



SCHOOL of
GRADUATE STUDIES
EAST TENNESSEE STATE UNIVERSITY

East Tennessee State University
**Digital Commons @ East
Tennessee State University**

Electronic Theses and Dissertations

Student Works

12-2009

Perceptions of Interprofessional Communication: Causes and Effects on Patient Care, Occupational Stress, and Job Satisfaction.

Stacey Quillen Deshkulkarni
East Tennessee State University

Follow this and additional works at: <https://dc.etsu.edu/etd>

 Part of the [Health Communication Commons](#)

Recommended Citation

Deshkulkarni, Stacey Quillen, "Perceptions of Interprofessional Communication: Causes and Effects on Patient Care, Occupational Stress, and Job Satisfaction." (2009). *Electronic Theses and Dissertations*. Paper 1810. <https://dc.etsu.edu/etd/1810>

This Thesis - Open Access is brought to you for free and open access by the Student Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact digilib@etsu.edu.

Perceptions of Interprofessional Communication:
Causes and Effects on Patient Care, Occupational Stress, and Job Satisfaction

A thesis
presented to
the faculty of the Department of Allied Health
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Master of Science

by
Stacey Q. Deshkulkarni
December 2009

Dr. Ester Verhovsek, Chair
Dr. Randy Byington
Mrs. Shirley Cherry Bates

Keywords: Interprofessional Communication, Radiologic Technology, Quality of Patient Care

ABSTRACT

Perceptions of Interprofessional Communication: Causes and Effects on Patient Care, Occupational Stress, and Job Satisfaction

by

Stacey Q. Deshkulkarni

Poor interprofessional communication has been linked to decreased quality of patient care and increased numbers of medical errors. Increased occupational stress due to lack of effective interprofessional communication can lead to poor job satisfaction and burnout. The purpose of this study was to identify barriers to interprofessional communication as perceived by radiologic technologists. In particular, how did demographic data influence these perceptions? The research was conducted during June of 2009. The population for this survey consisted of registered radiologic technologists employed at hospitals in Northeast Tennessee. A survey questionnaire covering the subject of interprofessional communication was distributed to a cluster sample directly involved in patient care. An ANOVA was used to determine which barriers were significantly greater. A TUKEY HSD post hoc analysis was used when influences were significantly different. Participants indicated that interprofessional communication affects their occupational stress and job satisfaction in addition to the quality of patient care. This analysis revealed that radiographers experienced the most difficulty communicating with nurses.

DEDICATION AND MEMORIAM

I dedicate this work to my mother and best friend, Rejeanna Clarkston Quillen (March 28, 1948 to August 23, 2006), who constantly encouraged me and believed in me. Your faith gave me the strength to continue moving forward, even after you could no longer accompany me on the journey. I always miss you. I love you always.

ACKNOWLEDGEMENTS

I thank Dr. Ester Verhovsek, my committee chair, for her guidance, assistance, and unending patience throughout my entire graduate experience and especially the writing of this thesis.

I also thank my committee members for all their help along the way. Specifically, I thank Dr. Randy Byington for sharing his knowledge regarding methodology and statistical analysis and Mrs. Shirley Cherry Bates for being not only my mentor but also my friend.

My special thanks to a colleague who wishes to remain anonymous for administering my pilot study and helping immensely in the development of my final survey instrument. His willingness to help was invaluable to the success of this study.

CONTENTS

	Page
ABSTRACT	2
DEDICATION AND MEMORIAM.....	3
ACKNOWLEDGEMENTS	4
LIST OF TABLES	8
Chapter	
1. INTRODUCTION.....	9
Statement of the Problem	12
Research Questions	13
Significance of the Study	14
Delimitations and Limitations.....	14
Definition of Terms.....	15
2. REVIEW OF THE LITERATURE	16
Interprofessional Communication and Collaboration	16
Occupational Stress and Burnout	24
Summary	28
3. METHODS	29
Population	29
Survey Instrument Development	30
Instrument Validity	31
Recommendations of the Pilot Study.....	31
Strengths and Limitations of Design	33
Data Analysis	34

Chapter	Page
Background of the Researcher	36
Timeframe	37
4. PRESENTATION AND ANALYSIS OF THE DATA	38
Analysis of the Data	39
Respondents	39
Population	39
Research Question 1: Most Difficult Group	40
Research Question 2: Communication Barriers	40
Research Question 3: Effect of Interprofessional Communication on Patient Care	42
Research Question 4: Effect on Interprofessional Communication on Radiographers' Occupational Stress	43
Research Question 5: Effect of Quality of Interprofessional Communication on Job Satisfaction	43
Research Question 6: Effect of Quantity of Interprofessional Communication on Job Satisfaction	44
Research Question 7: Effect of Interprofessional Education on Perceptions of Interprofessional Communication	45
Research Question 8: Perception of Understanding Radiologic Technology ...	45
Research Question 9: Perception of Respecting Radiologic Technology	46
Research Question 10: Perception of Understanding Other Healthcare Disciplines	46
Research Question 11: Perception of Respecting Other Healthcare Disciplines	47
Research Question 12: Effect of Demographic Variables on Perceptions	47
Comments	48

Summary	49
5. CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS	50
Conclusions	50
Discussion	51
Recommendations for Further Study	52
REFERENCES.....	54
APPENDICES.....	61
Appendix A: Survey Cover Letter	61
Appendix B: Survey Instrument.....	62
Appendix C: Pilot Study Cover Letter	64
Appendix D: Pilot Survey Instrument	65
Appendix E: Comments.....	68
VITA	69

