the questions that can be asked by the interviewer.

Data Analysis

The data collected for the study was analyzed using several different techniques. Onwuegbuzie and Teddlie (2003) suggest that two decisions must be made in relation to the analysis of the quantitative and qualitative data: the dominance of the approaches employed and how the different data analyses will inform each other. For this study, the quantitative and qualitative data had equal dominance. Therefore, the data analysis approaches for the two types of data were also equal. Since the quantitative data were collected first, it was used to inform the qualitative portion of the study. As mentioned

previously, the preliminary analysis of the quantitative data were used to help develop the questions for the qualitative portion of the study. Additionally, after both sets of data had been collected, the results were compared to confirm or disconfirm inferences from each approach.

All quantitative data were analyzed utilizing SPSS 13.0 computer software. The demographic data were analyzed with descriptive statistics and was used to describe the sample and to answer the research questions of the study. All of the quantitative data were analyzed utilizing a significance level of 0.05.

Research question one was answered by determining the frequency and mean of the rankings for each responsibility. Research question two was answered by determining the frequency and mean of the rankings of program directors in relation to their leadership skills in relation to the responsibilities. This data were utilized to determine which responsibilities were most important to departments and with which leadership skills program directors were least satisfied with. Additionally, interview questions which related to these questions were analyzed to provide a better understanding of program director responses. Program directors were asked if they agreed with the rankings of the responsibilities, and why or why not. This provided more depth to the quantitative data. Also, program directors were asked about their satisfaction with their leadership skills during interviews. Again, this data provided additional information regarding their satisfaction.

Research questions three and four were answered by conducting a multiple regression analysis. The dependent and independent variables that were involved in this analysis are outlined in Tables 3 and 4. There are several assumptions associated with multiple regression that were checked. First, the variables were examined for normality.

Second, the linear relationship between the variables was assessed utilizing a scatter plot. Additionally, the scatter plots were used to determine if the data met the assumption of homoscedasticity. Variables that did not meet the assumption of normality were transformed to provide a variable that was more normally distributed for the analysis. Kirk (1995) defines transformation as “any systematic alternations of a set of scores whereby certain characteristics of the set are changed and other characteristics remain unchanged” (p. 103). Howell (1997) indicates that transforming data is an appropriate method utilized to create a normally distributed variable. Specifically, for this analysis, non-normal variables were squared to obtain a distribution that was most normally distributed.

To answer research question three, a regression analysis was performed with importance of the responsibility as the dependent variable and gender, program type, institution type, and leadership style (transformational and transactional) as the independent variables. To answer research question four, a separate regression analysis was conducted with satisfaction with leadership skills as the dependent variable and program type, discipline of highest degree, years of experience, and leadership style (transformational and transactional) as the independent variables. Since several of the variables that were utilized are categorical variables, a coding scheme was needed. Effect coding was implemented for the independent variables of program type and discipline of highest degree. For effect coding, the numbers used are 1, 0, and -1 (Pedhazur, 1997). A vector was generated for each group minus one. Thus, for a variable with four groups, three vectors were created. In each vector, members of one group were assigned ones and all members of other groups were assigned zeros, with the exception of the final group, which was assigned -1. The effect codes which were used

for the independent variables of program type and discipline of highest degree are presented in Tables 5 and 6. After coding was completed, the data were used to conduct the regression analyses. The R^2 , adjusted R^2 , observed F value, and the standardized regression coefficients were examined for each regression analysis conducted.

Table 3: Dependent variables and descriptions for research questions three and four

Variable	Description	Range
Importance of responsibility	Degree to which the program director views a responsibility as important to the department	1 (not important to the department) to 4 (very important to the department)
Satisfaction with leadership skills	Degree to which the program director is satisfied with their leadership skills as related to the responsibility	1 (low satisfaction with skills) to 4 (very satisfied with skills)

Table 4: Independent variables and descriptions for research questions three and four

Variable	Description	Range/Categories
Program type	Type of degree/certificate granted by the radiologic technology program upon completion	Certificate, associate degree, baccalaureate
Discipline of highest degree	Academic discipline of the highest degree obtained by the program director	Radiologic technology, education, business, other
Years of experience	Number of years the program director has served in that position	0-infinity
Leadership style-Transformational leadership	Mean of the 5 subscales of transformational leadership on the MLQ	0-4
Leadership style-Transactional leadership	Mean of the 3 subscales of transactional leadership on the MLQ	0-4

Table 5: Effect codes for program type

Group	B1	B2
Certificate	1	0
Associate degree	0	1
Baccalaureate degree	-1	-1

Table 6: Effect codes for discipline of highest degree

Group	C1	C2	C3
Radiologic Technology	1	0	0
Education	0	1	0
Business	0	0	1
Other	-1	-1	-1

Research questions five and six were analyzed utilizing a two-way ANOVA. The dependent variables were importance of the responsibility and satisfaction with leadership skills and the independent variables were gender and institution type. The dependent and independent variables utilized to answer research questions five and six are outlined in Table 7. The assumptions associated with a two-way ANOVA were also checked. First, the variables were examined to assure that there was a normal distribution for each of the cells of the two-way ANOVA. Second, homogeneity of variance was examined. For this study, there were unequal sample sizes for the cells in the two-way ANOVA. Howell (1997) suggests to address this issue by using the Type III sum of squares for analysis, which considers equally weighted means. Thus, this method was used for this study. Finally, post hoc tests were conducted when significant differences were identified. Tukey's pair-wise comparisons were used to find differences between each of the groups. The codes for the independent variables used for the two-way

ANOVA are demonstrated in Tables 8 and 9. Finally, results from the quantitative analysis were used to develop questions for the qualitative portion of the study.

Table 7: Dependent and independent variable descriptions for research questions five and six

Variable	Description	Range
Importance of responsibility	Degree to which the program director views a responsibility as important to the department	1 (not important to the department) to 4 (very important to the department)
Satisfaction with leadership skills	Degree to which the program director is satisfied with their leadership skills as related to the responsibility	1 (low satisfaction with skills) to 4 (very satisfied with skills)
Gender	Gender of the program director	Male, female
Institution type	Setting for the radiologic technology program	Hospital/medical center, 2 year community college, 4 year college/university, vocational/technical institute, other

Table 8: Codes for gender

Group	Code
Male	0
Female	1

Table 9: Codes for institution type

Group	Code
Hospital/medical center	1
2 year community college	2
4 year college/university	3
Vocational/technical institute	4
Other	5

After the qualitative data had been fully transcribed, the interviews were analyzed using inductive analysis. N6 software was utilized to assist with organizing and coding the qualitative data. Themes and patterns were developed based on each participant's responses to the questions posed by the researcher. Additionally, these were quantitized to determine the frequency of specific responses. Quantitizing data involves transforming qualitative data into numeric data for statistical analysis (Tashakkori & Teddlie, 2003a). This quantitized data were compared with the quantitative data. The two data sources were triangulated to determine consistency of the results of the two methods. The qualitative data complemented the quantitative data and provided more depth to the analysis and the inferences drawn from the study. Avolio, Bass, and Jung (1999) called for multiple methods to be used in leadership research in order to confirm the findings of survey data. This study utilized a sequential QUAN/QUAL design in order to do just that.

Inference Quality

The inference quality of the study was determined by utilizing techniques to assure the design quality and interpretive rigor of the study. First, the sampling method employed helped to assure the quality of the design. The sample of the accessible population of program directors assured that selection of the participants was not biased. This provided adequate quantitative data for analysis. Second, the data collected were examined to assure that the statistical assumptions are not violated. Data were checked for normality, linearity, homoscedasticity, and homogeneity of variance to help assure statistical rigor. In cases where assumptions were violated, appropriate measures were taken to address these issues. The level of significance for this study was set at 0.05. After the initial survey was mailed, a follow-up postcard was mailed to help assure an

adequate response rate. An attempt to decrease attrition was made by conducting the interviews with program directors in a short period of time after quantitative data collection and preliminary analysis. Since these cases were selected based on specific criteria, the information provided was rich and aided in understanding the leadership behaviors of program directors. Thus, the 13 interviews were intended to allow for a thorough analysis of responses. In addition, the triangulation of the quantitative and qualitative data assured that multiple perspectives were analyzed and provided greater depth to the study. Due to the large number of studies utilizing the MLQ, comparisons to prior studies further confirmed the results of this study.

Inference Transferability

The inference transferability was determined using several techniques as well. First, the population transferability was assured by utilizing a sample of the accessible population of all program directors in JRCERT accredited programs in the United States and Puerto Rico. By sampling each type of program, the data can be generalized to the entire population. A full description of the methods employed helps to assure that other researchers can replicate the study, therefore adding to the generalizability (Gall, Borg, & Gall, 1996). By selecting interview participants based on their leadership behavior (transformational and transactional leadership), the results of the study are transferable to the population. Finally, analyzing the data across the cases demonstrates that the conclusions can be transferred at least between the cases under study (Gall, Borg, & Gall, 1996). Additionally, thick description was utilized in describing the qualitative responses. All interviews were fully transcribed to assure that responses of the participants were not distorted. Finally, a reflexive journal was kept to help understand the researcher's perspective as well as that of the study participants (Patton, 2002). The

journal was used to record the impressions of the researcher in regard to the interviewees and their responses. This was used to help identify recurring themes or areas for additional exploration. Recording these impressions helped to add to the thick description of the qualitative data.

Chapter Summary

This chapter provided the details as to how this study was conducted. A description of the research design and research questions that guided the study was provided. Additionally, data collection and analysis techniques were discussed. Finally, techniques for inference quality and inference transferability were presented. In the next chapter, the results from the data collection will be presented.

CHAPTER FOUR

FINDINGS

The purpose of this study was to identify the responsibilities that program directors indicated as most important to their departments and the satisfaction of radiologic technology program directors with their current leadership skills as related to the responsibilities. Additionally, the leadership styles of program directors were identified. The level of importance of each responsibility to the department helped to identify which leadership skills should be developed. This chapter will present the data which was collected utilizing the MLQ, Leadership Matrix, and interviews with program directors. The quantitative data were analyzed utilizing SPSS version 13.0 software and the qualitative data were analyzed using N6 software.

Participants

Description of Radiologic Technology Program Directors

Of the 590 program directors that were sent surveys, 284 responded for a 48% response rate. Gall, Borg, and Gall (1996) indicate that this is an adequate response rate with statistical power at the 0.7 level and a medium effect size for the statistical tests which were conducted. The descriptive characteristics of the participants are presented in Table 10. The majority of the participants were female (n=195, 69%) which is similar to the population (65% female). The mean years of experience of the program directors was 12.47 (SD=9.60) and ranged from 0 to 39 years. Additionally, most program directors held a masters degree (n=163, 58%), which is comparable to the population (51%). The most common discipline for the highest degree obtained was education (n=133, 47%).

Table 10: Descriptive characteristics of radiologic technology program directors (N=284)

Variable	Number	Percent
Gender		
Male	89	31
Female	195	69
Highest degree completed		
Associate	5	2
Baccalaureate	82	29
Masters	163	58
PhD or EdD	29	10
Other: Certificate, Education specialist	4	1
Discipline of highest degree		
Radiologic Technology	50	18
Education	133	47
Business	31	11
Other: Applied Sciences, Nursing, English, Psychology, Interdisciplinary Studies, Health Studies, Health Administration, Organizational Management, Human Resources Management, Health Science, Vocational Education, Management, General Studies, Biology, Counseling, Physics, Health Education, Health Arts, Political Science, Anthropology, Medical Science, Health Services Management, Leadership, Library and Information Science, Computer Applications, Kinesiology, Environmental Health, Educational Management, Continuing Education, Anatomy	70	25

Note: Total n may vary due to incomplete responses.

Description of Radiologic Technology Programs

The program directors responding to the survey provided descriptive information regarding their respective programs. Table 11 identifies the descriptive characteristics of the radiologic technology programs. The majority of the programs were associate degree programs (n=174, 62%), which is similar to population (56.7%). Additionally, most programs were situated within 2-year community colleges (n=124, 44%).

Table 11: Descriptive characteristics of radiologic technology programs

Variable	Number	Percent
	(N=284)	
Program type		
Certificate	95	34
Associate	174	62
Baccalaureate	12	4
Institution type		
Hospital/medical center	85	30
2 year community college	124	44
4 year college/university	44	16
Vocational/technical institute	18	6
Other	8	3

Note: Total n may vary due to incomplete responses.

Description of Interview Participants

Of the 284 program directors who responded to the survey instruments, thirteen participated in telephone interviews. The descriptive characteristics of the participants

are presented in Table 12. Seven of the participants were identified as transformational and six were transactional based on their responses to the MLQ. Additionally, most participants were female (n=7, 54%).

Table 12: Descriptive characteristics of interview participants

Gender	Transformational		Transactional		Total	
	Number	Percent	Number	Percent	Number	Percent
Male	2	29	4	67	6	46
Female	5	71	2	33	7	54

Findings

The findings for this study are reported in relation to the research questions posed. The data were analyzed utilizing SPSS 13.0 for the quantitative data and N6 for the qualitative data. A significance level of 0.05 was used for all statistical procedures.

Research Question 1

Which responsibilities are perceived as most important to radiologic technology program directors?

Program directors were asked to rate the level of importance of each of the responsibilities within their department on a Likert scale (1=low importance to 4=high importance). The frequency and mean of the rankings for each of the responsibilities were used to determine which responsibilities were most important to radiologic technology program directors. Tables 13, 14, 15, 16, 17, 18, 19, and 20 provide the frequency of responses, percentage and cumulative percentage of ratings for each of the responsibilities. For this study a rating of one or two was considered to indicate a responsibility of low importance and a rating of three or four to specify a responsibility of

high importance to the department. Budget and resources received the highest percentage of low rankings with 24.4% of participants selecting a rating of one or two. Office management had similar rankings with 24.2% of participants selecting a one or two rating. Instruction received the fewest number of low ratings with only 1.4% of participants selecting a low rating.

Table 21 provides the means and standard deviations of the ratings for the importance of the responsibilities to the programs. The means ranged from 3.86 to 3.06; therefore, all of the responsibilities can be considered important to the program. Instruction, department governance, and student affairs had the highest means of 3.86, 3.77, and 3.69 respectively; whereas budget and resources and office management were rated the lowest with each of these responsibilities having a mean of 3.06.

Table 13: Frequency of responses for importance of instruction

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	0	0	0
2	4	1.4	1.4
3	32	11.4	12.8
4	245	87.2	100

Table 14: Frequency of responses for importance of department governance

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	1	0.4	0.4
2	8	2.8	3.2
3	47	16.7	19.9
4	225	80.1	100

Table 15: Frequency of responses for importance of student affairs

Ranking	Frequency (n=280)	Percent	Cumulative Percent
1	0	0	0
2	10	3.6	3.6
3	66	23.6	27.2
4	204	72.8	100

Table 16: Frequency of responses for importance of external communication

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	2	.7	.7
2	17	6	6.7
3	94	33.5	40.2
4	168	59.8	100

Table 17: Frequency of responses for importance of faculty affairs

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	9	3.2	3.2
2	33	11.7	14.9
3	96	34.2	49.1
4	143	50.9	100

Table 18: Frequency of responses for importance of professional development

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	12	4.3	4.3
2	41	14.6	18.9
3	104	37	55.9
4	124	44.1	100

Table 19: Frequency of responses for importance of budget and resources

Ranking	Frequency (n=)	Percent	Cumulative Percent
1	15	5.4	5.4
2	53	19	24.4
3	111	39.8	64.2
4	100	35.8	100

Table 20: Frequency of responses for importance of office management

Ranking	Frequency (n=)	Percent	Cumulative Percent
1	14	5	5
2	54	19.2	24.2
3	114	40.6	64.8
4	99	35.2	100

Table 21: Means and standard deviations for importance of responsibilities

Responsibility	M	SD	n
Instruction	3.86	.389	281
Department governance	3.77	.509	281
Student affairs	3.69	.534	280
External communication	3.52	.644	281
Faculty affairs	3.33	.806	281
Professional development	3.21	.846	281
Budget and resources	3.06	.873	279
Office management	3.06	.862	281

Additionally, several program directors added comments to their Leadership Matrix survey. Twenty program directors commented on teaching classes. These program directors stressed that they had a major responsibility in terms of teaching classes. Eleven program directors indicated that committees required a lot of their time. Also, four program directors responded that, in addition to their responsibilities as a radiologic technology program director, they were over other programs. Those program directors from hospital-based programs seemed to have the widest variety of responsibilities. For example, four stated they were responsible for department in-services, two served with their credit unions, two had financial aid duties, and two performed in some capacity as a department manager within the hospital radiology department.

During the telephone interviews, program directors were asked if they agreed that instruction should be rated as most important. Forty-six percent of program directors

(n=6) agreed that instruction was the most important responsibility in their department. However, 54% of program directors disagreed (n=7) and felt it was not the most important.

One program director who agreed that instruction was the most important responsibility said it this way, "...I feel it directly affects the other pieces of the position and that's recruitment, retention, and success on board scores, which then lead to successful employment." Success of the students seemed to be one of the important reasons why program directors felt instruction was important to their program. Another program director emphasized this by stating,

Well, to me, the students are my number one priority. If you do not have good data from the students going through your educational program as far as the pass rates on the registry etcetera; that they get the information from the instruction time—I mean your program is not worth too much at all.

Some of those program directors that disagreed with the ranking of instruction as most important to the program felt that their job was complex and instruction was only one component of their responsibilities. One program director said it this way,

Our jobs are getting so complicated that we really don't have time anymore to spend a major portion of our time with instruction especially at an associate degree college programs or baccalaureate degree college programs, I think our primary responsibility is program quality maintenance and keeping the program up with rapidly moving technology.

Several program directors stressed that program governance was what was most important to their department. A program director from a certificate program stated this about instruction,

I think as program directors, program governance is probably the most important, and again, I understand where some program directors are coming from, in small programs, then they may shoulder the burden of didactic instruction, but I think in order for a program to really be progressive, and strategic in nature, the program director has to take the lead and govern the program and drive the strategic plan.

Basically, program directors seemed to approach instruction from two basic stances. Instruction was either the critical component that led to positive student outcomes or it was seen as one aspect of their responsibilities.

Program directors were also asked if they agreed with the ranking of budget and resources as one of the least important of their responsibilities. Thirty-eight percent of program directors (n=5) agreed that budget and resources was the least important of their responsibilities, but 62% disagreed (n=8). Those program directors who agreed with the ranking of budget and resources as their least important responsibility indicated that they had little control over the budget. Program directors stated that due to the structure of their institution, they had little input into the budget process. One program director stated,

I think most of us program directors, our immediate supervisors handle that, and in some cases we don't even have a lot of good input into that area. So it just depends on what the organizational structure is and who we report too.

Program directors who disagreed with the ranking of budget and resources as least important saw this responsibility as critical to the successful functioning of their department. They felt that their skills in handling the budget helped them to obtain the resources that were necessary for maintaining and improving their departments. One program director stated,

...the budget development and allocation of those funds is critical to our success and in fact much of our success has been made possible by my ability to lobby for additional budgetary allocations, to hire new faculty, to add on new programs, to purchase new equipment and so forth.

Several also emphasized that advances in technology demanded that budget and resources be one of their important responsibilities. A program director from a

baccalaureate program summed it up like this, “You know, we can’t be twenty years behind in technology and attempting to teach the students.”

Research Question 2

With which of their leadership skills are radiologic technology program directors least satisfied?

Program directors were asked to rate their level of satisfaction with their leadership skills as related to each of the responsibilities on a Likert scale (1=low satisfaction with skills to 4=high satisfaction with skills). The frequency and mean of the rankings in regards to program directors’ satisfaction with their skills in relation to the responsibilities were used to determine with which skills program directors were least satisfied. Tables 22, 23, 24, 25, 26, 27, 28, and 29 provide the frequency of responses, percentage and cumulative percentage of ratings of program directors’ satisfaction with their skills in relation to the responsibilities. For this study a rating of one or two was considered to indicate low satisfaction with skills and a rating of three or four to specify high satisfaction with skills. Budget and resources received the highest percentage of low satisfaction ratings with 27.8% of participants selecting a rating of one or two. Professional development had the second highest percentage of low satisfaction ratings with 14.2% of program directors selecting a one or two rating. Instruction received the fewest number of low satisfaction ratings with only 2.1% of participants selecting a low rating.

Table 30 provides the means and standard deviations of the ratings for the level of satisfaction with leadership skills as related to the responsibilities. The means ranged from 3.72 to 2.93. Instruction, student affairs, and department governance had the

highest means of 3.72, 3.59, and 3.43 respectively. Budget and resources was rated with the lowest satisfaction with leadership skills having a mean of 2.93.

Table 22: Frequency of responses for satisfaction of skills for instruction

Ranking	Frequency (n=282)	Percent	Cumulative Percent
1	0	0	0
2	6	2.1	2.1
3	67	23.8	25.9
4	209	74.1	100

Table 23: Frequency of responses for satisfaction of skills for student affairs

Ranking	Frequency (n=279)	Percent	Cumulative Percent
1	1	0.4	.4
2	14	5	5.4
3	83	29.7	35.1
4	181	64.9	100

Table 24: Frequency of responses for satisfaction of skills for department governance

Ranking	Frequency (n=279)	Percent	Cumulative Percent
1	2	.7	.7
2	18	6.5	7.2
3	118	42.3	49.5
4	141	50.5	100

Table 25: Frequency of responses for satisfaction of skills for external communication

Ranking	Frequency (n=283)	Percent	Cumulative Percent
1	0	0	0
2	29	10.2	10.2
3	123	43.5	53.7
4	131	46.3	100

Table 26: Frequency of responses for satisfaction of skills for office management

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	2	0.7	0.7
2	37	13.2	13.9
3	121	43.1	56.9
4	121	43.1	100

Table 27: Frequency of responses for satisfaction of skills for professional development

Ranking	Frequency (n=281)	Percent	Cumulative Percent
1	2	0.7	0.7
2	38	13.5	14.2
3	124	44.1	58.4
4	117	41.6	100

Table 28: Frequency of responses for satisfaction of skills for faculty affairs

Ranking	Frequency (n=)	Percent	Cumulative Percent
1	5	1.8	1.8
2	29	10.4	12.2
3	132	47.1	59.3
4	114	40.7	100

Table 29: Frequency of responses for satisfaction of skills for budget and resources

Ranking	Frequency (n=)	Percent	Cumulative Percent
1	7	2.5	2.5
2	71	25.3	27.8
3	139	49.5	77.2
4	64	22.8	100

Table 30: Means and standard deviations for satisfaction with skills

Responsibility	M	SD	n
Instruction	3.72	.495	282
Student affairs	3.59	.604	279
Department governance	3.43	.647	279
External communication	3.36	.661	283
Office management	3.28	.715	281
Professional development	3.27	.715	281
Faculty affairs	3.27	.716	281
Budget and resources	2.93	.759	281

In order to confirm and enrich the quantitative data related to program directors' satisfaction with their skills, program directors were asked during the interviews which job performance skills they felt least prepared to handle. The most common response was related to budget and resources, with five of the thirteen program directors indicating this to be their skill with which they were least satisfied. This reflects the quantitative data for this skill. One program director described his difficulties with the budget this way:

Our funds are fairly limited. You know it's really important that we work efficiently ...some of the things that we could do to save money, we don't have time to really implement those. You know, it doesn't come as natural like some of the other things.

Some program directors reflected upon the lack of resources that were available to them.

Budget constraints made it difficult for them to meet the demands of the department.

One program director said:

The way it is right now with money constraints, or money restraints and all, it seems like budget is a real problem and trying to balance out and juggle out the money that we have for additional faculty and just over all running other programs, that's the area that I can see that needs more work.

Another area of weakness identified by program directors was in the area of faculty affairs. Four of the thirteen program directors felt that conflict management and dealing with problems with faculty was the most difficult part of their job. Again, this was reflected in the quantitative data with this being the second lowest rating of satisfaction with skills of the program directors. One program director said this about dealing with faculty:

We hire very competent, and capable faculty here and typically problems that arise generally don't rise to the level of coming to the chairman of the department, because they're generally handled at a lower level successfully, with all parties coming away amicable. So I think that because I don't have the experience of

having to deal with many conflict situations, I think that's probably my weakest area.

Another program director felt that handling conflict with staff was the most unpleasant part of the position. He described his experience this way:

I would say, you know the thing that I think is probably, I'm not sure would be least prepared, but the thing that is not fun is the discipline, especially disciplining staff. Which maybe sounds harsh, but in terms of like making sure people are here when they are supposed to be, and you want to have a nice work environment where everyone is happy to be at work, but you also the reality of needing to be at work on time and to be doing what they need to be doing.

One other program director articulated her displeasure with handling faculty situations a bit differently. Again, the point was stressed that this was an unpleasant part of the job.

She said:

Well, I really do not feel I'm a good supervisor. I never wanted to be a supervisor, I like to teach, I like to run school and make sure it's in compliance with the rules and regulations of the accrediting body, and now I have several teachers that are underneath me and I really don't feel that I have the skills to discipline people, I don't have the desire to do it and it just... I just really don't think I have the personality for that.

Program directors were also asked what job performance skills they felt most equipped to handle. Consistent with the quantitative data, instruction was the skill most often mentioned. Program directors felt that this skill was a strength that had been developed through experience. One program director summed up it up by saying: "I mean, I teach, I feel really comfortable teaching. I've taught for [number, more than 15] years now." Another skill that was mentioned by several program directors was department governance. Again, experience was cited as a major reason for the confidence program directors had with this skill. One program director said,

Well, in actuality, probably departmental management. I've had [number] years experience, so I've learned a lot of what not to do and what to do and over the years, I think I've managed to get better when there is a problem. Me tinkering

with it doesn't make it worse which is easy to do. So, I think my strengths are just managing the entire program.

Overall, program directors seemed very satisfied with their skills. When asked about skills they were most and least satisfied with, there were several responses by program directors that indicated their confidence. For example, one program director said, "You're talking to somebody who has a high opinion of himself, as most program directors do." Another stated it this way, "there, none of those do I feel inadequate or do I feel like I'm missing critical skills." Program directors felt that their position required them to be competent with many skills. One program director said, "to be totally honest, you have to handle them all. I mean, I don't know that I could really say any one anymore so than the other because it's required of you to do them all."

Table 31 provides a comparison of the rankings of the level of importance to the department with the level of satisfaction with leadership skills for each of the responsibilities. The ratings for the level of importance of the responsibilities were very similar to the ratings for the level of satisfaction of program directors with their leadership skills in relation to the responsibilities. Instruction received the highest rating for the level of importance to departments and program directors were also most satisfied with their leadership skills in relation to this responsibility. Budget and resources received the lowest rating for level of importance to a department and the lowest rating for program director satisfaction with leadership skills in relation to this responsibility.

Program directors were asked about the similarity of the rankings of the importance of the responsibilities and program directors' satisfaction with their skills as related to the responsibilities. More than half of the program directors felt the similarity was due to "human nature". These program directors indicated that it was natural for

someone to rank something that they felt most skilled at performing higher than something that they felt less skilled. One program director said,

I think that's human nature. I think...as humans we tend to gravitate toward what we're comfortable with and we tend to do that more. And, I think as people, we're afraid to push ourselves towards our weaknesses, to again become more flexible.

Table 31: Comparison of rankings of importance to department vs. satisfaction with skills for responsibilities

Responsibility	Importance Ranking	Satisfaction with Skills Ranking
Instruction	1	1
Department governance	2	3
Student affairs	3	2
External communication	4	4
Faculty affairs	5	6
Professional development	6	6
Office management	7	5
Budget and resources	7	7

Another program director described it with a metaphor by saying,

Human nature I guess. Things that you feel are important are going to be the things that you are good at. Sure a baseball pitcher probably thinks pitching is the most important aspect of the game. Catcher thinks catching is the most important, I don't know, maybe people's jobs descriptions, people's jobs are formed around their strengths I think that's probably with a lot of things with life, kind of that culture personality type thing where maybe have certain strengths. You go out there and make that job your own based on what your strengths are.

Several other program directors felt that the similarity of the ratings was directly related to an individual's experience with those skill areas. For example, one program director stated,

Because, we're much more comfortable with things that we do on a routine basis. We become very, very skilled in doing them. Things that we are not asked to do very often, we often feel uncomfortable doing them. We just don't feel as skilled.

Another program director was much more direct with his comments and said, "well obviously, if I am not good at a skill, I am not going to feel comfortable with it, and not want to make it a priority."

During the telephone interviews, program directors were asked what leadership skills they would most like to improve. The two most frequent responses were conflict management and communication and listening skills. Five program directors indicated that conflict management was a skill they would like to improve. Often a lack of experience in handling conflict situations was cited as a reason for needing to develop this skill. One program director said, "conflict resolution, only because I haven't done it much." Another program director elaborated on the need for this skill by saying,

I think that I could really use some help in knowing how to discipline people that are underneath me. I think I need some help in disagreeing without being disagreeable. I think I need help in addressing problems as soon as they come up instead of hoping that over time they will go away and then by the time I realize they are not going to go way, I'm so very angry.

Four program directors stated that communication and listening skills were something they would like to improve. One program director stated, "I wish my verbal communication skills were better. I wish I was more eloquent." Another summed up their feeling regarding this skill by saying, "I always want to improve communication. I think I am a good communicator, but I can always work on being, listening more to what others in the group are contributing."

Program directors were also asked to state their preferences on how best to learn leadership skills. A summary of their responses is provided in Table 32. Approximately 69% of program directors indicated they prefer to learn through workshops and lectures. Actual experiences that occur on the job and networking and having mentors both had 31% of program directors stating that these methods would be effective for them. Articles on leadership was the method least cited with 23% of program directors choosing this option.

Table 32: Percentage of faculty responses related to methods of learning

Method	Percentage
Workshops/lectures	69%
Actual experience	31%
Networking/mentors	31%
Articles	23%

Program Directors' Leadership Styles

Program directors' leadership style was assessed by self-report data obtained from the MLQ (5x-Short). Table 33 provides the means and standard deviations of the scores obtained from the program directors. Overall, program directors were transformational leaders (mean=3.28). For the transformational variables, the mean of the programs directors' scores was above 3.0 with individual consideration having the highest mean (mean=3.51) followed by inspirational motivation (mean=3.35). The mean of program directors' transactional scores was 2.01. For the transactional variables, contingent reward had the highest mean of 3.26, followed by management by exception (active) with

a mean of 1.78. Laissez faire received the lowest ratings with a mean of 0.53.

Additionally, all of the MLQ variables were normally distributed.

Table 33: Means and standard deviations for MLQ variables

Variable	M	SD	Skewness	Kurtosis	n
Inspirational motivation	3.35	.515	-1.02	1.90	284
Intellectual stimulation	3.18	.469	-.07	-.41	284
Individual consideration	3.51	.400	-.68	-.08	284
Idealized influence (behavior)	3.24	.524	-.52	.22	284
Idealized influence (attributed)	3.13	.553	-.34	-.36	284
Total transformational	3.28	.378	-.38	-.15	284
Contingent reward	3.26	.493	-.69	.71	284
Management by exception (active)	1.78	.878	.20	-.58	284
Management by exception (passive)	1.00	.639	.54	.17	284
Total transactional	2.01	.438	-.05	-.66	284
Laissez-faire	.53	.543	1.06	.59	284

During the interviews, program directors were asked to describe their personal leadership style. All of the program directors identified as transformational described their leadership style in terms of transformational characteristics. Additionally, one of the transactional leaders described their leadership style in terms of transformational characteristics. While the transactional leader had a high transactional score (mean=2.08), this leader also had a high transformational score (mean=3.45). Several of the transformational program directors described their leadership style as democratic or participatory. For example, one program director said,

Well, I suppose one would be participative, I believe in the collegiality of faculty, in that each faculty brings to this department a unique set of skills, experiences, knowledge, and vision and forward thinking ideas. And, that we as administrators need to tap into all those resources and in order to do that, there has to be an avenue for a faculty to feel free to want to voice their ideas and know that we can work together to implement and achieve the positive outcomes that might result from those types of ideas. And I guess, I don't like to make decisions in vacuums and so my idea is to get as much information from as many people as I possibly can...

Others discussed nurturing, coaching, and mentoring as important aspects of their leadership style. These descriptions were consistent with the transformational factors of individualized consideration and intellectual stimulation. The importance of building relationships was stressed by one program director who stated,

My style is more, leadership by walking around and getting to know the students, getting to know the managers, it's more relationship based, and yeah, building those relationships so that we have strong community ties, and, strong support system outside of the college.

Another program director emphasized relationships as well when she stated, "...I'm very nurturing. I try to nurture their strengths, coach them on weak areas. I look at that as a daily leadership style. Every opportunity with them is an opportunity to do such." Thus, transformational leaders emphasized the importance of participation and relationships in their leadership styles.

With the exception of the transactional leader previously mentioned, the program directors identified as transactional described themselves in terms of transactional and laissez faire leadership characteristics. One term that several of these program directors used was "micromanagement". Program directors indicated that their style was to not micromanage. Additionally, their descriptions were consistent with the characteristics of passive management by exception. For example, one program director stated,

I don't micromanage. I pretty much let folks develop themselves and then I observe them, evaluate them, if I see they are going down a wrong pathway, you

know, I'll counsel them or provide intervention. I really just let them be their own boss and manager...Again, I'll observe and intervene as necessary.

Another described their approach to leadership this way,

Very laid back...We are all adults. We know what we have to do. Let's just do it and I'm not into micro management. I just want people to do what they are supposed to do so I don't have to worry about it.

One program director's description of their leadership style seemed to be very passive consistent with passive management by exception and laissez faire leadership. He said, "Well, I'm pretty easy going and laid back for the most part...I like to keep things in a relaxed atmosphere....So I try not to add to that, you know the stress that they already feel."

One program director described the authoritative nature of his leadership style. His description was more similar to characteristics identified with active management by exception. When asked about his leadership style, he described it as:

Abrupt, confrontational... Very dichotomous, very black and white, somewhat authoritarian, quite rule oriented, I run a real tight ship with a lot of written rules and guidelines and they're enforced, so I think I maybe do that more than a lot of people do.

Overall, program directors' descriptions of their leadership styles were consistent with the scores obtained from the MLQ. Those who were identified as transformational described their style as participative, democratic, and nurturing, while those identified as transactional leaders described their style as authoritative and passive.