LIST OF TABLES

Table	Page
1. Group With Whom Radiologic Technologists Experience the Most Difficulty Communicating	40
2. Barriers to Interprofessional Communication	42
3. Patient Care Would be Improved by Increasing Interprofessional Communication	42
4. Poor Interprofessional Communication Causes Occupational Stress	43
5. Increase in Job Satisfaction Due to Improved Quality of Interprofessional Communication	44
6. Increase in Job Satisfaction Due to Increased Quantity of Interprofessional Communication	44
7. Interprofessional Education	45
8. Other Healthcare Professionals Understand Radiologic Technology	46
9. Other Healthcare Professionals Respect Radiologic Technology.....	46
10. Radiographers Understand Other Healthcare Disciplines	47
11. Radiographers Respect Other Healthcare Disciplines	47

CHAPTER 1

INTRODUCTION

“More information is available on the quality of airlines, restaurants, cars, and VCRs than on the quality of health care” (Schuster, McGlynn, & Brook, 2005, p. 843). This lack of information is not from lack of concern or interest in the subject. A 2001 study revealed that 56% of general care physicians and 60% of specialty physicians believed that the quality of care provided in the United States had deteriorated over the 5-year period prior to the study (Ferlie & Shortell).

Americans have expressed dissatisfaction with the current health care system for over 20 years (Blendon, Brodle, Benson, Altman, & Buhr, 2006). One particular type of quality of care problem is a major worry for Americans: medical errors. “Indeed, nearly half (48%) of the public said in 2004 that they were concerned about the safety of the medical care that they and their families received” (Blendon et al., 2006, p. 10). Heavy workload, inadequate staffing, and poor communication among health care providers were cited as causes of medical errors. Sixty-eight percent named “health professionals not working together or not communicating as a team” (Blendon et al., 2006, p. 11) as a vital source of medical errors.

Between the years of 2000 and 2004, 2,032 medication errors associated with radiology procedures in 315 hospitals and clinics were voluntarily reported, with an average of 406 errors per year (American Society of Radiologic Technologists [ASRT], 2006). The United States Pharmacopeia stated in a 2006 press release that “12% of the 2,032 medication errors reported in radiological services resulted in patient harm. This is more than seven times the percentage of harmful errors reported in the 2000-2004 general MEDMARX data set” (p. 1). “MEDMARX is

the largest nongovernmental database of medical errors in the U.S.” (United States Pharmacopeia, 2006, p. 2).

Breakdowns in “continuity of care” contributed to harmful medication errors. Patients often circulate through radiological services without adequate communication between radiology staff and the physicians and nurses who have been providing their care. This breakdown in communication can lead to various errors including patients receiving the wrong drug, the wrong dose of a drug, or not getting the drug at all. (United States Pharmacopeia, 2006, p. 2)

To put this seemingly staggering number in the proper perspective, it is important to remember that radiological services are not limited to diagnostic x-ray procedures; also included are more invasive procedures such as abscess draining, insertion of gastric feeding tubes and arterial stents, and performing angioplasties.

Considering that hundreds of millions of radiology procedures are performed every year, the reported number is small (ASRT, 2006). However, most medication errors are preventable and even one error that results in serious injury or death to a patient is too many. In order to decrease the number of errors in the radiology department the American Society of Radiologic Technologists has called for further education for radiologic technologists in “communication skills as members of an interdisciplinary health care team” (ASRT, 2006, p. 1).

In order to provide the highest quality of care free of medical errors and help achieve maximum patient satisfaction, healthcare professionals functioning in the hospital setting need to collaborate with one another on a daily basis. An understanding of their own roles as members of the healthcare team, as well as the roles of coworkers from other disciplines, is crucial for allied health professionals to function effectively as part of a cohesive team. Despite recent

improvements in interprofessional understanding, conflict and confusion regarding the scope of practice of various disciplinary delineated roles persist and continue to hamper interprofessional communication between radiologic technologists and other healthcare professionals. Ultimately, good interprofessional communication is important because conflicts within the healthcare team negatively affect the quality of patient care (Northouse & Northouse, 1998).

Communication is a challenge in all human endeavors. And poor communication occurs regularly in everyday interactions from personal relationships to business transactions. Rarely, however, does faulty communication risk such grave consequences as when it occurs in the healthcare setting – where the lives of vulnerable patients lie in the balance. (Dixon, Larison, & Zebari, 2006, p. 376)

Lack of interprofessional understanding and effective communication leads to confusion concerning the various roles of healthcare professionals, thus leading to increased occupational stress. “Stress has been identified as ‘the non-specific response of the body to any demand made upon it’” (Sechrist & Frazer, 1992, p. 97).

Employees in health care settings and technologists in particular, must deal with significant amounts of occupational stress. When stress levels reach uncontrollable amounts or when employees do not cope effectively with stress, burnout can occur. Burnout is characterized by negative emotional, psychological and physical reactions to work-related stress. (Raj, 2006, p. 2)

“The major sources of stress for those employed in the health care fields are as diverse as the fields themselves, although five general areas have been identified: (1) work content, (2) work organization, (3) responsibility, (4) role conflict/ambiguity, and (5) career development” (Sechrist & Frazer, 1992, p. 97). Sechrist and Frazer identified 35 stressors in radiologic

technology in a 1992 study. Eight of the 35 were related to communication and interpersonal relations. “Disrespectful physicians” was ranked as the number one cause of stress. Other stressors related to poor communication included “lack of respect,” which ranked fifth of the 35 stressors, followed by “uncooperative radiologists,” “non-supportive radiologists,” and “demanding radiologists” ranking seventh, eighth, and ninth respectively. “Demanding physicians” ranked 14th, “uncooperative coworkers” 16th, “uncooperative hospital staff” 20th and, finally, “uncooperative nurses” ranked 35th.

In a 2006 study, Raj supported the findings of Sechrist and Frazer’s 1992 study when he listed role ambiguity and role conflict as one of six categories of stressors for radiologic technologists. He stated, “although the stressors encountered at work are many and varied, they can be separated into the following categories: (1) organizational stress, (2) work overload, (3) boundary extensions, (4) career developments, (5) leadership style, and (6) role ambiguity and role conflict” (Raj, 2006, p. 1). It seems that the issue of role ambiguity and role confusion would be easiest to address and could have been resolved in the 14-year gap between the 1992 Sechrist and Frazer study and the 2006 Raj study; however, these issues continue to cause stress among allied health professionals.

Statement of the Problem

The purpose of this study was to determine which barriers to open and effective communication such as poor interprofessional understanding and respect were most commonly experienced by radiologic technologists and also to identify the healthcare professional groups with which communication was the most difficult. Once these barriers have been identified, the information gained could be used to increase the quality and quantity of interprofessional communication between radiologic technologists and radiologists, surgeons, emergency

department physicians, other physicians encountered in the hospital setting, nurse practitioners, physician assistants, nurses, surgical technologists, respiratory therapists, and laboratory technicians with the ultimate goal of providing the highest quality of care to patients and achieving maximum patient satisfaction.

Research Questions

1. With which of the identified groups of healthcare workers do radiologic technologists experience the most difficulty communicating?
2. What do radiologic technologists perceive as the most significant barriers to interprofessional communication with radiologists, other physicians encountered in the hospital setting, surgeons, emergency department doctors, nurse practitioners, physician assistants, nurses, surgical technologists, respiratory therapists, and laboratory technicians?
3. Do radiologic technologists perceive that interprofessional communication affects quality of patient care?
4. Is poor interprofessional communication a source of occupational stress for radiologic technologists?
5. Would an increase in the quality of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists?
6. Would an increase in the quantity of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists?

7. Does education regarding the roles of other health care professional groups influence radiologic technologists' perceptions of interprofessional communication?
8. Do radiologic technologists perceive that other healthcare professional groups understand the field of radiologic technology?
9. Do radiologic technologists perceive that other healthcare professional groups respect the field of radiologic technology?
10. Do radiologic technologists perceive that they understand other healthcare disciplines?
11. Do radiologic technologists perceive that they respect other healthcare disciplines?
12. Do the following demographic variables affect radiologic technologists' perceptions of interprofessional communication: age, educational degree, facility size, gender, and years of work experience?

Significance of the Study

Interprofessional communication between radiologic technologists and other healthcare workers such as radiologists, surgeons, emergency department physicians, other physicians encountered in the hospital setting, nurse practitioners, physician assistants, nurses, surgical technologists, respiratory therapists, and laboratory technicians needs to be improved in quality and increased in quantity in order to decrease occupational stress and increase interprofessional communication with the ultimate goal of maximizing the quality of patient care provided in the hospital setting and increasing patient satisfaction.

Delimitations and Limitations

This study is delimited or limited by the following:

1. This study is delimited to six hospitals within the Northeast region of Tennessee.

2. Results of the study are not transferable to other geographic locations.
3. This study is limited to the perceptions of registered radiologic technologists employed as diagnostic radiographers at the selected hospitals.

Definition of Terms

The following terms were operationally defined:

Occupational stress: "...The general and often unconscious mobilization of the individual's energy when confronted with any organizational or work demand" (Raj, 2006, p. 1).

Burnout: "...A state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding" (Schaufeli & Greenglass, 2001, p. 501).

CHAPTER 2

REVIEW OF LITERATURE

The science of radiologic technology, also referred to as radiography, has a long and interesting history that began over 100 years ago. Following in the footsteps of Sir William Crookes, Phillip Lenard, and Arthur Goodspeed, a German physicist named Wilhelm Conrad Roentgen discovered x-rays on November 8, 1895 (Harris, 1995). Roentgen gave the first oral presentation of his discovery on January 23, 1896. Following the discussion, he produced a Roentgen ray image of one of the attendees. “Interestingly enough, the linkage between the discovery of x-rays and its application to the medical profession was immediate” (Harris, 1995, p. 2). Reactions of physicians varied. Many viewed the discovery with contempt but, fortunately, there were those who recognized the remarkable potential of the diagnostic uses of x-rays (Harris, 1995).

Along with the birth of a science came the birth of a profession. Those who worked to guard the purity of intent of x-rays were those who would gain the name of technician. “The relationship between doctor and technician would be a long struggle for understanding and professional credibility as the responsibility for performing diagnostic and therapeutic procedures shifted to medical specialists educated in anatomy, radiation safety, and patient care – the radiologic technologists of today” (Harris, 1995, p. 3). This struggle continues as evidenced by Sechrist and Frazer’s 2006 study that reported disrespectful physicians as the number one source of stress for radiographers.