During the telephone interviews, program directors were provided with a list of transformational and transactional characteristics and asked which were most important. Overwhelmingly, the transformational characteristics were selected by all types of leaders. Only one transactional leader selected transactional characteristics as most important. Two characteristics were selected by five of the program directors—

intellectually stimulating and inspirational. Being considerate was chosen by four of the program directors as most important. Of the program directors who selected intellectually stimulating as the most important characteristic, three were transformational leaders and two were transactional leaders. Those who selected intellectually stimulating referred to its importance in terms of students and faculty. One of the program directors who selected intellectually stimulating described how this characteristic was important in dealing with students:

As far as intellectually stimulating, they [students] like to look for easy answers, they just find something to memorize, they don't want to do the application and analysis part of the cognitive domain. So, I try to encourage them to think in terms of application and analysis and understanding and not just basic knowledge.

Another program director described the importance of displaying this characteristic with faculty:

I think if you can stimulate the people around you then, once again they are kind of going to take the ball and run with it. They are going to hopefully build on that....I think that if you're intellectually stimulating, you give people the opportunity to research on their own or to work out things that interest them, things they don't have to be watched by a supervisor. That's self-motivated.

One program director stated the importance of being intellectually stimulating with faculty very simply. She said, "I think intellectually stimulating is very important, because then you get people on your team who you acknowledge that their ideas are valuable. They bring something to the organization."

Four of the five program directors who selected being inspirational as the most important characteristic were transformational leaders. Program directors also referred to the characteristic of being inspirational in terms of students and faculty. In terms of students, one program director described the importance of being inspirational in this way:

Well, unfortunately, the students, they come in motivated but over the two-year period, I think some of that motivation they get burned out, but I guess I feel the need to inspire them to keep their level of effort up to a high level.

Being inspirational with faculty was the most common theme discussed by the program directors. One program director summed up her impression of the importance of this characteristic saying,

I think that when you are in a role of leadership, you're setting the tone. You're setting the example, and if you're not an inspirational leader, I think that your faculty are just going to sort of withdraw and look elsewhere for inspiration. I think that being inspirational involves being charismatic and considerate. I think it's hard to have one quality and not integrate some of those other ones in there too. I think that leadership should be an inspirational role for all those that you are leading. You're leading by example.

Thus, this program director felt that several of the transformational factors were related and that, in order to display one characteristic successfully, it is necessary to display other transformational characteristics.

Four program directors stated that being considerate was the most important characteristic for a leader to have. Three of the program directors who made this selection were transactional leaders. One program director explained his feeling about being considerate:

I think for people to grow, you have to be considerate of their style, their facets, their personalities, and I believe it shows respect to them. That's... looking at myself, that's how I grew and succeeded, so I just assume that's what most other people would want in return as well.

One transactional program director identified closely monitoring followers and providing incentives for others' behavior as most important. This program director felt that these qualities were important in maintaining a successful program. He stated,

They [closely monitoring followers and providing incentives for others' behavior] maintain a quality program. I think that's primarily what they do. Even to the point where I have significant attrition. Attrition is a function of relatively open

admission system and a quality program. So, it's relatively easy to get into my program, but it is not easy to get through the program.

From the list of transformational and transactional characteristics, program directors were asked to identify the characteristic that was least important. The characteristic most often selected as least important was being charismatic. Eight program directors indicated this transformational characteristic was the least important. Three program directors identified the transactional characteristic of closely monitoring followers as the least important. One program director indicated that providing incentives for others' behavior was least important and one felt that all the characteristics were important depending on the situation.

Of the program directors that felt being charismatic was the least important characteristic, four were transformational leaders and four were transactional leaders. The program directors who chose this characteristic had a similar theme in their responses to why they believed this was the least important characteristic. Program directors seemed to have the belief that this was not essential for successful leadership. One program director stated, "I think most people that are in positions of power and influence can see through the charisma. So they're looking for more authentic skills in a leader." The feeling that this was not a critical characteristic was echoed by another program director who explained,

Well, define charismatic for me, I mean, you talk about somebody that is, you know, is very animated and very out there. Again, that to me can be a façade, you may not be really seeing the real person. It may just be façade, or a very shallow not too intellectual person.

Finally, one program director summed their thoughts on this characteristic by stating, “you can be a charmer, but that doesn’t necessarily mean you have a message and know how to get it across. You just know how to woo them.”

Four program directors chose transactional characteristics as the least important. Two transformational program directors and one transactional program director selected closely monitoring followers as the least important characteristic. One program director detailed the negative effect this characteristic could have on followers:

Well, yeah. I mean, it depends on, if the people know what they are supposed to do. And we are adults, then you just expect them to do what is right, and I don’t think that anyone needs to just micromanage, if that’s what closely monitoring means. That is, when you have a new faculty member, you have to spend time and to me that is being more considerate more than anything else, not necessarily closely monitoring their activities. But you know, the micromanaging has a tendency to be over bearing, intimidating, and I just don’t think that the people that work with you will work with you well, if you are intimidating to them.

One transformational program director indicated that providing incentives for others’ behavior was the least important characteristic. He outlined the problems with this characteristic in dealing with faculty:

...but basically in order to get some sort of kudos to get you do what I want you to do, and that’s important to some respect. But, I think if you really want to motivate people you really need to find what’s important to that person and once again try to form that job around them. If somebody doesn’t want to teach physics, and you force them to teach physics, [they are] probably not going to teach very well....We all do things we don’t want to do in our jobs.

Finally, one transactional leader felt that all of the characteristics were important given the proper situation. This program director held a situational view of leadership and stated,

I think a leader has to have some of all of them. I don’t know of any as least important. I think some leaders are born actually charismatic, other leaders work at it and become a leader through maybe intellectual stimulation. But, anyone of those being least valuable, I can’t say any one being least valuable because a

leader, director, manager, has to pull upon some of those skills at different times depending on what the situation is. And, I think in my experiences, when I have seen other chairman or leaders at various institutions who could not tap into one of those other skills they tend to be less successful.

Table 34 displays the correlations for the MLQ (5x-Short) variables which were used in the regression calculations in this study. There was a significant positive correlation among the five transformational variables (IIA, IIB, IM, IS, and IC). There were significant positive correlations among the five transformational variables and the transactional variable of contingent reward. The transactional variable, management by exception (active) had a significant positive relationship with the transformational variable idealized influence (attributed). Management by exception (passive) had a significant negative correlation with four of the transformational variables (IIA, IM, IS, and IC). Laissez faire leadership had a significant negative relationship with three of the transformational variables (IIA, IM, and IC).

Among the transactional variables, there were also some significant correlations. Contingent reward had a significant positive correlation with management by exception (active) and a significant negative correlation with management by exception (passive). Additionally, management by exception (active) and management by exception (passive) demonstrated a significant positive correlation. Laissez faire leadership had a significant negative relationship with the variable contingent reward and a significant positive relationship with management by exception (active) and management by exception (passive).

The reliability of each of the MLQ (5x-Short) scales is provided on Table 35. The transformational variables reliabilities ranged from 0.512 to 0.747. For the transformational variables only inspirational motivation was above a 0.70 reliability. The

Table 34: Correlation matrix for MLQ variables

	IIA	IIB	IM	IS	IC	CR	MA	MP	LF
IIA	--								
IIB	.463**	--							
IM	.536**	.486**	--						
IS	.452**	.476**	.455**	--					
IC	.482**	.450**	.488**	.558**	--				
CR	.445**	.476**	.458**	.445**	.468**	--			
MA	.166**	.107	.047	.092	.035	.184**	--		
MP	-.206**	-.095	-.181**	-.192**	-.234**	-.174**	.228**	--	
LF	-.212**	-.072	-.132**	-.107	-.169**	-.201**	.125*	.501**	--

Note. *designates a correlation that is significant at the .05 level (2-tailed); **designates a correlation that is significant at the .01 level (2-tailed) IIA=idealized influence attributed IIB=idealized influence behavior IM=inspirational motivation IS=intellectual stimulation IC=individualized consideration CR=contingent reward MA=management by exception active MP=management by exception passive LF=laissez-faire

Table 35: Reliability of the MLQ

MLQ Scale	N	Alpha Reliability
Inspirational motivation	279	.747
Intellectual stimulation	273	.555
Individual consideration	280	.508
Idealized influence (behavior)	279	.512
Idealized influence (attributed)	268	.603
Contingent reward	257	.447
Management by exception (active)	267	.749
Management by exception (passive)	278	.640
Laissez-faire	276	.505

transactional variables reliabilities ranged from 0.447 to 0.749. Only the transactional variable of management by exception (active) was above the 0.70 threshold. Finally, the reliability for laissez faire leadership was 0.505. These differed from the 0.74 to 0.94 reliabilities found by Bass and Avolio (2000). However, the reliabilities for this study were based on self-ratings, while the reliabilities reported by Bass and Avolio were based on others evaluating the leader.

Research Question 3

How well does leadership style explain program directors' perceived level of importance of their responsibilities?

Research Question 3a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain program directors' perceived level of importance of their responsibilities?

Research Question 3b: How well do contingent reward, management by exception (active), and management by exception (passive) (transactional factors) explain program directors' perceived level of importance of their responsibilities?

Multiple regression analyses were conducted to determine how well leadership style, transformational factors, and transactional factors explained program directors' perceived level of importance of their responsibilities. There are several assumptions associated with multiple regression that were checked for each analysis. Normality was assessed for each of the variables utilized in the regression (Tables 33 & 36). The dependent variables of department governance and instruction were not normally

distributed, therefore, these variables were transformed by squaring each of them. This transformation provided the most normal distribution of the variables.

Table 36: Means and standard deviations for dependent variables

Variable	M	SD	Skewness	Kurtosis	n
Department governance	3.77	.509	-2.27	5.29	281
Instruction	3.86	.389	-2.76	7.36	281
Faculty affairs	3.33	.806	-1.03	.40	281
Student affairs	3.69	.534	-1.53	1.43	280
External communication	3.52	.644	-1.18	.96	281
Budget and resources	3.06	.873	-.61	-.41	279
Office management	3.06	.862	-.59	-.40	281
Professional development	3.21	.846	-.84	-.03	281

Second, the linear relationship between the variables was assessed utilizing a scatter plot. Additionally, the scatter plots were used to determine if the data met the assumption of homoscedasticity. Based on the scatter plots of the studentized deleted residuals and the responsibilities, the assumptions of linearity and homoscedasticity were tenable.

To answer research question three, a regression analysis was performed with importance of the responsibility as the dependent variable and leadership style (transformational, transactional, and laissez faire) as the independent variables. Of the eight regression analyses that were conducted, the regression equations for the responsibilities of department governance ($R^2=.036$, adjusted $R^2=.026$, $F(3, 277)=3.49$, $p=.016$), instruction ($R^2=.036$, adjusted $R^2=.025$, $F(3, 277)=3.42$, $p=.018$), external

communication ($R^2=.060$, adjusted $R^2=.050$, $F(3, 277)=5.87$, $p=.001$), budget and resources ($R^2=.061$, adjusted $R^2=.051$, $F(3, 275)=5.99$, $p=.001$), and professional development ($R^2=.131$, adjusted $R^2=.121$, $F(3, 277)=13.91$, $p<.001$) demonstrated a statistically significant relationship with leadership style. The dependent variables of faculty affairs ($R^2=.027$, adjusted $R^2=.017$, $F(3, 277)=2.59$, $p=.054$), student affairs ($R^2=.024$, adjusted $R^2=.014$, $F(3, 276)=2.30$, $p=.078$), and office management ($R^2=.021$, adjusted $R^2=.010$, $F(3, 277)=1.96$, $p=.121$) did not have a statistically significant relationship with leadership style. The beta weights of each of the independent variables with the individual dependent variables are displayed in table 37. Of the independent variables, only transformational leadership had a statistically significant positive relationship with any of the independent variables. Transformational leadership was a significantly related to department governance, instruction, faculty affairs, external communication, budget and resources, and professional development.

In summary, leadership style was a significant indicator for the responsibilities of department governance, instruction, external communication, budget and resources, and professional development. Additionally, transformational leadership was the only leadership style which had a significant relationship with any of the responsibilities. Thus, transformational leaders ranked the responsibilities of department governance, instruction, external communication, budget and resources, and professional development higher than transactional and laissez faire leaders. However, in this analysis a mean for each of the leadership styles was used for the calculations. To further explore the individual factors associated with transformational and transactional leadership, additional regressions were analyzed in relation to the responsibilities.

Table 37: Comparison of beta weights of leadership styles for importance of responsibilities

Variable	Dependent Variables															
	Department Governance		Instruction		Faculty affairs		Student affairs		External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t
Transformational	.13	2.13*	.12	1.86	.16	2.49*	.09	1.39	.24	3.96***	.24	3.88***	.13	2.00*	.36	6.15***
Transactional	.01	0.16	.09	1.48	-.04	-.61	.11	1.81	-.01	-.09	.04	.60	.04	.58	-.04	-.69
Laissez faire	-.12	-1.84	-.10	-1.60	-.04	-.57	-.001	-.01	-.01	-.23	.01	.14	-.03	-.53	-.02	.38

*p<.05, **p<.01, ***p<.001

To answer the research question 3a, a regression was utilized with the level of importance of each of the responsibilities as the dependent variable and inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) as the independent variables. The regression models for the responsibilities of instruction ($R^2=.058$, adjusted $R^2=.041$, $F(5, 275)=3.40$, $p=.005$), external communication ($R^2=.094$, adjusted $R^2=.078$, $F(5, 275)=5.71$, $p<.001$), budget and resources ($R^2=.089$, adjusted $R^2=.072$, $F(5, 273)=5.32$, $p<.001$), office management ($R^2=.054$, adjusted $R^2=.037$, $F(5, 275)=3.14$, $p=.009$) and professional development ($R^2=.159$, adjusted $R^2=.144$, $F(5, 275)=10.39$, $p<.001$) were statistically significant. The regression equations for the responsibilities of department governance ($R^2=.037$, adjusted $R^2=.019$, $F(5, 275)=2.08$, $p=.068$), faculty affairs ($R^2=.030$, adjusted $R^2=.012$, $F(5, 275)=1.69$, $p=.136$), and student affairs ($R^2=.037$, adjusted $R^2=.019$, $F(5, 274)=2.08$, $p=.068$) were not statistically significant. Additionally, the beta weights of each of the transformational factors were analyzed to determine any significant relationships (see Table 38). Inspirational motivation had a statistically significant positive relationship with the dependent variables of budget and resources and professional development. Individualized consideration demonstrated a significant positive relationship with the responsibilities of instruction and student affairs. Finally, idealized influence (behavior) had a significant positive relationship with the responsibilities of external communication, budget and resources, office management, and professional development.

In summary, the responsibilities of instruction, external communication, budget and resources, office management, and professional development demonstrated regression models with significant relationships to the transformational factors.

Table 38: Comparison of beta weights of transformational factors for importance of responsibilities

Variable	Dependent Variables															
	Department Governance		Instruction		Faculty affairs		Student affairs		External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t
Inspirational motivation	-.07	.90	<.00	<-.00	.11	1.38	-.07	-.93	.02	.30	.20	2.73**	-.11	-1.46	.25	3.44**
Intellectual stimulation	-.01	-.07	.10	1.31	.04	.57	-.04	-.52	.19	2.55*	-.02	-.27	-.04	-.55	.04	.56
Individualized consideration	.03	.39	.21	2.72**	<.00	-.04	.18	2.26*	-.09	-1.22	-.01	-.12	.07	.89	.11	1.54
Idealized influence (behavior)	.11	1.52	.02	.28	.08	1.13	.13	1.72	.21	2.96**	.18	2.56*	.24	3.29**	.16	2.29*
Idealized influence (attributed)	.13	1.74	-.12	-1.58	-.03	-.37	-.04	-.54	-.01	-.14	-.04	-.55	.03	.39	-.09	-1.19

*p<.05, **p<.01, ***p<.001

Additionally, evaluation of the beta weights of the independent variables demonstrated a significant relationship of several of the individual transformational factors with the responsibilities. This indicates that the level of importance of some responsibilities is viewed differently by leaders with different transformational characteristics. For instance, idealized influence behavior had significant relationship with the responsibilities of external communication, budget and resources, office management and professional development. Individualized consideration had a significant relationship with two responsibilities: student affairs and instruction. The transformational factor of intellectual stimulation was significantly related to the responsibility of external communication. Finally, inspirational motivation demonstrated a significant relationship with the responsibilities of professional development and budget and resources. Thus, leaders with these characteristics view the responsibilities indicated by the results as more important.