Interprofessional Communication and Collaboration

“Each health care profession has a different culture that includes values, beliefs, attitudes, customs, and behaviors. Professional cultures evolved as the different professions developed,

reflecting historic factors, as well as social class and gender issues” (Hall, 2005, p. 188).

Radiologic technologists, nurses, physicians, and various other allied health professions that form health care teams have varying degrees and educational requirements. “Educational experiences and the socialization process that occur during the training of each health profession reinforce the common values, problem-solving approaches and language/jargon of each profession” (Hall, 2005, p. 188).

Increasing levels of complexity of knowledge and skills required to care for the aging population and patients with chronic illnesses has led to an increase in specialization of health care disciplines and decreased interdisciplinary exchange.

It is more comfortable to remain in one’s own discipline where communication is facilitated by specialized vocabulary, similar approaches to problem solving, common interests, and understanding of issues. This discipline-specific view of the world is taught and reinforced through the socialization process of educational experiences. (Hall & Weaver, 2001, p. 867)

Communication with other members of other health care disciplines becomes increasingly difficult as the cognitive map developed through professional education and socialization becomes more ingrained (Hall & Weaver, 2001).

Northouse and Northouse (1998) identified three problem areas that hinder interprofessional communication. Role stress, the first of the problem areas, refers to anxiety brought on by the basic nature of working in health care and by difficulty in carrying out professional roles. Role stress can be delineated into role conflict and role overload. Health professionals who are socialized to carry out one role but are expected to fit another in the workplace experience role conflict. This type of role stress is caused primarily by a gap between

education and service. "...New graduates learn that their ideals and aspirations are seldom the same as the values that receive praise on the job" (Northouse & Northouse, 1998, p. 94).

However, not only new graduates experience role conflict. More seasoned professionals can experience this type of role stress as result of being expected to perform tasks that are not related to their professions. Role overload is brought on by a situation in which a health professional becomes responsible for more than he or she can reasonably achieve in a given period of time (Northouse & Northouse, 1998).

Lack of interprofessional understanding, Northouse and Northouse's second problematic area, has been linked to role confusion and territorial disputes. "We would expect health providers, of all people, to understand the many professional roles in health care settings. Amazingly, this is not the case" (Northouse & Northouse, 1998, p. 97). Some progress has been made in this area; nonetheless, confusion about the unique expertise and knowledge of each profession still exists. The major cause of this problem is the fact that professional education takes places in virtual isolation from other health care disciplines. "A health professional can spend between 2 and 8 years in an educational program and yet get little exposure to the roles and skills of the other professions" (Northouse & Northouse, 1998, p. 97).

The third problematic area that hampers interprofessional communication identified by Northouse and Northouse is the struggle for autonomy. The freedom to self-govern is vital for professionals to fulfill their roles. "In today's continually changing health care system, health professionals need autonomy so that they can shape changes rather than just respond to them" (Northouse & Northouse, 1998, p. 100).

The ability to communicate and function effectively as part of a team is, for most, a learned skill. "With the increasing prevalence of teamwork in health care settings, health

professional students need to learn how to be effective and contributing team members” (Rodger, Mickan, Marinac, & Woodyatt, 2005, p. 230). In a study conducted at an Australian university, 81 allied health students participated in a 4-hour interprofessional workshop designed to enhance teamwork. The important role of interprofessional education in increasing students’ positive attitudes toward their own and other professional groups and in minimizing negative professional stereotypes was highlighted. The majority of students reported that the most significant insight gained through the workshop was understanding the roles of different professionals. “This recognition of the comparative value of different professional contributions in providing holistic patient care is one of the starting points for education about interprofessional teamwork” (Rodger et al., 2005, p. 230). Implementing components of interprofessional education in healthcare curricula is a much needed step in improving interprofessional communication.

Many researchers have called for the implementation of interprofessional education (IPE); however, this is not as simple as it may seem. Obstacles to employing IPE within the educational system extend beyond difficulties in scheduling across curricula. Opinions of faculty members are also crucial points to consider. “It has been suggested that the diverse attitudes and values that prevail amongst different health sciences faculty members, including lack of respect and knowledge of each other, can be fundamental barriers to interprofessional teaching and learning” (Curran, Sharpe, & Forristall, 2007, p. 892-893).

In a study conducted at the Memorial University of Newfoundland, a survey was completed by faculty members from the medicine, nursing, pharmacy, and social work departments. “Profession, gender, and prior experience with IPE appear to be key attributes that are related to positive attitudes towards IPE and interprofessional teamwork” (Curran et al., 2007, p. 893). Medical faculty scored the lowest in overall mean score across three survey

categories. “As faculty attitudes are believed to be an important factor influencing the development of IPE initiatives within academic health science settings, faculty development efforts aimed at changing attitudes and increasing understanding of interprofessional collaboration are critical” (Curran et al., 2007, p. 895-896).

Interprofessional collaboration within the multidisciplinary health care team is vital to its success in achieving the objective of delivering the highest quality of care to the patient. A radiologic technologist’s common teammates include physicians and nurses. Nurses form an important connection between allied health professionals and physicians. “...Some researchers link nurse/physician collaboration to increased patient and staff satisfaction, enhanced retention, and reduced costs” (Kramer & Schmalenberg, 2003, p. 35). In a study of nurses’ perceptions of multidisciplinary teamwork, Atwal and Caldwell interviewed 19 nurses and conducted direct observation to study nurses’ interactions while participating in multidisciplinary teams.

The findings of this study identified three barriers that hindered teamwork: (i) differing perceptions of teamwork, (ii) different levels of skills acquisitions to function as a team member, and (iii) the dominance of medical power that influenced interaction in teams.

Thus, education establishments and nursing managers need to ensure that the acquisition of team-playing skills is an integral part of continued professional development. (Atwal & Caldwell, 2006, p. 359)

Although radiologic technologists and nurses encounter each other frequently, strained interaction persists. A 2003 article published by two registered nurses offered suggestions for improving relations between radiologic technologists and nurses. Poor interprofessional understanding between these two health professional groups is a source of misconceptions.

Perception is everything. ...The radiologic technologist may think the nurse does not want to help. The nurse may think it is his/her job to stay out of the way of the radiologic technologist. The nurse does not understand why a certain position (that sometimes looks like a yoga contortion) is necessary. Nurses often perceive that the radiologic technologist does not worry about tubes becoming dislodged or causing the patient discomfort. It is all perception, and the radiologic technologist will have to find a strong voice and speak up. (Feaster & Joy, 2003, p. 42)

“The overall goal of improving communication and reducing the number of false perceptions will improve both the quality of patient care and the psyche of the health care practitioner” (Feaster & Joy, 2003, p. 42).

In order to achieve this goal, Feaster and Joy recommend that radiographers take every opportunity to educate their nursing colleagues by explaining procedures and rationale behind the process because nurses receive very little education about radiologic procedures. They further advocate that radiographers take the time to understand the nurse’s viewpoint that portable procedures are a disruption to the patient. “Without collaboration and a collegial relationship [between radiologic technologists and nurses], perceptions by the patient that they are not receiving good care will become a reality” (Feaster & Joy, 2003, p. 42).

Collaborative practice involving good interprofessional communication and teamwork is hardly a new concept. “Key factors in the successful implementation of collaborative practice include a hospital environment receptive to change, proper timing, the staff’s desire to improve the quality of patient care and interprofessional communication” (Crowley & Wollner, 1987, p. 59). In an article published in 1987, Crowley and Wollner presented a plan for implementing collaborative practice and outlined the benefits of doing so.

The benefits for nurses, physicians, and the institution include:

- Improved communication, trust, and respect;
- Increased understanding of each other's roles and responsibilities;
- Greater consideration of each other's time and effort when developing treatment plans, research projects, or other changes in practice;
- A more collegial atmosphere with greater job satisfaction and feelings of self-worth resulting in improved nurse/physician recruitment and retention;
- More consistent policies and standards of practice developed and agreed upon by all parties concerned;
- The knowledge that changes can occur before they are induced by crises, and can be discussed with consideration for everyone's opinions and suggestions; and
- Reduced tensions among medical, nursing, and administrative staff at all levels.

(Crowley & Wollner, 1987, p. 63)

“Collaboration is a substantive idea repeatedly discussed in health care circles. The benefits are well validated. Yet collaboration is seldom practiced” (Gardner, 2005, p. 1).

Gardner identified lack of a shared definition, the complexity of collaboration, and the complexity of skills required to facilitate collaboration as barriers. In recognition of these obstacles, she offered 10 lessons to follow:

Lesson #1: Know thyself. Many realities exist simultaneously. Each person's reality is based on self-developed perceptions. Requisite to trusting self and others is in knowing your own mental model (biases, values, and goals).

Lesson #2: Learn to value and manage diversity. Differences are essential assets for effective collaborative processes and outcomes.

Lesson #3: Develop constructive conflict resolution skills. In the collaborative paradigm, conflict is viewed as natural and as an opportunity to deepen understanding and agreement.

Lesson #4: Use your power to create win-win situations. The sharing of power and the recognition of one's own power base is part of effective collaboration.

Lesson #5: Master interpersonal and process skills. Clinical competence, cooperation, and flexibility are the most frequently identified attributes important to effective collaborative practice.

Lesson #6: Recognize that collaboration is a journey. The skill and knowledge needed for effective collaboration take time and practice. Conflict resolution, clinical excellence, appreciative inquiry, and knowledge of group process are all life-long learning skills.

Lesson #7: Leverage all multidisciplinary forums. Being present both physically and mentally in team forums can provide an opportunity to assess how and when to offer collaborative communications for partnership building.

Lesson #8: Appreciate that collaboration can occur spontaneously. Collaboration is a mutually established condition that can happen spontaneously if the right factors are in place.

Lesson #9: Balance autonomy and unity in collaborative relationships. Learn from your collaborative successes and failure. Becoming part of an exclusive team can be as bad as working in isolation. Be willing to seek feedback and admit mistakes....

Lesson #10: Remember that collaboration is not required for all decisions. Collaboration is not a panacea. (Gardner, 2005, p. 8)

Occupational Stress and Burnout

Facing continual challenges while attempting to meet the expectations imposed by funding agencies, administrators, and patients is an invariable part of a health care professional's workday. "Some of these challenges include communicating with patients, dealing with emotional issues often involving illness or death, working with other health professionals, and problematic scheduling associated with shiftwork" (DiGiacomo & Adamson, 2001, p. 106). These circumstances may cause an individual to experience stress. "Detrimental effects of such stress may include both immediate and long-term physical, emotional, or psychological problems" (DiGiacomo & Adamson, 2001, p. 106).