Regression analysis was utilized to answer research question 3b with the level of importance of each of the responsibilities as the dependent variable and the transactional factors of contingent reward, management by exception (active), and management by exception (passive) as the independent variables. All of the regression models for the dependent variables and the transactional factors were statistically significant (department governance, $R^2=.045$, adjusted $R^2=.035$, $F(3, 277)=4.39$, $p=.005$, instruction, $R^2=.029$, adjusted $R^2=.018$, $F(3, 277)=2.72$, $p=<.045$; faculty affairs, $R^2=.061$, adjusted $R^2=.050$, $F(3, 277)=5.95$, $p=.001$; student affairs, $R^2=.031$, adjusted $R^2=.020$, $F(3, 276)=2.93$, $p=.034$; external communication, $R^2=.073$, adjusted $R^2=.063$, $F(3, 277)=7.24$, $p=<.001$; budget and resources, $R^2=.098$, adjusted $R^2=.088$, $F(3, 275)=9.93$, $p=<.001$; office management, $R^2=.048$, adjusted $R^2=.038$, $F(3,277)=4.65$, p

=.003; professional development, $R^2=.077$, adjusted $R^2=.067$, $F(3, 277)=7.68$, $p < .001$).

Inspection of the individual beta weights of the independent variables for each of the regression analyses revealed that contingent reward had a statistically significant positive relationship with all of the dependent variables (see Table 39). Additionally, management by exception (passive) had a statistically significant negative relationship with the dependent variable of department governance.

In summary, all of the regression models between the responsibilities and the transactional variables demonstrated a significant positive relationship. In other words, the transactional leadership factors helped to explain program directors' rankings of the importance of the responsibilities. Further inspection of the beta weights of the independent variables determined a significant positive relationship between the transactional variable of contingent reward with each of the responsibilities indicating that leaders with this characteristic rated the responsibilities higher. The only other transactional variable that demonstrated a significant relationship was management by exception (passive). The responsibility of department governance had a significant negative relationship with management by exception (passive). Thus, leaders with this characteristic rated the importance of department governance lower.

Research Question 4

How well do leadership style, discipline of highest degree, program type, and years of experience as a program director explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4a: How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence

(attributed) (transformational factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Research Question 4b: How well do contingent reward, management by exception (active), and management by exception (passive) (transactional factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Multiple regression analyses were conducted to determine how well leadership style, discipline of highest degree, program type, and years of experience as a program director explain the level of satisfaction with program directors' leadership skills as related to their responsibilities. Additional regression analyses were done to examine how well transformational and transactional factors explain the level of satisfaction with program directors' leadership skills as related to their responsibilities. As with the previous analysis for research question three, the assumptions associated with multiple regression were checked. Normality for the leadership style variables had been established for research question three (see Table 33). The normality of the other dependent (see Table 40) and independent variables was assessed. All of the variables utilized for the multiple regression analyses were normally distributed. Again, the linear relationship of the variables and the assumption of homoscedasticity were evaluated by examining the scatter plots of the studentized deleted residuals and the responsibilities. Based on these analyses, these assumptions were tenable.

The regression analyses conducted to ascertain how well program type, years of experience, discipline of highest degree, and leadership style explained program directors' level of satisfaction with their leadership skills in relation to the responsibilities demonstrated statistically significant relationships for all of the dependent variables

Table 39: Comparison of beta weights of transactional factors for importance of responsibilities

Variable	Dependent Variables															
	Department Governance		Instruction		Faculty affairs		Student affairs		External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t
Contingent reward	.15	2.38*	.17	2.68**	.21	3.51**	.16	2.58*	.26	4.30***	.312	5.20***	.18	2.86**	.26	4.36***
Management by exception (active)	.03	.40	.02	.31	-.07	-1.13	.05	.74	-.05	-.85	-.03	-.55	.04	.65	-.06	-1.06
Management by exception (passive)	-.13	-2.11*	.01	.14	-.08	-1.35	.05	.72	-.05	-.76	-.02	-.35	-.10	-1.54	-.06	-.92

*p<.05, **p<.01, ***p<.001

(department governance $R^2=.112$, $F(9, 260)=4.76$, $p < .001$; instruction, $R^2=.170$, adjusted $R^2=.142$, $F(9,263)=5.60$, $p < .001$; faculty affairs, $R^2=.119$, adjusted $R^2=.089$, $F(9,261)=3.92$, $p < .001$; student affairs, $R^2=.147$, adjusted $R^2=.118$, $F(9,260)=4.99$, $p < .001$; external communication, $R^2=.177$, adjusted $R^2=.149$, $F(9,264)=6.30$, $p < .001$;

Table 40: Means and standard deviations for dependent variables

Variable	M	SD	Skewness	Kurtosis	n
Department governance	3.43	.647	-.85	.40	279
Instruction	3.72	.495	-1.50	1.31	282
Faculty affairs	3.27	.716	-.74	.33	280
Student affairs	3.59	.604	-1.29	1.11	279
External communication	3.36	.661	-.55	-.69	283
Budget and resources	2.93	.759	-.22	-.47	281
Office management	3.28	.715	-.60	-.41	281
Professional development	3.27	.715	-.56	-.44	281

budget and resources, $R^2=.114$, adjusted $R^2=.084$, $F(9,263)=3.76$, $p < .001$; office management, $R^2=.094$, adjusted $R^2=.062$, $F(9,262)=3.01$, $p = .002$; professional development, $R^2=.144$, adjusted $R^2=.115$, $F(9,262)=4.90$, $p < .001$). The beta weight of each of the independent variables was also examined in relation to all of the dependent variables (see Table 41). Years of experience had a significant positive relationship with the dependent variables of department governance, instruction, faculty affairs, and budget and resources. Transformational leadership displayed a significant relationship with program directors' level of satisfaction with their leadership skills in relation to all of the responsibilities except office management. Laissez faire leadership had a significant

Table 41: Comparison of beta weights of independent variables for level of satisfaction with leadership skills as related to responsibilities

Variable	Dependent Variables							
	Department Governance		Instruction		Faculty affairs		Student affairs	
	Beta	t	Beta	t	Beta	t	Beta	t
Program type 1	<-.00	-.04	.03	.49	-.06	-.92	<-.00	-.03
Program type 2	-.11	-1.94	-.04	-.71	-.07	-1.19	-.15	-2.53*
Years of experience	.16	2.68**	.22	3.83***	.15	2.59*	.11	1.94
Discipline of highest degree 1	-.05	-.71	-.05	-.71	-.08	-1.04	<.00	.02
Discipline of highest degree 2	.06	.78	-.07	-.90	.06	.82	.12	1.63
Discipline of highest degree 3	-.09	-1.04	.04	.49	.02	.29	-.13	-1.63
Transformational	.17	2.69**	.18	2.90**	.23	3.60***	.26	4.16***
Transactional	.03	.41	-.03	-.53	-.06	-.89	-.02	-.32
Laissez faire	-.22	-3.56***	-.24	-3.96***	-.14	-2.24*	-.14	-2.22*

*p<.05, **p<.01, ***p<.001

Table 41: Continued

Variable	Dependent Variables							
	External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t
Program type 1	-.09	-1.53	-.12	-1.94	.12	1.96	-.10	-1.64
Program type 2	-.05	-.83	-.02	-.38	-.05	-.78	-.065	-1.12
Years of experience	.03	.44	.15	2.53*	.10	1.72	.03	.44
Discipline of highest degree 1	-.08	-1.11	.05	.62	-.07	-.92	.01	.06
Discipline of highest degree 2	.08	1.03	.02	.24	-.02	-.29	.10	1.33
Discipline of highest degree 3	-.02	-.22	.01	.09	.05	.64	.01	.11
Transformational	.36	5.91***	.20	3.18**	.02	.35	.37	5.96***
Transactional	-.02	-.39	.08	1.24	.02	.32	-.10	-1.68
Laissez faire	-.15	-2.47*	-.16	-2.47*	-.25	-3.87***	-.03	-.48

*p<.05, **p<.01, ***p<.001

negative relationship with program directors' level of satisfaction with their leadership skills for all of the responsibilities except professional development.

In summary, all of the regressions conducted to determine how well program type, years of experience, discipline of highest degree, and leadership style explained program directors' level of satisfaction with their leadership skills in relation to their responsibilities were significant. Years of experience of program directors was positively related to program directors' level of satisfaction with the responsibilities of department governance, instruction, faculty affairs, and budget and resources. Thus, as the years of experience of a program director increased, their satisfaction in relation to those responsibilities did as well. Transformational leadership was positively related to program directors' level of satisfaction with all of the responsibilities excluding office management. Therefore, as transformational leadership increased, satisfaction with leadership skills did as well. Laissez faire leadership was significantly negatively related to program directors' level of satisfaction with their leadership skills in relation to all of the responsibilities with the exception of professional development. This demonstrates that as laissez faire leadership increased, program director's satisfaction with their leadership skills decreased.

To answer research question 4a, a regression analysis was utilized with the transformational leadership factors as the independent variables and program directors' level of satisfaction in relation to each of their responsibilities as the dependent variable. The regression analyses examining how the transformational factors explained program directors' satisfaction with their leadership skills for the responsibilities of department governance ($R^2=.075$, adjusted $R^2=.058$, $F(5, 273)=4.42$, $p=.001$), instruction ($R^2=.095$, adjusted $R^2=.079$, $F(5, 276)=5.80$, $p<.001$), faculty affairs ($R^2=.073$, adjusted $R^2=.056$,

F (5, 274)=4.33, p =.001), student affairs ($R^2=.108$, adjusted $R^2=.091$, F (5,273)=6.59, p =<.001), external communication ($R^2=.150$, adjusted $R^2=.135$, F (5, 277)=9.79, p=<.001), budget and resources ($R^2=.074$, adjusted $R^2=.057$, F (5, 275)=4.37, p =.001) and professional development ($R^2=.122$, adjusted $R^2=.106$, F (5, 275)=7.63, p =<.001). Only office management ($R^2=.028$, adjusted $R^2=.010$, F (5, 275)=1.56, p =.172) did not have a statistically significant relationship with the transformational factors. Table 42 displays the beta weights for each of the independent variables with the dependent variables. The transformational factor of inspirational motivation had a significant relationship with the level of satisfaction with program directors' leadership skills for the responsibilities of department governance, instruction, student affairs, external communication, and professional development. Idealized influence (attributed) had a statistically significant relationship with program directors level of satisfaction with their leadership skills for the responsibilities of department governance, instruction, external communication, budget and resources, and office management. The transformational factor of individualized consideration had a significant positive relationship with the level of satisfaction of leadership skills for the responsibility of instruction.

In summary, all of the regression equations examining the how well the transformational factors explained program directors' level of satisfaction with their leadership skills in relation to their responsibilities were significant with the exception of office management. Additionally, three of the transformational factors were found to have a significant relationship with the level of satisfaction with leadership skills of some of the responsibilities. Specifically, inspirational motivation had a significant positive relationship with program directors' level of satisfaction with their leadership skills in

Table 42: Comparison of beta weights of transformational factors for level of satisfaction with leadership skills as related to responsibilities

Variable	Dependent Variables															
	Department Governance		Instruction		Faculty affairs		Student affairs		External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t
Inspirational motivation	.16	2.16*	.17	2.23*	.05	.69	.16	2.10*	.16	2.28*	.14	1.82	-.02	-.27	.21	2.93**
Intellectual stimulation	.09	1.15	-.11	-1.41	.14	1.83	-.10	-1.38	.14	1.94	.03	.46	-.06	-.75	.12	1.65
Individualized consideration	-.04	-.45	.15	2.00*	.11	1.40	.14	1.89	.04	.52	-.02	-.25	.04	.46	.02	.31
Idealized influence (behavior)	-.08	-1.04	-.06	-.84	-.06	-.89	.11	1.56	-.02	-.30	-.01	-.15	.04	.59	.05	.74
Idealized influence (attributed)	.15	2.07*	.16	2.16*	.08	1.11	.076	1.04	.16	2.27*	.17	2.30*	.16	2.05*	.03	.34

*p<.05, **p<.01, ***p<.001

relation to the responsibilities of department governance, instruction, student affairs, external communication, and professional development. The transformational factor of idealized influence (attributed) was also found to have a significant positive relationship with the level of satisfaction of leadership skills for the responsibilities of department governance, instruction, external communication, budget and resources, and office management. Finally, individualized consideration had a significant positive relationship with the level of satisfaction of leadership skills in relation to the responsibility of instruction.

To answer research question 4b, multiple regression analysis was utilized with the transactional factors as independent variables and program directors' satisfaction with their leadership skills in relation to each of the responsibilities as the dependent variable. The regression equations for the transactional factors and program directors' satisfaction with their leadership skills in relation to all of the responsibilities were statistically significant (department governance, $R^2=.046$, adjusted $R^2=.035$, $F(3, 275)=4.38$, $p=.005$; instruction, $R^2=.070$, adjusted $R^2=.060$, $F(3, 278)=6.95$, $p<.001$; faculty affairs, $R^2=.072$, adjusted $R^2=.062$, $F(3, 276)=7.18$, $p<.001$; student affairs, $R^2=.041$, adjusted $R^2=.031$, $F(3, 275)=3.96$, $p=.009$; external communication, $R^2=.109$, adjusted $R^2=.099$, $F(3, 279)=11.34$, $p<.001$; budget and resources, $R^2=.067$, adjusted $R^2=.057$, $F(3, 277)=6.62$, $p<.001$; office management, $R^2=.048$, adjusted $R^2=.037$, $F(3, 277)=4.63$, $p=.004$; professional development, $R^2=.081$, adjusted $R^2=.071$, $F(3, 277)=8.12$, $p<.001$). Further evaluation of the beta weights of the independent variables in relation to each of the dependent variables demonstrated a significant positive relationship for the transactional factor of contingent reward with all of the dependent variables except office management (see Table 43). Additionally, the transformational factor of management by

exception (passive) had a significant negative relationship with program directors' level of satisfaction with their leadership skills for the responsibilities of instruction, external communication, office management, and professional development.

In summary, all of the regression analyses conducted to find how well the transactional factors explained program directors' level of satisfaction with their leadership skills in relation to their responsibilities were significant. The transactional factor of contingent reward was found to have a significant positive relationship with program directors' level of satisfaction with their leadership skills in relation to all of the responsibilities with the exception of office management. Thus, contingent reward leaders were more satisfied with their leadership skills except in the area of office management. The transactional factor of management by exception (passive) was found to have a significant negative relationship with program directors' level of satisfaction with their leadership skills in relation to the responsibilities of instruction, external communication, office management, and professional development and, therefore, these leaders were less satisfied with their leadership skills for these responsibilities.

Research Question 5

Does the level of importance of the responsibilities vary based on gender, institution type (hospital, 2 year, 4 year, or vocational/technical), or due to an interaction between institution type and gender?

A series of 2 (gender) by 4 (institution type) ANOVAs with the level of importance of each of the responsibilities were conducted to determine any significant effects. Table 44 outlines the results of these analyses. A significant main effect was found for institution type with the responsibilities of faculty affairs $F(3,260)=2.65$,

Table 43: Comparison of beta weights of transactional factors for level of satisfaction with leadership skills as related to responsibilities

Variable	Dependent Variables															
	Department Governance		Instruction		Faculty affairs		Student affairs		External communication		Budget & resources		Office management		Professional development	
	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t	Beta	t
Contingent reward	.16	2.62**	.15	2.49*	.21	3.50**	.16	2.64**	.28	4.66***	.23	3.74***	.12	1.91	.21	3.48**
Management by exception (active)	-.01	-.08	-.03	-.46	-.08	-1.29	-.01	-.19	-.02	-.39	.04	.69	<.00	.04	-.04	-.57
Management by exception (passive)	-.12	-1.86	-.19	-3.04**	-.12	-1.88	-.10	-1.58	-.14	-2.36*	-.08	-1.26	-.17	-2.67**	-.16	-2.60*

*p<.05, **p<.01, ***p<.001

$p=.049$ and budget and resources $F(3,260)=3.50$, $p=.016$. No other significant relationships were identified. For the responsibility of faculty affairs, a Tukey post hoc analysis found no significant differences between any of the institution types. However, the Tukey post hoc analysis for the responsibility of budget and resources revealed a significant difference ($p<.05$) between vocational/technical institutions (mean=2.63) and two-year institutions (3.19).

Research Question 6

Does the level of satisfaction with program directors' leadership skills as related to their responsibilities vary based on gender, highest degree completed (baccalaureate, masters, or PhD, EdD), or due to an interaction between highest degree completed and gender?

A series of 2 (gender) by 3 (highest degree completed) ANOVAs with program directors' level of satisfaction with their leadership skills in relation to each of the responsibilities were conducted to determine any significant effects. Table 45 outlines the results of these analyses. A significant main effect was found for highest degree completed with program directors' level of satisfaction with their leadership skills in relation to the responsibilities of department governance $F(2,264)=4.55$, $p=.011$, faculty affairs $F(2,264)=3.21$, $p=.042$, and professional development $F(2,264)=3.10$, $p=.047$. No other significant relationships were identified. For the responsibility of department governance, a Tukey post hoc analysis found a significant difference ($p<.05$) between program directors with PhD or EdD degrees (mean=3.63) and those with baccalaureate degrees (mean=3.22). The Tukey post hoc analysis for the responsibility of faculty affairs found significant differences between program directors with PhD or EdD degrees (mean=3.62) and those with baccalaureate (mean=3.19) and masters (mean=3.25)

Table 44: 2 X 4 ANOVA for level of importance of responsibilities

Source	df	F							
		Department governance	Instruction	Faculty affairs	Student affairs	External communication	Budget & resources	Office management	Professional development
Gender	1	.565	1.528	1.970	.332	.738	.052	3.610	.306
(G)									
Institution	3	.230	.036	2.654*	.143	1.796	3.496*	1.983	2.412
(I)									
G x I	3	.637	.071	2.465	2.025	1.132	.361	.366	.458
Error	260	(10.20)	(6.86)	(.64)	(.25)	(.40)	(.73)	(.73)	(.73)

Note: Values enclosed in parentheses represent mean square errors.

*p<.05

Table 45: 2 X 3 ANOVA for program directors' level of satisfaction with leadership skills in relation to responsibilities

Source	df	F							
		Department governance	Instruction	Faculty affairs	Student affairs	External communication	Budget & resources	Office management	Professional development
Gender	1	2.519	1.587	.006	.132	.095	.015	1.474	2.039
(G)									
Degree	2	4.549*	.779	3.208*	.419	1.522	2.201	.195	3.094*
(D)									
G x D	2	2.282	1.273	.003	.064	.135	.535	.890	1.635
Error	264	(.411)	(.244)	(.514)	(.368)	(.438)	(.576)	(.518)	(.508)

Note: Values enclosed in parentheses represent mean square errors.

*p<.05

degrees. However, the Tukey post hoc analysis for the responsibility of professional development did not reveal any significant differences between the highest degree completed.

Research Question 7

How does program type influence the leadership skills utilized by radiologic technology program directors?

During the telephone interviews, program directors were asked if program type or institution type influenced the leadership skills that were utilized. All of the program directors indicated that these factors did influence the leadership skills they utilized. In respect to program type, program directors indicated a variety of reasons for the influence. One difference that program directors indicated was the focus of the institution. Some program directors felt that hospital-based certificate programs focused more on students achieving skills, whereas associate and baccalaureate degree programs focused more on academics. Thus, a different set of leadership skills was necessary to achieve success in each program type. One program director described the difference:

Well, in a collegiate atmosphere on a campus, there's more emphasis on academic excellence and test scores and that sort of thing. Where if you were in a hospital setting, I was a program director of a hospital based program for [number] years, in a hospital setting there is more emphasis on a hands on approach.

Another program director provided this description:

I think that kind of educator that I am, I would probably do better in a college based program....Just because, in a hospital based program, I think the students have more respect for someone that is with them in a clinical area even if they won't learn as much from them in the classroom. And, you know, I haven't been in the clinical area since [year], so I wouldn't even venture into it. That's for sure, and I think in a hospital based program, the students put a lot more emphasis on clinical skills. And, if they don't see me in the clinical area, at least initially, they lose confidence in me in the classroom....I've taught other classes at other places, you know like on the side and I don't experience that anywhere, just here....I just want to go in there and teach the class....

Besides the different focus of academics vs. clinical skills, program directors also expressed that the environment of a certificate and a degree program differed. Program directors in degree programs felt that their interactions with faculty helped them to develop different leadership skills. One program director stated,

I think being at a community college setting has encouraged me to develop more well rounded skills than maybe I would develop were I in a hospital setting. Part of that is just interacting with faculty and other administrators here at the college.

Another program director felt that the environment at a university allowed for a better exchange of ideas and stated, “I suppose we’re in an educational environment, so thoughts and ideas are more freely expressed than perhaps in industry.”

Finally, some program directors from hospital based programs explained that their programs were more flexible than programs at universities. These directors indicated that the procedures that were utilized to make changes in the program were less restrictive than those of a university. One program director said,

I think with a hospital based program you have a lot of freedom of how you run the program. There’s not a lot of administration above me telling me what I need to do. There’s not a lot of administration above me that knows a lot about education. You know there are hospital administrators, so that gives me a lot of freedom to make changes to the program as we go along without having to go through some strong arm committee structure like you find in a college or something....Here we can make a curriculum change from year to year kind of lean and mean and change things quickly.

Program directors also indicated how they felt that the institution type affected their leadership style. When asked how the institution affected his leadership style, one program director stated, “in order to maintain or advance our issue through college politics one has to know how it works and follow that pattern.” Other program directors felt that their leadership style was affected by their administration. These directors

indicated that leadership style of their administrator determined the skills they were able to develop and the skills they utilized. One program director stated,

My leadership skills here are very much different from my previous institution because the chairmen on this campus are expected to be the academic and administrative leaders of our little domain. The term I like to use for this institution is we are confederacy as opposed to a union, in that each of our units basically functions rather independently. So, the decisions I make don't always have to be approved up a hierarchy. There's certain decisions that do obviously, but there are a lot of decisions that don't. So, I have a lot of autonomy in this position and so my leadership skills here are very autonomous, versus my last institution where every decision had to be approved by a dean.

Another program director echoed this expression in a different way by stating,

What I've experienced so far, people have been considerate of me and observed me and only counseled me only when they see me going down the wrong path or as necessary. But, that's allowed me to grow and use the skills I'm used to using to allow my own faculty to grow. So, I've felt that support from the institution and you know people that over see my position.

Finally, one program director summed up her feelings about how administration can affect leadership this way:

It all depends on who your boss is and how much control you have over a lot of things within your program. You know, if someone above you is a micromanager, you know then, it kind of rolls down hill to some degree, because they are going to expect you to do things similarly to the way they do things.

Two program directors at hospital based programs stated that there were different opportunities for leadership development at their institutions that may not be available in a university setting. One program director described a program at her institution:

My corporation is unique in that they offer us a series called transformational leadership and they work with people for a minimum of three days on developing transformational leadership skills and understanding what they are. And, then they continue to help you afterwards, after the workshop, in order to make sure it's all there.

Another had this to say regarding leadership development at his institution:

...one of the things that this organization does is to provide leaders within the organization extensive leadership growth opportunities as well as mentoring

opportunities so I think, and I've been through a number of those, so I think those type of opportunities really do help to develop leadership qualities....I do have some experience in a college as an instructor and you don't have that approach there. I never experienced that kind of approach in terms of developing leaders within the organization, or mission driven educational opportunities. Most of the focus I remember was basically get the teaching done, get the students assessed, but there was none of that higher level development kind of opportunities there.

In summary, program directors indicated that hospital based programs had a distinct focus on developing clinical skills rather than academics. However, these institutions were also more flexible and able to make changes more quickly than a university based program. Additionally, hospital programs offered unique leadership development opportunities that may not be as readily available at universities. Conversely, university based programs provide an environment that focuses on academics and has an atmosphere where leaders can develop skills through interactions with other faculty and administrators. Additionally, these types of programs require leaders to understand the culture and the hierarchy of the institution in order make changes to the program. Program directors in all institution types and program types can be affected by the leadership style of their administrator.

Research Question 8

Why have the responsibilities that have been identified as very important to the department received those rankings?

During the telephone interviews, program directors provided a variety of reasons for their rankings of specific responsibilities. The quantitative data revealed instruction, department governance, and student affairs being ranked the highest respectively (see Table 21). Responsibilities that received the highest ratings seemed to be those which required the most attention from program directors. Further, the interest in these

responsibilities was primarily affected by contextual variables. For example, one program director discussed the importance of instruction, saying,

I have four hospitals, and three of them are all CR/DR [computed radiography/digital radiography] which makes the course I teach much more difficult. It's very difficult now to teach radiology physics in the concepts of mA [milliamps], time, all that stuff, when they're doing digital.

This program director was indicating how current changes in the clinical environment were impacting instruction. The evolution of technology is affecting how and what must be taught to students.

Another example of environmental factors influencing how program directors rated their responsibilities is provided by a program director discussing budget cuts in the state and institution. She said,

We actually cut nine units out of our budget about nine months ago. So, it was incredible. We also changed from a format where our clinical instructors were actually paid for by our hospitals, or were paid by the college and now they are being paid by the hospitals. So, of course [the pressure] to augment the, not augment, but to cut back on budget from the college and that was incredible, I mean it just took incredible amount of political maneuvering...

Thus, for this program director, the budget constraints within her department dictated that this responsibility take precedence over others. Another program director echoed this concern with budget, saying, "...decrease funding, having to do more with less. You're being asked to expand the program with less resources. So, it takes considerable management of the resources that you do have."

Still other program directors emphasized the impact of the institution in why some responsibilities were ranked high. These program directors indicated that the environment at their institution affected their responsibilities. For example, one program director articulated their lack of control over the responsibility of budget and resources.

He said, “probably that most of us are given the budget and then told this is it. You have it and you better spend it all. And if you need anymore too bad.” This lack of control over a responsibility tends to make a program director feel this is less important since they are unable to make very much difference in these areas. Another program director highlights this point saying,

I think most of us program directors, our immediate supervisors handle that [budget and resources]. And in some cases, we don’t even have a lot of good input into that area. So it just depends on what the organizational structure is and who we report to.

The realities of each program director’s situation influenced how the responsibilities were rated. Based on program directors’ comments, those responsibilities which were currently requiring a lot of attention and effort tended to be rated higher, and those over which program directors did not have control, or were not needing much consideration, were rated lower.

Chapter Summary

The findings of this study indicate that program directors perceive most of their responsibilities of high importance to their departments. Instruction, department governance, and student affairs received the highest ratings, respectively. Additionally, program directors were highly satisfied with their leadership skills in relation to their responsibilities. Instruction, student affairs, and department governance had the highest ratings in regards to program directors’ level of satisfaction with their leadership skills, respectively.

Multiple regression analyses demonstrated that transformational leadership was a significant indicator of program directors’ rankings of the level of importance of the responsibilities of department governance, instruction, external communication, budget

and resources, and professional development. Four of the individual transformational factors and two of the transactional factors had significant relationships with some of the responsibilities. These results provide an interesting insight into the factors that may affect how program directors view their responsibilities.

Multiple regression analyses showed that program directors' years of experience and transformational leadership were positively related to program directors' level of satisfaction with their leadership skills in relation to some of their responsibilities. Conversely, laissez faire leadership was negatively related to program directors' level of satisfaction. Three transformational and two transactional factors had significant relationships with program directors' level of satisfaction with their leadership skills. These findings highlight important relationships which may demonstrate factors that affect how program directors' leadership skills are utilized to handle their responsibilities.

Two-way ANOVAs conducted to analyze the effect of gender and institution type on the level of importance of the responsibilities indicated that two-year institutions rated the responsibility of budget and resources significantly higher than vocational/technical institutions. Additionally, two-way ANOVAs performed to ascertain the effect of gender and highest degree completed on program directors' level of satisfaction with their leadership skills in relation to their responsibilities demonstrated that program directors with a PhD or EdD rated their satisfaction with their leadership skills in relation to department governance higher than baccalaureate prepared program directors. Also, program directors with a PhD or EdD rated their satisfaction with their leadership skills for faculty affairs responsibilities higher than masters and baccalaureate prepared program directors. These findings provide information on the effects of institution types and level of education on program directors' responsibilities and leadership skills.

Qualitative data indicated that program directors felt that program type had an influence on the leadership skills they utilized. The skills program directors utilized were affected by the focus of the institution, environment, administration, and opportunities for leadership development. Additionally, interview data provided insight into the reasons for program directors' rankings of responsibilities. Responsibilities that were currently requiring attention were rated higher than those that did not need consideration at this time. The next chapter will provide a discussion of the findings in relation to the literature.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

The purpose of this study was to identify the responsibilities that program directors indicated as most important to their departments and the satisfaction of radiologic technology program directors with their current leadership skills as related to the responsibilities. In addition, the leadership styles of program directors were identified to analyze the role of leadership styles in relation to program directors' rankings for the level of importance of their responsibilities and level of satisfaction with their leadership skills in relation to their responsibilities. This chapter provides a discussion of the findings of this study in relation to the literature. A summary and interpretation of the results for each research question is presented. Additionally, implications for practice, recommendations for future research, and limitations of the study are discussed.

Research Question 1

Which responsibilities are perceived as most important to radiologic technology program directors?

An examination of the frequencies and mean ratings for each of the responsibilities was used to answer this question. Responsibilities were rated on Likert scale (1=low importance to 4=high importance). For this study, a rating of one or two was considered to indicate a responsibility of low importance and a rating of three or four to specify a responsibility of high importance to the department. In addition, during telephone interviews, program directors were asked if they agreed with rating for the responsibility rated the highest (instruction) and lowest (budget and resources). This analysis provided some interesting results.

First, none of the responsibilities had a mean rating below three, indicating that all of the responsibilities were of high importance to the department. Thus, program directors' perceptions indicate that all of these responsibilities require a great deal of attention. However, it is significant to remember that these are only program directors' perceptions. Lucas (1994) suggests that the Leadership Matrix be completed by deans and faculty as well in order to provide more feedback on the importance of responsibilities. Since this was not done in this study, these ratings need to be viewed cautiously.

The literature on department chairs' responsibilities establishes that their role is multifaceted (Bowman, 2002; Carroll & Wolverton, 2004; Del Favero, 2003; Lucas, 1994; Tucker, 1993; Warren, 1993). Tucker (1993) contends that the responsibilities of program chairs are increasing. These findings confirm that program directors are facing a variety of responsibilities which are important to the department. With this type of situation, it might be difficult to prioritize these responsibilities as well as to develop leadership skills to effectively handle them. In fact, Warren (1993) emphasized the difficulty in balancing the competing faculty and administrative roles associated with these positions. The findings of this study demonstrate that radiologic technology program directors are faced with a similar situation.

Second, program directors' responses in interviews to their perceptions of the ratings for instruction (highest) and budget and resources (lowest) provided an interesting perspective on how program directors view these responsibilities. While the responsibility of instruction received the highest rating of importance from the quantitative data gathered from the Leadership Matrix, during interviews, more than half of program directors (54%) disagreed with this ranking. These program directors

provided a variety of reasons for feeling that it was not their most important responsibility, such as the complexity of their position and other responsibilities that were more critical in their department. Again, these responses highlight the contention of the complexity and ambiguity of the role discussed in the literature (Bowman, 2002; Carroll & Wolverton, 2004; Del Favero, 2003; Lucas, 1994; Tucker, 1993; Warren, 1993).

Another insight provided by these comments relates to the specific role of radiologic technology program directors. During interviews, it became apparent that the role of program directors was different in different settings. This point is also confirmed in the literature (Lucas, 2000; Seagren, 1993; Tucker, 1993). Seagren (1993) indicated that the type of institution, discipline, and other institutional variables influence the role of the department chairs. Program directors discussed how the delineation of their responsibilities was determined by the structure of the institution. Some program directors had very heavy teaching loads, while others had more administrative responsibilities and fewer teaching responsibilities.

For the rankings for the responsibility of budget and resources, program directors who were interviewed had even more disagreement with the low ranking of this responsibility, with 62% indicating they disagreed. The program directors who agreed with the ranking felt that within their institution they had little control over budgeting issues. Those who disagreed stated that in order for their department to function successfully it was necessary for them to be effective in handling this responsibility. Hecht (2004) supports the idea that budget and resources is an important responsibility for department chairs, suggesting that skills be developed in this area in order for the department to function effectively. Program director responses maintain this contention.

The findings from the quantitative and qualitative data utilized to answer this research question provide some insight into the importance of program directors' responsibilities. The quantitative data illustrates a ranking of each of the responsibilities. However, this alone does not provide a complete vision of the role of program directors. The qualitative data indicates that the level of importance of the responsibilities is affected by contextual variables such as institution type and discipline. This is consistent with the literature (Lucas, 2000; Seagren, 1993; Tucker, 1993). The combination of data sources presents a more complete understanding of program directors' responsibilities.

Research Question 2

With which of their leadership skills are radiologic technology program directors least satisfied?

An inspection of the frequencies and mean ratings for the level of satisfaction of program directors with their leadership skills in relation to each of the responsibilities was used to answer this question. Satisfaction was rated on a Likert scale (1=low satisfaction to 4=high satisfaction). For this study, a rating of one or two was considered to indicate a low level of satisfaction and a rating of three or four to specify a high level of satisfaction with leadership skills in relation to the responsibilities. In addition, during telephone interviews, program directors were asked what job performance skills they were most and least prepared to handle. This assessment provided a thorough examination of program directors' levels of satisfaction with their leadership skills in relation to the responsibilities.

Similar to the rankings for the importance of the responsibilities, program directors' levels of satisfaction with their leadership skills in relation to the responsibilities received high ratings. In fact, the mean rating for program directors'

levels of satisfaction was above three for all of the responsibilities with the exception of budget and resources (mean=2.93). Thus, program directors' responses to the Leadership Matrix indicate a high level of satisfaction with their leadership skills in relation to their responsibilities. The level of satisfaction with leadership skills for the responsibility of budget and resources indicates some dissatisfaction with skills. This is not surprising, since, as Tucker (1993) indicates, most department chairs rise to this position from a faculty position. Thus, a responsibility such as budget and resources may require skills that the program director has not had adequate experience to address.

To further explain the quantitative data collected, program directors were asked about the job performance skills they were most and least prepared to handle. When asked about skills program directors were most prepared to handle, their responses indicated that they were satisfied with most, if not all, of their skills. However, when asked about skills that they were least prepared to handle, many indicated that budget and resources were their weakest area. Again, Tucker's (1993) contention that individuals in these positions come from faculty positions helps to explain why this may be an area of weakness. Additionally, several program directors indicated that the area of faculty affairs was a weakness. Specifically, program directors were uncomfortable with conflict management and disciplining faculty. The literature supports that these skills may be necessary for department chairs to develop. Bowman (2002) stressed that department chairs need leadership skills to address problem-solving and conflict resolution. Thus, radiologic technology program directors' weaknesses in this area are similar to other department chairs.