"An occupational stressor may be defined as any demand, physical or psychological, encountered in the course of working. Work stressors are influenced by such personal characteristics as personality, value system, health, educational background, goal orientation and perception of job situation" (Raj, 2006, p. 1). Raj outlined organizational stress, work overload, boundary extensions, careers developments, leadership style, and role ambiguity and role conflict as categories of occupational stressors. Of these six categories, five can easily be related to interprofessional communication and collaboration.

The first of these categories is organizational stress which Raj defined as "...the general and often unconscious mobilization of the individual's energy when confronted with any organizational or work demand" (2006, p. 1). Physical demands, role conflicts, tasks, and interpersonal relationships are included in this category. Mismanagement of organizational stress is capable of causing harmful effects to employees in the form of strain and distress. It is not, however, a one-way street in view of the fact that a positive feedback loop is created that detrimentally affects the organization as well. "Factors such as accidents, low productivity,

absenteeism, and increased tardiness may disrupt the operation of an organization” (Raj, 2006, p. 2).

Work overload stressors is the second category. This group of occupational stressors can be classified as either qualitative or quantitative. Qualitative overload stressors are more relevant to interprofessional communication and relationships and “occur when employees feel as though they do not possess the knowledge, skills, or aptitude to complete tasks” (Raj, 2006, p. 1).

Quantitative stress occurs when an employee is not provided with adequate time to complete job assignments.

Thirdly, and perhaps the most readily applicable to interprofessional communication, is boundary extension stressors. These “occur in jobs where employees are required to work with other departments or organizations” (Raj, 2006, p. 1). Raj listed nonroutine activities, demanding performance standards, and working in diverse, dynamic environments as possible causes of boundary extension stressors.

Career developments, Raj’s fourth category, can also be stressful. “The process of changing jobs while trying to further one’s career is very stressful; however, the lack of personal development associated with job mastery and prolonged experience in the same position often lead to boredom and stress” (Raj, 2006, p. 1-2).

The fifth category that contributes to occupational stress is leadership style. “Managers who display authoritarian behavior and are demanding, condescending, critical, or have no regard for personal relationships may cause pressure and tension to subordinates” (Raj, 2006, p. 2). Bolman and Deal support this conclusion with the results of a classic study performed by Lewin, Lippitt, and White in 1939. In this study of leadership styles conducted among boys’ clubs “they found that leadership style had a powerful impact on both productivity and morale.

Under autocratic [authoritarian] leadership, the boys were productive but joyless and experienced a high level of dependence and frustration” (Bolman & Deal, 2003, p. 170). Hackman and Johnson further add credence by stating “...the leader adopting authoritarian communication can expect: high productivity...; increased hostility, aggression, and discontent; and decreased commitment, independence, and creativity among followers” (2004, p. 42).

The sixth and final category listed by Raj is role stress. Northouse and Northouse agree with Raj that role stress is a cause of occupational stress but differ on their categorization. Northouse and Northouse listed role conflict and role overload while Raj listed role conflict and role ambiguity as the two types of role stress with work overload as a separate category of occupational stressors. According to Raj, “role ambiguity occurs when there is inadequate information about what employee behavior is expected. Role conflict occurs when an employee is forced to endure incompatible job demands” (2006, p. 2). DiGiacomo and Adamson further explain that “role stress is also characterized by role ambiguity, in which health professionals are given unclear instructions by their employers concerning policies, procedures, responsibilities, and authority” (2001, p. 106).

“When stress-coping skills are not adequate, burnout may occur” (DiGiacomo & Adamson, 2001, p. 106). Schaufeli and Greenglass define burnout “as a state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding” (2001, p. 501). Considerable research has been conducted on burnout over the past 25 years.

What has emerged from all of this research is a conceptualization of job burnout as a psychological syndrome in response to chronic interpersonal stressors on the job. The three key dimensions of this response are an overwhelming exhaustion, feelings of

cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment. (Maslach, Schaufeli, & Leiter, 2001, p. 399)

The elemental quality and the most palpable manifestation of burnout is exhaustion. “Of the three aspects of burnout, exhaustion is the most widely reported and the most thoroughly analyzed” (Maslach et al., 2001, p. 403). In order to cope with exhaustion and overload, an exhausted employee then takes action to distance himself or herself from the job both emotionally and cognitively. “Distancing is such an immediate reaction to exhaustion that a strong relationship from exhaustion to cynicism (depersonalization) is found consistently in burnout research, across a wide range of organizational and occupational settings” (Maslach et al., 2001, p. 403). Feelings of exhaustion or job detachment, in turn, lead to a feeling of inefficacy. “It is difficult to gain a sense of accomplishment when feeling exhausted or when helping people toward whom one is indifferent” (Maslach et al., 2001, p. 403).

Health care workers are especially susceptible to burnout. Their exposure to patient problems (psychological, social, and physical) leaves them vulnerable to chronic stress, which can be emotionally draining and, in due course, lead to burnout. Left unchecked, occupational burnout can have grave implications not only for health care workers, but also for their patients. (Akroyd, Caison, & Adams, 2002, p. 215)

In 2002, Akroyd et al. conducted a study on patterns of burnout among radiographers in the United States. The study found that “as a professional group, radiographers exhibit high levels of the first stage of burnout (emotional exhaustion) when compared with national norms” (p. 218). The 2002 study also researched the predictors of burnout among radiographers. “Reassurance of worth, guidance, and workload had a significant impact, regardless of the stage

of burnout. ... These findings indicate the importance to radiographers of being recognized as a valuable member of the work team” (Akroyd et al., p. 220).

Summary

After reviewing the comparative literature and research studies, the importance of effective interprofessional communication to health care in general and the profession radiologic technology in particular is obvious. In fact, it is so vital to radiography that the American Society of Radiologic Technologist states in its practice standards for the profession: “To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently” (ASRT, 2007, p. 27). “Radiologic technologists play an important role in the movement toward better communication. They must communicate directly with the patient, radiologists, and numerous other staff” (Scott, 2007, p. 206).

CHAPTER 3

METHODS

The purpose of this study was to identify the perceptions of radiologic technologists regarding interprofessional communication. This study also determined which barriers to interprofessional communication radiologic technologists perceived as the most influential. Lastly, this study determined what, if any, difference existed between these perceptions based upon demographic data. A quantitative study using a survey research design facilitated by a locally developed questionnaire was selected as the basic methodology.

According to Cottrell and McKenzie, “survey research involves the administration of a questionnaire to a sample or to an entire population of people in order to describe attitudes, opinions, beliefs, values, behaviors, or characteristics of the group being studied” (2005, p. 187). “Surveys are an integral and indispensable part of health education” (O’Rourke, 1999, p. 107).

A survey research design was used in order to provide data regarding Registered Radiologic Technologists’ perceptions of interprofessional communication at a specific point in time that could be analyzed quantitatively. This design allowed for participant anonymity and confidentiality. The survey questionnaire included questions addressing interprofessional communication and the barriers to effective interprofessional communication experienced by radiographers. Demographic data were collected so that differences among demographic groups could be evaluated.

Population

The first step in selecting a sample was to identify an appropriate population. The population for this study consisted of Registered Radiologic Technologists currently employed at hospitals located in three counties in the Northeastern region of Tennessee. Radiographers

working in both rural and urban facilities ranging in size from less than 100 beds to over 500 beds were included. A cross-sectional research design included a cluster sample of respondents.

Data were collected by personally delivering the questionnaires to the hospitals. Respondents were asked to seal their responses in provided envelopes and then return the sealed envelope to the principal investigator via on-site radiography professionals. Each respondent was presented with a letter (Appendix A) detailing the same instructions and tasks, reducing the possibility of researcher introduced bias.

Survey Instrument Development

The second step was to develop a survey instrument that addressed the study's research questions. A questionnaire (Appendix B) was carefully developed by the researcher using information gained from the literature review as its foundation.

Participants responded to statements regarding interprofessional communication within the health care setting. Questions were developed to identify which groups of radiologic technologists experienced the most difficulty communicating with and the most significant barriers to effective interprofessional communication. Questions also addressed the impact of interprofessional communication on the quality of patient care. Items were developed to determine the effect of interprofessional communication on sources of occupational stress and degree of job satisfaction. In addition, participants provided demographic information regarding their facility size, age, years of experience in radiography, current position (job title), shift worked the majority of the time, gender, type of radiography degree, and interdisciplinary education experiences. This information was used to analyze the data to increase understanding of the types of individuals employed in diagnostic radiography.

Instrument Validity

In order to test the validity of the survey instrument, it was administered in the winter of 2008/2009 in a paper format to a pilot group of radiographers in a hospital system located in the Northeastern United States. The pilot study was used as a “preliminary trail of the study” as a way to verify the “feasibility of various components of the project” (Bailey, 1997, p. 183).

Each participant in the pilot study received a cover letter (Appendix C) along with the survey instrument (Appendix D). Pilot study participants were asked to make comments, cross out unnecessary questions, and add additional questions as they completed the survey. Revisions to the survey instrument were made accordingly in response to feedback received in the pilot study.

After securing assistance from a radiography educator located on-site, 30 pilot surveys were mailed. Copies of the survey tool were made at the pilot study site and 44 completed pilot surveys were returned to the researcher in a self-addressed, postage paid package. Of the 44 pilot surveys, four were from respondents outside the target population. The effective response rate was 133.33% and this was considered acceptable. The comments from the pilot group were scrutinized, and their suggestions resulted in a few changes and clarifications.

Recommendations of Pilot Study

The most significant finding of the pilot study was the difficulty respondents experienced in answering questions that required ranking. Berdie, Anderson, and Niebuhr discourage the use of ranking questions. “This type of question assumes people do not feel the same about two or more of the things being ranked, and this is usually not true. These questions also assume people can rank all the things listed, and often people cannot do so” (Berdie et al., 1986, p. 36-37). As a

result of the pilot study, the survey instrument was refined and two questions that previously involved ranking were converted to modified Likert responses.

In the pilot study, participants were asked to rank 10 professional groups from 1 to 10, with the group that was easiest to communicate with being ranked 1 and the group that was hardest to communicate with being ranked 10. In the final survey instrument, participants were asked to rate their ease of communication with the professional groups as very difficult, difficult, neither easy nor difficult, easy, very easy, or no contact with this group. Additionally, nurse practitioners and physician assistants were grouped together rather than separately.

The second ranking question in the pilot survey asked participants to rank seven communication barriers from one to seven, with the one assigned to the most likely cause of communication barriers and seven assigned to the least likely cause of barriers. The revised version of this question asked participants to indicate the extent to which they agreed or disagreed that specified barriers were causes of poor communication between radiographers and other healthcare professionals.