When comparing the quantitative and qualitative data for this research question, it is evident that the results support one another. For example, the quantitative data

indicated that program directors were satisfied with most of their leadership skills in relation to the responsibilities. Only one responsibility (budget and resources) had a mean below three. Additionally, interviews maintain this finding. Program directors indicated in interviews that they were indeed satisfied with their leadership skills, particularly in the areas of instruction and department governance. These are also two of the top three rated from the quantitative data. Similarly, during interviews, program directors indicated that they were least satisfied with their leadership skills in terms of budget and resources and faculty affairs. Again, these were the two lowest rated in the quantitative data. In this instance, the quantitative and qualitative data complemented each other and the qualitative data provided more understanding in particular circumstances in which their leadership skills needed improvement.

The Leadership Matrix involves two rankings of each of the responsibilities (Lucas, 1994). One ranking is in terms of program directors' levels of importance of the responsibilities and the other ranking is program directors' levels of satisfaction with their leadership skills in relation to the responsibilities. Responsibilities in quadrant A should be prioritized for leadership development (see Figure 1). Those in quadrant B are areas for the department chair to maintain their expertise. Responsibilities in quadrant C are secondary areas of leadership development since they are less important to the department. And, quadrant D depicts areas of little importance to the department, but that are strengths of the department chair. In terms of the location of these rankings on the Leadership Matrix, only one responsibility would fall in quadrant A. The responsibility of budget and resources was rated as important to the department, but also an area in which many program directors indicated that they needed improvement. The

rest of the responsibilities were located in quadrant B, and, therefore, could be identified as areas that the department chair should maintain expertise.

Another intriguing finding from this data is the similarity in the rankings for level of importance of the responsibilities and the level of satisfaction of program directors with their leadership skills in relation to the responsibilities. A comparison of the rankings demonstrates that responsibilities that program directors rated as most important to their departments were also the leadership skills with which program directors were most satisfied. This is consistent with the findings of Carroll and Gmelch (1994). Radiologic technology program directors viewed their satisfaction with their leadership skills similar to other department chairs.

This study also expanded on possible reasons for the similarities in these rankings by asking program directors during interviews to suggest potential causes. Overall, program directors indicated that this was due to human nature. Program directors suggested that it was natural for someone to rate something that they felt more skilled at performing as more important than something they felt less skilled. Program directors also implied that this was due to experience. These program directors asserted that, when a responsibility is important to a department, the department chair will have a lot of experience in developing skills and addressing these responsibilities. Therefore, their skills in addressing these responsibilities will naturally be more advanced.

Program Directors' Leadership Styles

Data from the MLQ (5x-short) and interview data were used to assess program directors' leadership styles. The MLQ (5x-short) is scored on a Likert scale (0=not at all to 4=frequently if not always). The means for the transformational variables were all above three, indicating that program directors used these leadership skills fairly often to

frequently, if not always. Bass (1998) indicates that an optimal leader will rarely display laissez faire leadership, moderately display transactional leadership, and most often demonstrate transformational leadership. To further this contention, Bass and Avolio (1999) suggest that ideal ratings for the transformational variables should be greater than three. Radiologic technology program directors meet this benchmark. For the transactional variables, Bass and Avolio indicate that for contingent reward the rating be greater than two; for management by exception (active) less than 1.5; and management by exception (passive) less than one. Program directors in this study had a mean for contingent reward of 3.26 which meets the criteria of Bass and Avolio. For management by exception (active), program directors had a mean rating of 1.78 which exceeds the benchmark set by Bass and Avolio. This rating was higher than what is considered ideal for a leader. However, management by exception (passive) had a rating of 1.0 which met the benchmark. Finally, for laissez-faire leadership the mean was 0.53 and Bass and Avolio suggest this rating be lower than 1.0. Radiologic technology program directors, as a group, met the ideal ratings for leaders on all subscales of the MLQ with the exception of management by exception (active). Bass (1995) indicated that transformational leaders are not rare and can be found in any organization. And, in fact, program directors were primarily transformational leaders, and utilized contingent reward behaviors as well. These results were similar to those found by Shaver (2003). In his study of program directors of associate degree programs, results demonstrated that program directors were most often transformational and sometimes transactional.

Bass (1995) indicated that leaders should use both transformational and transactional leadership approaches to be most effective. Analysis of the data from the MLQ (5x-short) would indicate that program directors do employ both types of

leadership. Additionally, Lucas (2000) asserts that transformational leadership is an appropriate style to adopt for department chairs. Additionally, Shaver (2003) found that the transformational leadership factors were significant indicators of program director effectiveness, faculty satisfaction, faculty willingness to exert extra effort, and the American Registry of Radiologic Technologist pass rate. Since the majority of radiologic technology program directors utilize this type of leadership, they are in a position to use skills that will be effective for their role.

Interviews were used to confirm the findings from the MLQ (5x-short) and to expound on program directors' personal leadership styles. Program directors who were identified as transformational from the quantitative data also described their leadership styles in terms of transformational characteristics during interviews. Additionally, most program directors who were identified as transactional depicted their leadership styles in terms of transactional characteristics. The one exception was a program director who had a high transactional score, but also a high transformational score. This program director expressed his leadership style in terms of transformational characteristics. As suggested by Berson (1999), the interviews verified the findings of the MLQ (5x-short) and provided a rich description of program directors' leadership styles.

Research Question 3

How well does leadership style explain program directors' perceived level of importance of their responsibilities?

Multiple regression analyses were conducted to determine how well leadership style explained program directors' perceived levels of importance of their responsibilities. These analyses revealed that leadership style was a significant indicator in explaining program directors' ratings for the level of importance for the

responsibilities of department governance, instruction, external communication, budget and resources, and professional development. Specifically, transformational leadership was identified as a factor in explaining the ratings of these responsibilities. However, these regression models did not account for the majority of the variance. In fact, the most variance accounted for in any of these models was the model for professional development at 13.1%. Therefore, there are other contributing factors to program directors' ratings of the responsibilities that are not identified in this analysis. While transformational leadership does have a significant positive relation for the ratings of some of the responsibilities, this factor alone does not explain the ratings.

Research Question 3a

How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain program directors' perceived level of importance of their responsibilities?

Multiple regression analyses were conducted to determine how well the individual transformational factors explained program directors' perceived levels of importance of their responsibilities. Interestingly, the responsibilities identified in this analysis were not identical to the responsibilities identified in the previous analysis. The responsibilities of instruction, external communication, budget and resources, office management, and professional development demonstrated significant relationships with the transformational variables. This suggests that the level of importance of the responsibilities is viewed differently by leaders with different transformational characteristics. Specifically, evaluation of the beta weights for the transformational variables indicated that idealized influence (behavior) had a significant relationship in

program directors' ratings of the responsibilities of external communication, budget and resources, office management, and professional development. Inspirational motivation had a significant relationship with the responsibilities of budget and resources and professional development. Intellectual stimulation was significantly positively related to external communication, and individualized consideration was significantly related to the responsibilities of instruction and student affairs. Again, these analyses only accounted for a small portion of the variance. The regression equation for professional development provided for the largest explanation of the variance, accounting for 15.9%. Therefore, there is a considerable amount of the variance that is not accounted for by the transformational leadership factors. Thus, other factors should be explored to expand our understanding of program directors' ratings of the importance of the responsibilities.

Research Question 3b

How well do contingent reward, active management by exception, and passive management by exception (transactional factors) explain program directors' perceived level of importance of their responsibilities?

Multiple regression analyses were conducted to determine how well the individual transactional factors explained program directors' perceived levels of importance of their responsibilities. For these analyses all of the responsibilities were identified as having a significant relationship with the transactional variables. Specifically, contingent reward was identified as having a significant relationship with all of the responsibilities, and management by exception (passive) had a significant negative relationship with the responsibility of department governance. Once again, the variance accounted for by each of these models was small. In fact, the largest was the model for the responsibility of professional development, accounting for 7.7% of the variance. Therefore, other

variables not included in this analysis might provide a more clear explanation of program directors' rankings of the responsibilities.

Research Question 4

How well do leadership style, discipline of highest degree, program type, and years of experience as a program director explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Multiple regression analyses were conducted to determine how well leadership style, discipline of highest degree, program type, and years of experience as a program director explained program directors' levels of satisfaction with their leadership skills as related to the responsibilities. All of the regression models were significant for explaining program directors' levels of satisfaction with their leadership skills.

Additional analysis of the beta weights of the individual variables demonstrated some interesting relationships. First, years of experience of program directors was positively related to program directors' levels of satisfaction with their leadership skills in relation to the responsibilities of department governance, instruction, faculty affairs, and budget and resources. This relationship indicates that as program directors become more experienced in their position, their satisfaction with their leadership skills increases. This suggests that the leadership skills related to these responsibilities can be developed over time. Additionally, new program directors may need time to develop these leadership skills and increase their satisfaction with their skills.

Second, transformational leadership was positively related to program directors' levels of satisfaction with all of the responsibilities excluding office management. Therefore, transformational leaders were more satisfied with their skills in terms of all of the responsibilities with the exception of office management. Additionally, laissez faire

leadership had a negative relationship with program directors' levels of satisfaction with all of the responsibilities not including professional development. Thus, as laissez faire leadership increases, program directors' satisfaction with their leadership skills decreases. This is an important relationship because it indicates that this leadership style is dissatisfying to leaders in handling the vast majority of their responsibilities.

The regression models of program directors' levels of satisfaction with their leadership skills in relation to the responsibilities accounted for slightly more of the variance than the models used to explain program directors' ratings of the level of importance of the responsibilities. The model which examined the level of satisfaction in relation to the responsibility of external communication accounted for the greatest amount of the variance, with 17.7% explained by the model. However, there are still factors that are not accounted for in the model.

Research Question 4a

How well do inspirational motivation, intellectual stimulation, individual consideration, idealized influence (behavior), idealized influence (attributed) (transformational factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Multiple regression analyses were conducted to determine how well the individual transformational factors explained program directors' levels of satisfaction with their leadership skills in relation to the responsibilities. These analyses indicated a significant relationship with program directors' levels of satisfaction with their leadership skills in relation to all of the responsibilities except office management. Specifically, inspirational motivation had a significant positive relationship with program directors' levels of satisfaction with their leadership skills in relation to the responsibilities of

department governance, instruction, student affairs, external communication and professional development. Idealized influence (attributed) had a significant positive relationship with program directors' levels of satisfaction with their leadership skills in relation to the responsibilities of department governance, instruction, external communication, budget and resources, and office management. Finally, individualized consideration had a significant positive relationship with program directors' levels of satisfaction with their leadership skills in relation to the responsibility of instruction. These results would suggest that transformational leadership, and, specifically, inspirational motivation and idealized influence (attributed) had the greatest effect on program directors' levels of satisfaction with their leadership skills. However, the variance accounted for by these models was still relatively small indicating that there is still much to be understood in relation to program directors' levels of satisfaction with their leadership skills.

Research Question 4b

How well do contingent reward, management by exception (active), and management by exception (passive) (transactional factors) explain the level of satisfaction with program directors' leadership skills as related to their responsibilities?

Multiple regression analyses were conducted to determine how well the individual transactional factors explained program directors' levels of satisfaction with their leadership skills in relation to the responsibilities. All of the regression models were significant in explaining program directors' levels of satisfaction with their leadership skills in relation to their responsibilities. The transactional factor of contingent reward had a significant positive relationship with program directors' levels of satisfaction for all of the responsibilities excluding office management. Thus, program directors with higher

contingent reward scores were more satisfied with their leadership skills. The transactional factor of management by exception (passive) had a significant negative relationship with program directors' levels of satisfaction with their leadership skills in relation to the responsibilities of instruction, external communication, office management, and professional development. Therefore, program directors who utilize this style of leadership are more likely to be dissatisfied with their leadership skills in relation to these responsibilities. These findings suggest that contingent reward would be a useful leadership style to utilize to increase satisfaction with leadership skills, while management by exception (passive) would lead to dissatisfaction.

Research Question 5

Does the level of importance of the responsibilities vary based on gender, institution type (hospital, 2 year, 4 year, or vocational/technical), or among institution types as a function of gender?

The literature on program chairs' responsibilities suggests that setting or institution type can affect the responsibilities of a program chair (Lucas, 2000; Seagren, 1993; Tucker, 1993). To explore this relationship for this study, a series of 2 (gender) by 4 (institution type) ANOVAs with the level of importance of each of the responsibilities were conducted. A significant relationship with institution type was found for the level of importance of the responsibilities of faculty affairs and budget and resources. However, only the post hoc analysis for the level of importance of the responsibility of budget and resources revealed a significant difference. For this responsibility, two-year institutions rated this responsibility as more important than vocational/technical institutions. These results would indicate that gender does not seem to have any effect on the level of importance of the responsibilities. Similar to other authors' contentions that

institution type affects program chairs' responsibilities (Lucas, 2000; Seagren, 1993; Tucker, 1993) this study demonstrated a relationship. However, institution type was shown to have very little effect based on this analysis.

Research Question 6

Does the level of satisfaction with program directors' leadership skills as related to their responsibilities vary based on gender, highest degree completed (baccalaureate, masters, or PhD, EdD), or among highest degree completed as a function of gender?

A series of 2 (gender) by 3 (highest degree completed) ANOVAs with program directors' level of satisfaction with their leadership skills in relation to each of the responsibilities were conducted. A significant relationship for highest degree completed and program directors' satisfaction with their leadership skills in relation to the responsibilities of department governance, faculty affairs, and professional development was identified. The post hoc analysis for the responsibility of professional development did not reveal any significant differences between the highest degree completed. However, significant differences were identified for the responsibilities of department governance and faculty affairs. Specifically, program directors with a PhD or EdD degree rated their satisfaction with their leadership skills in relation to the responsibility of department governance higher than program directors with a baccalaureate degree. Additionally, program directors with the PhD and EdD also rated their satisfaction with their leadership skills in relation to the responsibility of faculty affairs higher than both masters and baccalaureate prepared program directors. These results suggest that PhD and EdD programs may help in developing skills related to the responsibilities of department governance and faculty affairs. Thus, these program directors are then more satisfied with their leadership skills in these areas.

Research Question 7

How does program type influence the leadership skills utilized by radiologic technology program directors?

Qualitative data from telephone interviews with program directors was evaluated to answer this research question. Program directors overwhelmingly agreed that program type influenced the leadership skills that they utilized. The reasons that were cited by program directors were varied, but seemed to focus on contextual variables. For example, some program directors felt that the focus of programs differed based on program type. These directors felt that hospital based programs had more of a clinical focus and associate and baccalaureate programs had an academic focus. Additionally, degree programs offer different interactions for program directors. In these institutions, program directors have the opportunity to interact with faculty from other disciplines. This interaction provides them with an exchange of ideas that can aid in the development of their leadership skills. Finally, program directors at hospital based programs felt they had more flexibility in leading their programs. This was primarily due to the fact that they were the only individuals within the department who dealt with education issues. These findings are indicative of the variance due to program setting suggested by literature (Lucas, 2000; Seagren, 1993; Tucker, 1993).

Another important influence on the leadership skills utilized by program directors was administration. Several program directors discussed the effect that their administration had on their leadership style. These program directors indicated that the leadership style of the administration impacted the leadership skills they were able to develop and the skills they utilized. If their administration allowed the program director to have more responsibility, they were able to develop their leadership skills in these

areas of responsibility. If they were not given as much control, this hampered their leadership development. This is consistent with Gmelch's (2004) contention that it is necessary for there to be application of the leadership skills program directors learn. If program directors are not given opportunities to use their leadership skills, it will be difficult for them to improve. Carroll and Wolverson (2004) reiterate this point by indicating that, in order for department chairs to improve, they need occasions to serve in a variety of roles.

Research Question 8

Why have the responsibilities that have been identified as very important to the department received those rankings?

Qualitative data from interviews with program directors were analyzed to answer this research question. This evaluation revealed that contextual variables were what affected the level of importance of the responsibilities. This is reiterated in the literature (Lucas, 2000; Seagren, 1993; Tucker, 1993). For example, Tucker (1993) believed that the responsibilities of program directors will vary depending on the setting. An illustration of this point from the interviews was provided by program directors when discussing their responsibilities with budget and resources. Some program directors who indicated that this was not an important aspect of their position felt this way because their position did not allow them to make decisions in regard to this area. However, other program directors who did feel this was an important responsibility indicated that they had a great deal of responsibility in making decisions that would affect the budget and resources of their department. The delineation of responsibilities within the institution dictates which responsibilities over which program directors have direct control.

In addition to the context of the institution, contextual variables within the profession also affected the ranking of the responsibilities. For example, several program directors discussed the impact of changing technology on instruction. Indeed, Sparks and Greathouse (2001) designated technology as an important factor with which programs must contend. As technology changes, programs are forced to examine the curriculum and clinical experiences to ensure that adjustments are made to address the transformations. Currently, radiologic technology is facing a major evolution in terms of technology. The profession is going from an environment that was based on film and imaging characteristics associated with this medium to a film-less system that is based on computer technology. Not only are program directors faced with teaching the new technology, but also with learning it themselves. This was reflected in several of the program directors' comments. Thus, the context of the profession also affects the responsibilities that program directors deem as most important.

Miller and Seagren (1997) indicated that department chairs would benefit by focusing on program relevance as a method to decrease stress. This point would serve program directors well in handling technological changes. Outdated technology becomes less relevant in the work environment. By keeping the curriculum current in terms of technology, they are also decreasing their stress in this area. Graduates' skills are then more appropriate in the practice environment.

Implications for Practice

This research has implications for theory and practice related to the responsibilities of program chairs and their leadership styles. Transformational leadership has been studied in relationship to leader effectiveness (Harter & Bass, 1988; Lowe & Galen Kroeck, 1996), follower satisfaction and trust (Podasakoff, MacKenzie, &

Bommer, 1996; Podsakoff, MacKenzie, Moorman, & Fetter, 1990), and personality traits (Judge & Bono, 2000; Ross & Offerman, 1997). Shaver (2003) studied transformational leadership in relation to radiologic technology program directors' effectiveness, faculty satisfaction, and program outcomes. Additionally, there have been studies of department chairs in relation to their responsibilities (Gmelch & Carroll, 1994; Lucas, 1994; Tucker, 1993), satisfaction with leadership skills (Gmelch & Carroll, 1994; Lucas, 1994), and stressors (Gmelch, 1991; Gmelch & Burns, 1993). In terms of combining transformational leadership and department chair responsibilities, Lucas (2000) suggests this leadership style would be useful for department chairs to adopt. However, there are no studies linking the effect of transformational leadership in how department chairs view their responsibilities and their satisfaction with their leadership skills in relation to the responsibilities. This study contributes to the research by examining these relationships.

In this section, a modified conceptual map will be presented based on the findings from this study. The use of the MLQ in this study and the implications for future studies will be discussed. Additionally, discussion will be given related to the importance of the responsibilities and program directors' satisfaction with their leadership skills related to the responsibilities. Finally, areas for professional development of program directors' leadership skills will be offered.

Modified Conceptual Map

This study was guided by the conceptual map presented in chapter two (see Figure 2). This conceptual map was created based on the literature and hypotheses. The results of this study support a modified conceptual map (see Figure 4). In relation to the factors affecting the importance of the responsibilities, gender was not demonstrated to have a significant relationship. For the factors affecting program directors' satisfaction

with their leadership skills in relation to the responsibilities, the results of this study did not indicate that gender, program type, or institution type had significant relationships with program directors' satisfaction. Additionally, since the analyses only accounted for a small portion of the variance, there are other factors which may have significance that are not examined in this study.

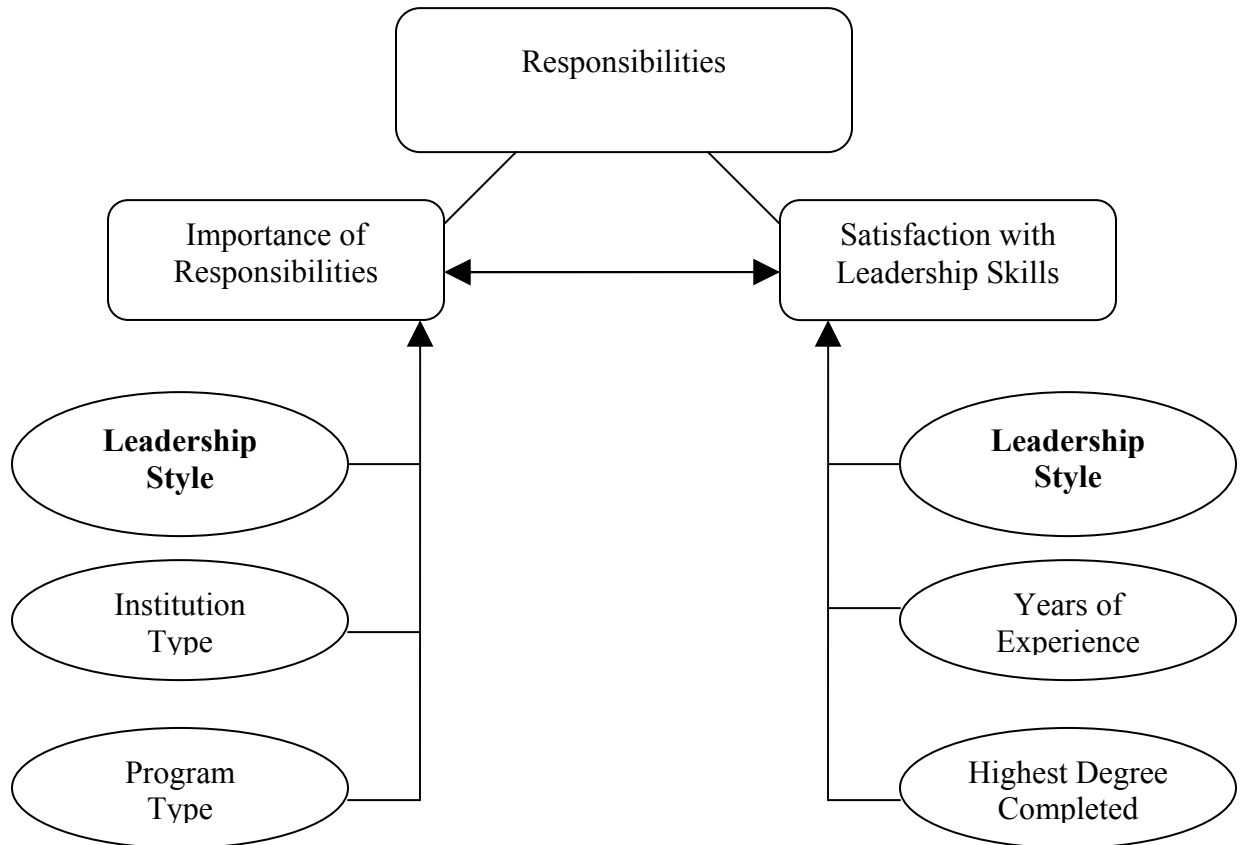


Figure 4: Modified conceptual map of program director responsibilities

The MLQ

For this study, program directors provided self-ratings of their leadership styles by completing the MLQ Form 5x-Short. The directions for this instrument instruct individuals completing the form to leave items blank that are irrelevant or if they are not sure of the answer. There were three items that were left blank most frequently. The number of individuals leaving these items blank ranged from twelve to nineteen. Two of

the items were designed to measure transactional leadership (contingent reward and management by exception [active]) and the other measured transformational leadership (idealized influence [attributed]). Some of the participants indicated that it was difficult for them to judge themselves on these items or that they were uncomfortable with the wording of the item. Participants not completing these items may have found it problematic or awkward to rate themselves either high or low on these items. However, if other individuals were asked to rate the program director on these items, there may have been fewer items left incomplete. Many times it is more difficult to rate oneself on leadership skills than for others to rate the leadership skills of a leader.

There have been suggestions that researchers utilize additional methods to confirm the findings of surveys (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio, Bass, & Jung, 1999). The results of this study highlight the importance of this recommendation. The MLQ provided information related to the leadership styles of the program directors. However, it did not explain why a leader utilized a particular style or in what situations. These situational components of transformational leadership could be better examined through qualitative inquiry. During interviews with program directors, it was apparent that their roles were complex. Due to the numerous responsibilities with which program directors are faced, it is reasonable to believe that different leadership styles might be utilized in various situations. For example, the leadership style that a program director uses in a conflict management situation with faculty members may be very different than those applied when mentoring students.

Another interesting aspect demonstrated in this study is the conflict between the data obtained from the MLQ and interviews with program directors. Specifically, when program directors were asked to describe their leadership style, some provided an

account that appeared differed from the scores on the MLQ. The MLQ gives scores on transformational, transactional, and laissez faire leadership. A leader who has a high transactional score might also have a high transformational score. This fact offers an explanation for these apparent conflicts. For example, leaders that were identified as transactional by the MLQ might also have a high transformational score. Therefore, when these program directors were asked to describe their leadership style, the explanation supplied might focus more on their transformational characteristics than transactional. This emphasizes the complex nature of leadership and the situational factors that affect it.

Level of Importance of Responsibilities

This study demonstrated that program directors' rankings of the levels of importance of the responsibilities was affected by leadership style, institution type, and program type. The relationship between leadership style and the level of importance of the responsibilities has not been previously studied. Thus, this finding adds to the literature on program chairs' responsibilities and transformational leadership in addition to radiologic technology program directors in specific.

In examining the relationship between program directors' leadership styles, transformational leadership was positively associated with the rankings of several responsibilities (department governance, instruction, external communication, budget and resources, and professional development). Further inspection reveals that some of the individual transformational factors (idealized influence [behavior], inspirational motivation, individualized consideration, and intellectual stimulation) and transactional factors (contingent reward and management by exception [passive]) were related to program directors' rankings of the responsibilities. These findings suggest that different

leadership styles may view the importance of responsibilities differently. The emphasis the leader assigns to the responsibilities can affect the focus of a department. For example, if transformational leaders view budget and resources as more critical to a department, then this area will receive more attention than an area such as faculty affairs, which is not associated with transformational leadership. However, since the relationships identified were small, accounting for only a portion of the variance, the effect of leadership style alone may not be significant in determining program directors' value of the responsibilities.

Several authors have indicated that the setting or institution type will affect department chairs' responsibilities (Lucas, 2000; Seagren, 1993; Tucker, 1993). This study identified findings from both qualitative and quantitative data to support this contention. The quantitative data provided minimal confirmation of the relationship between institution type and department chairs' responsibilities. In fact, the only difference found was between two year institutions and vocational/technical institutions in their ranking of the importance of budget and resources. Two year institutions rated this responsibility higher than did vocational/technical institutions. However, the qualitative data substantiated this assertion more strongly. Due to the differing focus of the various program types and institutions, program directors' responsibilities were influenced. For example, program directors discussed that in hospital based programs the concentration was more likely on clinical aspects, whereas degree programs were more likely to have a heavier emphasis on academics. This dissimilarity leads program directors to rate their responsibilities according to their particular situation. Thus, program type and institution type can have an affect on the importance of their responsibilities.

Program Directors' Satisfaction with Leadership Skills Related to Responsibilities

This study demonstrated that program directors' rankings of their level of satisfaction with their leadership skills in relation to the responsibilities was affected by leadership style, years of experience, and highest degree completed. The relationship of these variables with satisfaction of leadership skills has not been examined in the literature. These findings add to the literature on department chairs' satisfaction with their leadership skills and provides some guidance in leadership development.

Lucas (1994) indicates that identifying department chairs' levels of satisfaction with their leadership skills in relation to their responsibilities helps to prioritize areas for leadership development. This study carried this one step further by examining the relationship of leadership style, years of experience, gender, highest degree completed, program type and institution type on radiologic technology program directors' levels of satisfaction with their leadership skills in relation to their responsibilities. Leadership style was one of the variables that was identified as having an effect on program directors' levels of satisfaction with their leadership skills in relation to the responsibilities. Transformational leadership was positively related to program directors' satisfaction with their leadership skills in relation to all of the responsibilities except office management. Further, the individual transformational factors had positive relationships with the satisfaction ratings for all of the responsibilities except faculty affairs. For the transactional factors, contingent reward was positively related to leadership satisfaction for all responsibilities except office management and management by exception (passive) had a negative relationship with satisfaction in relationship to the responsibilities of instruction, external communication, office management, and professional development. Finally, laissez faire leadership had a negative relationship

with satisfaction ratings in relation to all of the responsibilities except professional development.

Examining these results as a whole, it is evident that transformational and contingent reward behaviors are associated with higher levels of satisfaction with leadership skills in relation to all of the responsibilities except office management. Therefore, utilizing these types of leadership would lead to increased satisfaction with leadership skills in relation to the responsibilities of program directors. Conversely, laissez faire and management by exception (passive) demonstrate a negative relationship with program directors' levels of satisfaction with their leadership skills. Thus, using these types of behaviors would lead to lower levels of satisfaction. Program directors who employ these behaviors should consider improving their transformational and contingent reward behaviors in order to increase their satisfaction with their leadership skills in relation to their responsibilities.

Another relationship identified by this study was between the years of experience of program directors and their level of satisfaction with their leadership skills in relation to the responsibilities of department governance, instruction, faculty affairs, and budget and resources. This connection indicates that, as program directors become more experienced, their satisfaction is likely to increase in regard to these responsibilities. This suggests that program directors learn valuable leadership skills which help them to become more satisfied. What is not evident is how they learn these skills. This study did not identify how these skills are developed by program directors.

Similar to the relationship with years of experience and program directors' levels of satisfaction with their leadership skills, the highest degree completed by program directors demonstrated a link with satisfaction with leadership skills in relation to the

responsibilities of department governance and faculty affairs. For the responsibility of department governance, program directors with a PhD or EdD rated their satisfaction with their leadership skills higher than baccalaureate prepared program directors. Additionally, for the responsibility of faculty affairs, program directors with a PhD or EdD had higher satisfaction with their leadership skills than masters and baccalaureate prepared program directors. This finding suggests that formal education can enhance program directors' levels of satisfaction with some of their leadership skills. Therefore, obtaining a higher degree is one avenue that can be utilized to increase satisfaction with leadership skills.

Importance of Responsibilities vs. Satisfaction with Leadership Skills

In a study of department chairs, Carroll and Gmelch (1994) indicated that department chairs identified duties in which they were most effective as the duties that were most important to the department. A similar finding was identified in this study in the rankings for level of importance of the responsibilities and the level of satisfaction of program directors with their leadership skills in relation to the responsibilities. A comparison of the rankings demonstrated that the responsibilities which program directors rated as most important to their departments were also the leadership skills with which program directors were most satisfied. Radiologic technology program directors viewed their satisfaction with their leadership skills similar to other department chairs.

This study also expanded on possible explanations for the similarities in these rankings during interviews with program directors. Overall, program directors indicated that this connection was due to human nature. The program directors suggested that it was normal human behavior for someone to rate a responsibility that they felt more skilled at performing higher than those at which they felt less skilled. Program directors

also implied that the relationship between the rankings was due to increased experience. For example, a responsibility which is important to a department will require more attention from the department chair. Thus, this will give the department chair more experience in that area, and, therefore, the chair will develop skills to address these responsibilities. Program directors' skills in handling these responsibilities will naturally be more advanced from the increased experience.

Areas for Professional Development

Lucas (1994) suggested that the ratings from the Leadership Matrix be used to identify and prioritize areas for leadership skills development. This can be done by analyzing the rankings of the importance of responsibilities to a department and the level of satisfaction with leadership skills in relation to the responsibilities. Using these ratings, responsibilities fall into different quadrants on the Leadership Matrix. Responsibilities in quadrant A should be prioritized for leadership development, since they are important to the department and are areas of weakness for the department chair. Those in quadrant B are areas that are important for the department and in which the chair has expertise. Responsibilities in quadrant C are secondary areas of leadership development, since they are less important to the department, but are weaknesses of the department chair. And, quadrant D depicts areas of little importance to the department, but that are strengths of the department chair. The ratings from program directors in this study indicated that all responsibilities fell in quadrant B with the exception of budget and resources, which was in quadrant A (see Figure 5). Thus, budget and resources is an area in need of professional development for radiologic technology program directors. Another responsibility identified as needing professional development in this study was that of faculty affairs. While the quantitative data still rated this in quadrant B, it was the

second lowest satisfaction rating. Additionally, qualitative data distinguished this as an area of weakness of program directors. Specifically, program directors commented on the need for more conflict management skills in dealing with faculty. It is interesting to note that Hecht (2004) suggested three areas of skill development for department chairs: working with groups, making decisions, and budget and resources. The findings of this study support these areas for leadership skill development.

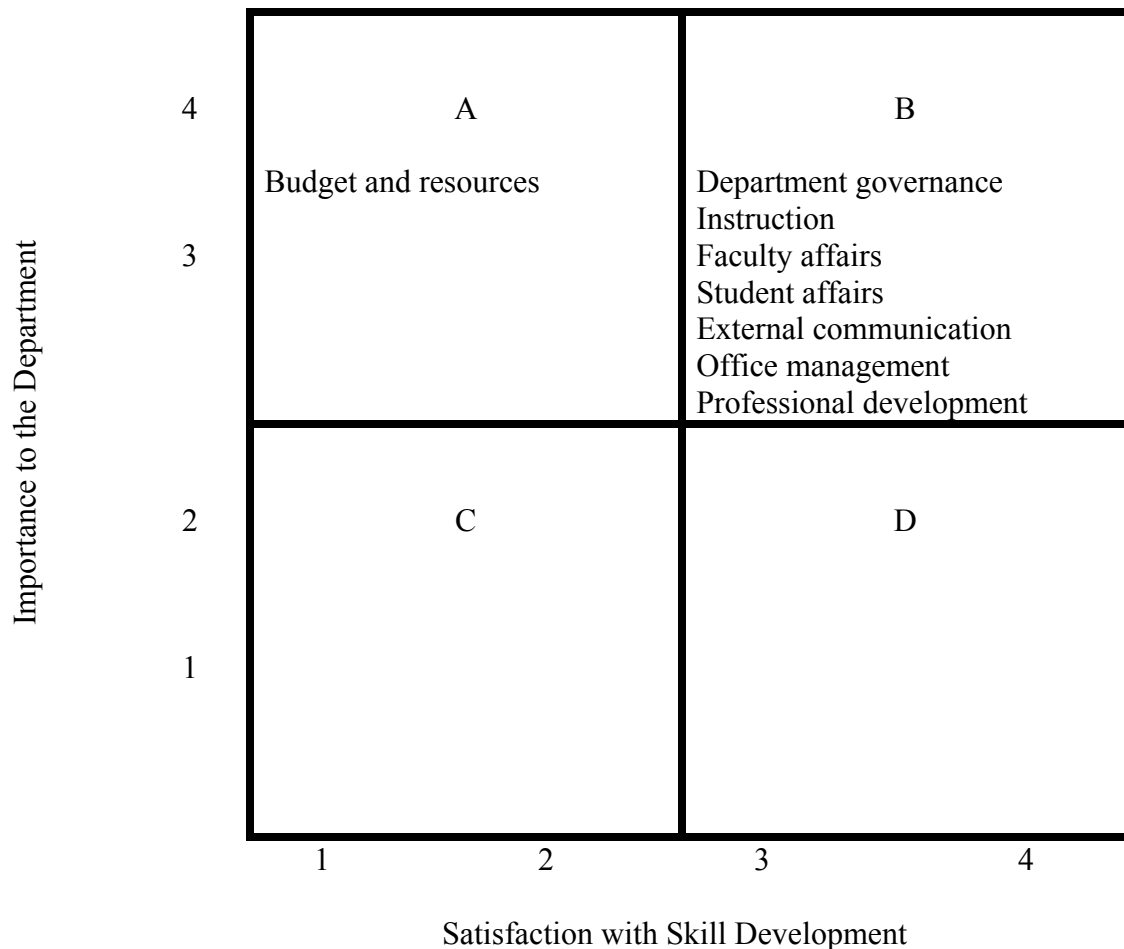


Figure 5: Leadership matrix of program directors' responsibilities

Gmelch (2004) recommends that department chairs acquire leadership skills through lectures and workshops. Additionally, it is necessary for there to be an opportunity for application of the skills after they are learned. Not surprisingly, program

directors in this study indicated that they would prefer to learn leadership skills through lectures and workshops. Also, many program directors stated that they needed occasions to apply the skills they learned as well. This study identified budget and resources and faculty affairs as areas for professional development for program directors, and determined that workshops or lectures would be the best format for developing these leadership skills.

Recommendations for Further Study

There are several areas that can be suggested for future research based on this study. First, this study utilized a sequential mixed model design with quantitative data collected from the MLQ and Leadership Matrix in the first portion of the study. The initial data analysis of the quantitative data was used to create questions for the interviews conducted in the second portion of the study. Interestingly, not all of the qualitative data supported the findings from the quantitative data. This occurred in reference to the level of importance to the responsibilities to the program and the descriptions of program directors' leadership styles. Although the quantitative data indicated that instruction was the most important responsibility and budget and resources was the least important, interview data did not support this contention. This highlights the nature of the role of program directors. Program directors will view their responsibilities differently based on their setting. Also, during interviews, program directors who were identified as transactional did not always describe their leadership style in terms of a transactional leader. This demonstrates that leaders are not completely transformational or transactional. They vary on each of these dimensions and utilize both types of leadership in different situations. These discrepancies illustrate the complexity of leadership and the roles of radiologic technology program directors. Future research

could explore these findings in greater detail. In addition to this recommendation, the following are presented as other recommendations for future research:

1. Further study into the roles of program directors and the factors that affect their roles should be conducted. This would provide a better understanding of the responsibilities of program directors and the contextual variables that affect their roles.
2. This study could be replicated to examine department chairs in other disciplines to see if the results would be similar.
3. Other studies could be conducted to include additional variables which might affect the rankings of the responsibilities and satisfaction with leadership skills in relation to the responsibilities.
4. Another study could be performed to include ratings from other faculty and administration.
5. Additional studies utilizing qualitative methods should be carried out to determine other factors affecting radiologic technology program directors.
6. More qualitative research should be conducted in relation to transformational and transactional leadership to confirm and supplement findings from quantitative sources.
7. Additional analyses should be conducted to further explore the relationship between leadership style and gender.
8. The effects of contextual variables (such as program type or institution type) on leadership style could be examined more closely. More qualitative inquiry could provide a better understanding of how these variables affect the leadership style utilized by a leader.

9. More investigation into the need for conflict management skills for program directors should be considered. During interviews, several program directors mentioned this as a skill they would like to develop. More exploration into conflict management and the types of situations that program directors want to address would be useful.

Limitations of the Study

There are several limitations to this study. The primary limitation is the use of program directors' self-perceptions in measuring their leadership styles and the level of importance of the responsibilities to the department, and their level of satisfaction with their leadership skills in relation to the responsibilities. Since the quantitative data collected was self-reports from program directors, it only represents their perspective of their responsibilities and leadership styles. Therefore, it is conceivable that faculty or other administrators view the responsibilities and leadership styles differently.

The reliability of the MLQ for this study is also a limitation. The transformational variables' reliabilities ranged from 0.512 to 0.747. For the transformational variables, only inspirational motivation was above a 0.70 reliability. The transactional variables' reliabilities ranged from 0.447 to 0.749. Only the transactional variable of management by exception (active) was above the 0.70 threshold. Finally, the reliability for laissez faire leadership was 0.505. These differed from the 0.74 to 0.94 reliabilities found by Bass and Avolio (2000). The low reliabilities for this study were due to the fact that they were based on self-ratings, while the reliabilities reported by Bass and Avolio were based on others evaluating the leader.

Additionally, since only program directors from JRCERT accredited programs were included in the study, program directors from other programs were not represented.

However, the number of programs not accredited by the JRCERT should not be large, and their responsibilities are expected to be similar to those of program directors of JRCERT accredited programs.

Conclusion

The purpose of this study was to identify the responsibilities that program directors indicated as most important to their departments and the satisfaction of radiologic technology program directors with their current leadership skills as related to the responsibilities. This goal was met, and areas for leadership development were identified. Specifically, radiologic technology program directors identified faculty affairs and budget and resources as weaknesses. This study also found that workshops or lectures were the preferred format for program directors to learn leadership skills. This information can be used to create targeted leadership development activities for program directors to increase their skills in these areas.

Another purpose of this study was to identify the leadership styles of program directors and to analyze the role of leadership styles in relation to program directors' rankings for the level of importance of their responsibilities and level of satisfaction with their leadership skills in relation to their responsibilities. This goal was also met, and the findings add to the understanding of department chairs' responsibilities and leadership styles. The relationship of leadership style was identified for program directors' ratings of the level of importance of their responsibilities and their level of satisfaction with their leadership skills in relation to the responsibilities. Additionally, other variables were identified as having a role in the ratings. Specifically, program type and institution type were related to the level of importance of the responsibilities, and years of experience and highest degree completed were associated with program directors' level of satisfaction

with their leadership skills in relation to the responsibilities. While these were significant relationships, this study leaves room for exploring other relationships. The connections identified only partially explained program directors' ratings. More research to further examine other relationships would provide a better understanding of the responsibilities and leadership skills of program directors and department chairs.

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APPENDIX A

LETTER TO RADIOLOGIC TECHNOLOGY PROGRAM DIRECTORS

February 7, 2005

Dear Colleague:

I am a radiologic technology program director and a doctoral candidate at Louisiana State University. I am conducting a study for my dissertation which focuses on the responsibilities of radiologic technology program directors and their leadership skills as related to the responsibilities. You have been selected to participate in this study of over 500 radiologic technology program directors from JRCERT accredited radiologic technology programs.

Enclosed you will find a consent form and two surveys: the Multifactor Leadership Questionnaire (MLQ) and a Leadership Matrix. The MLQ is designed to measure your leadership characteristics and the Leadership Matrix will assess your responsibilities and your leadership skills in relation to the responsibilities. If you agree to respond, please complete the consent form, Leadership Matrix and the MLQ and return them in the enclosed postage paid envelope.

After collection of this data, some participants may be chosen to participate in a second portion of the study which will consist of 30-60 minute telephone interviews. The interviews are designed to provide a better understanding of the data obtained from the questionnaires.

Your confidentiality will be protected to the best of my ability. An identification number (located on each questionnaire) will be used to correlate data. Your name will never be disclosed. All data will be kept secure. Responses will only be reported collectively to help maintain confidentiality of participants. Participation in the study is voluntary and you may withdraw at any time. If you wish to participate, please sign the consent form and complete the Leadership Matrix and MLQ and return in the postage paid envelope. If possible, please respond by March 7, 2005.

If you have any questions regarding the study or need additional clarification, please feel free to contact me at 318-677-3069 or by email: carwilel@nsula.edu. I would like to thank you in advance for taking time from your busy schedule to participate in this study.

Sincerely yours,

Laura Carwile, MSRS, RT(R)(M)(QM)
Program Director and Doctoral Candidate

APPENDIX B
CONSENT FORM

Title of Research Project: Responsibilities and Leadership Styles of Radiologic Technology Program Directors

Project Director: Laura Carwile, 318-677-3069, carwilel@nsula.edu

Purpose of Research: To identify the responsibilities that radiologic technology program directors indicate as most important to their department and the satisfaction of radiologic technology program directors with their current leadership skills as related to the responsibilities. Additionally, the leadership styles of program directors will be identified. This information will help to identify areas for potential professional development among leaders in radiologic technology.

Methods: In this research, participants will complete two instruments, the Multifactor Leadership Questionnaire and the Leadership Matrix. Additionally, some participants will complete a 30-60 minute interview focusing on why certain responsibilities are important to a department and which leadership skills are used for specific responsibilities. All interviews will be tape recorded and fully transcribed. At any time during the interview, you may request that the tape recorder be turned off.

Potential Risks & Benefits: Your identity will be protected by using codes on the two instruments. All data collected will be reported in a composite form; therefore there will be no chance for identification of participants. For the interviews, your identity will be protected by using pseudonyms and masking all direct references that may reveal your identity. Since all efforts will be made to keep your identity confidential, we do not perceive any risks to the participants.

Your participation in this study is completely voluntary and you have the right to withdraw from the study at any point in time without consequence. Results of this study may be published, but no names or identifying information will be included in the publication. Participant identity will remain confidential to all except research team members.

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225)578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me.

Participant Signature

Participant Name (printed)

Date

APPENDIX C

EXAMPLE ITEMS FROM THE MLQ

I provide others with assistance in exchange for their efforts

I re-examine critical assumptions to question whether they are appropriate

I focus attention on irregularities, mistakes, exceptions, and deviations from standards

I talk about my most important values and beliefs

I talk optimistically about the future

APPENDIX D

LEADERSHIP MATRIX

Organization ID#: _____

Section 1: Demographic Information

Please respond to following demographic information about yourself, your department, and your experience:

Gender: Male _____

Female _____

Program Type: Certificate _____

Associate _____

Baccalaureate _____

Institution Type: Hospital/medical center _____

2 year community college _____

4 year college/university _____

Vocational/technical institute _____

Other _____

Number of Years as Program Director: _____

Highest degree completed: Associate _____

Baccalaureate _____

Masters _____

PhD or EdD _____

Other _____ (please specify) _____

Discipline of Highest Degree: Radiologic Technology _____

Education _____

Business _____

Other _____ (please specify) _____

Section 2: Leadership Matrix

Below are descriptions of typical responsibilities of program directors and a brief description of the duties involved with those responsibilities. Please review them and use them to answer the subsequent portions of the questionnaire.

Responsibility 1: Department Governance: The duties related to this responsibility include: conducting department meetings, establishing committees, developing plans and goals, implementing plans and goals, preparing for accreditation, and encouraging faculty to share ideas for department improvement.

Responsibility 2: Instruction: The duties related to this responsibility include: scheduling classes, supervising clinical program, and updating the curriculum and courses.

Responsibility 3: Faculty Affairs: The duties related to this responsibility include: recruiting and hiring faculty, assigning faculty responsibilities, evaluating faculty, handling poor faculty performance, keeping faculty informed of department/institution activities and plans, resolving faculty conflict, and encouraging faculty participation.

Responsibility 4: Student Affairs: The duties related to this responsibility include: recruiting and selecting students, advising students, resolving student conflicts, and working with student organizations.

Responsibility 5: External Communication: The duties related to this responsibility include: communicating department needs to institution, improving or maintaining the department's reputation in the institution, completing forms and surveys, and coordinating activities with outside entities such as clinical education settings.

Responsibility 6: Budget and Resources: The duties related to this responsibility include: encouraging faculty to submit grants, seeking outside funding, preparing department budget, administering department budgets, making decisions on resource allocation, and preparing annual reports.

Responsibility 7: Office Management: The duties related to this responsibility include: managing department facilities and equipment, monitoring security and maintenance of equipment, supervising department staff, and maintaining student and clinical records.

Responsibility 8: Professional Development: The duties related to this responsibility include: developing faculty talents and interests, fostering good teaching practices, and encouraging faculty research and publication.

Please rate your impression of the importance of the following responsibilities within your program.

Responsibility	Low importance			High importance
Department governance	1	2	3	4
Instruction	1	2	3	4
Faculty affairs	1	2	3	4
Student affairs	1	2	3	4
External communication	1	2	3	4
Budget and resources	1	2	3	4
Office management	1	2	3	4
Professional development	1	2	3	4

Please rate your satisfaction with your leadership skills as related to the following responsibilities:

Responsibility	Low satisfaction with skills			High satisfaction with skills
External communication	1	2	3	4
Office management	1	2	3	4
Professional development	1	2	3	4
Student affairs	1	2	3	4
Department governance	1	2	3	4
Budget and resources	1	2	3	4
Instruction	1	2	3	4
Faculty affairs	1	2	3	4

Please list any additional responsibilities that you have that were not included in this listing of responsibilities.

APPENDIX E

REMINDER POSTCARD

Dear Colleague:

You recently were asked to participate in a study regarding the responsibilities of radiologic technology program directors and their leadership skills in relation to the responsibilities. If you have not already done so, I would like to encourage you to complete the instruments that were sent to you and return them in the postage paid envelope no later than March 7, 2005. Thank you again for your time and consideration in this matter.

Sincerely yours,

Laura Carwile, MSRS, RT(R)(M)(QM)

Doctoral Candidate

APPENDIX F

INTERVIEW PROTOCOL

Opening Statement: the purpose of this interview is to obtain information than can enhance our understanding of leadership styles in relation to the responsibilities of radiologic technology program directors. As a radiologic technology program director, who has had experience in handling many leadership responsibilities, you are in a position to describe the leadership styles that you have utilized in specific situations. The information that is gained from these interviews will be used in papers and presentations related to leadership. No real names will be used in the paper, as noted on the consent form. If you would like a copy of the paper, I would be happy to provide you with one. As we go through the interview, if you have any questions about why I am asking you something or if you need further clarification, please feel free to ask. Do you have any questions before we begin?

Questions:

1. What job performance skills do you feel most equipped to handle?
2. In the survey you completed you were asked to rank the importance of several responsibilities within your program. Those responsibilities were department governance, instruction, faculty affairs, student affairs, external communication, budget and resources, office management, and professional development. According to some of my preliminary analysis of the data, many program directors rated instruction as the most important of their responsibilities. Do you agree with this? Why or why not?
3. What job performance skills do you feel least prepared to handle?
4. According to some of my preliminary analysis of the data, many program directors rated budget and resources as the least important of their responsibilities. Do you agree with this? Why or why not?
5. In general, the responsibilities that program directors rated as most important to their departments were also the ones they felt most comfortable with their skills and those rated as less important were the skills they were least comfortable with. Why do you think this is true?
6. Describe your personal leadership style.
7. Some leaders are characterized as being charismatic, inspirational, providing incentives for others' behavior, intellectually stimulating, closely monitoring followers, or considerate. Which of these characteristics do you see as most important? Which of these characteristics is least important to you? Which characteristic do you feel that you have to the greatest degree? How does this help you in your job?

8. What leadership skills would you most like to improve? (Probe for skills that would help them most in their jobs)
9. What would be most helpful to you to learn leadership?
10. Do you think your program type or institution type influence the leadership skills that you utilize?

VITA

Laura Susan LaPointe was born on April 3, 1968 in Tulsa, Oklahoma. During her childhood, she lived in Oklahoma, Maryland, Texas, and Louisiana. During middle school, her father retired from the United States Army and the family moved to Lake Charles, Louisiana. She graduated from Alfred M. Barbe High School in Lake Charles. She received her bachelor of science degree in radiologic technology from McNeese State University in 1991. After completing her degree she worked as a radiologic technologist through 1995.

In 1996, Laura took a position as an instructor of radiologic technology at Northwestern State University. During this time, she began work on her master of science degree in radiologic science at Midwestern State University. In 1998 she completed her degree and was also named as program director of the radiologic technology program at Northwestern State University. In 2001, she left Northwestern State University to pursue her doctorate degree full time. As a doctoral student, Laura served as a research assistant for Dr. Becky Ropers-Huilman and taught as an adjunct instructor for online courses for two radiologic technology programs. In 2003, she returned to Northwestern State University as the program director and continued her work on her doctorate. On March 23, 2005, Laura married Cary Aaron and lives happily with him in Shreveport, Louisiana.