A revision that affected the survey tool in general was changing the font used from 12 point Harrington to 10 point Arial. Demographic questions were moved to the end of the survey from the beginning. Directions were clarified and the importance of selecting only one answer per question was highlighted in the amended directions. The process of converting questions from ranking to modified Likert responses increased the number of questions from 17 on the pilot survey to 32. Because the ranking questions were revised, one question was added that asked participants to identify the one group with whom they experienced the most difficulty communicating. This increased the final number of questions to 33. However, reformatting decreased the length of the survey from three pages to two pages.

Strengths and Limitations of Design

An advantage of using survey research was that the information gained regarding the participants' perceptions regarding interprofessional communication could be assessed as quantitative data. The survey incorporated the use of modified Likert type responses. "The Likert (or summated rating) scale is a very popular device for measuring people's attitudes, beliefs, emotions, feelings, perceptions, personality characteristics, and other psychological constructs. It allows people to indicate their position on items along a quantitative continuum" (Lewis-Beck, Bryman, & Liao, 2004b, p. 572). Data were used to determine what differences, if any existed, between variables. Survey research is comparatively inexpensive and does not require a large staff for successful completion.

The standardized nature of survey research was an advantage. "Surveys produce a structured set of data that forms a variable-by-case grid. ... Questionnaires are widely used in surveys because they ask the questions in the same way of each person and thus provide a simple and efficient way of constructing a structured data set" (Lewis-Beck et al., 2004c, p. 1103).

A limitation of using a survey research design was that survey research is considered *ex post facto* and cannot be used to indicate a cause-effect relationship between variables (Bailey, 1997). Cross-sectional survey designs are limited "in the sense that they generally describe the group at one point in time, and they are used to measure the 'what is' about a group rather than providing information on 'why'" (Bailey, 1997, p. 66).

Survey research may sometimes fall victim to the response set phenomenon. The response set phenomenon, or acquiescence, refers to the issue that "respondents may have a tendency to simplify their task and to answer all requests in a battery in a same way" (Saris & Gallhofer, 2007, p. 94). Because the researcher sought to answer questions about an issue that

affects Registered Radiologic Technologists on a daily basis, it was hoped that respondents would welcome the opportunity to voice their opinions and take adequate time to answer questions carefully. The short length of the survey also attributed to the likelihood that acquiescence would not occur.

Despite these limitations of survey research designs, surveys can help establish explanations and are a valuable tool commonly used for collecting and analyzing social data.

This is achieved by examining variation in the dependent variable (presumed effect) and selecting an independent variable (presumed cause) that might be responsible for this variation. Analysis involves testing to see if the dependent variable (e.g., income) is systematically linked to variation in the independent variable (e.g., education level).

Although any such covariation does not demonstrate causal relationships, such covariation is a prerequisite for causal relationships. (Lewis-Beck et al., 2004c, p. 1103)

Data Analysis

The survey was administered in a two-page paper format and consisted of 33 questions: 24 modified Likert responses, one single choice, and eight multiple choice. Space for additional comments was provided. The goal was to design a survey that could be completed in 5 to 10 minutes.

Analyzing the data in quantitative research essentially involved drawing conclusions continuously throughout the course of the study. In this study, once the requisite number of completed surveys was obtained, the researcher processed the information using the Statistical Package for the Social Sciences (SPSS) version 16.0. Comments of the respondents were reviewed and summarized.

This study treated data gained from questions formatted in a Likert response format (1-17 and 19-25) as interval data. “The adequacy of treating ordinal data as interval data continues to be controversial in survey analyses in a variety of applied field” (Allen & Seaman, 2007, p. 64).

Rather than split hairs, many researchers make a practical decision. Whenever possible, they choose to treat ordinal variables as interval, but only when it is reasonable to assume that the scale has roughly equal intervals. ... Treating ordinal variables that have nearly evenly spaced values as if they were interval allows researchers to use more powerful statistical procedures. (Levin & Fox, 2006, p. 13)

Carifio and Perla support this viewpoint:

The non-parametric statistical analysis only myth about “Likert scales” is particularly disturbing because many (if not all) “item fixated” experts seems to be completely unaware of Gene Glass’ famous Monte Carlo study of ANOVA in which Glass showed that the F-test was incredibly robust to violations of the interval data assumption (as well as moderate skewing) and could be used to do statistical tests at the scale and subscale (4 to 8 items but preferably closer to 8) level of the data that was collected using a 5 to 7 point Likert response format with no resulting bias. (2007, p. 110)

After the data were entered in SPSS, Likert response data were analyzed using an analysis of variance (ANOVA). Salkind defines an ANOVA as “a test for difference between two or more means” (2008, p. 388). This study used a 1-way within-subjects analysis of variance in two ways. The first was to determine if there were significant differences in the overall responses to each question and the second was to determine if each question was answered differently based upon demographic factors. If the ANOVA found any influences were

significantly different, a TUKEY HSD post hoc analysis was then performed to determine which were significantly greater. The level of confidence selected was 95%.

Demographic questions were scrutinized using univariate analysis of descriptive statistics. Information gathered through this section provided valuable background data that were considered when tabulating the statistical results in the findings of this study and also in recommendations for future research.

Background of the Researcher

The researcher holds a Bachelor of Science degree in Allied Health Sciences with a concentration in radiography from East Tennessee State University in Johnson City, Tennessee. She has worked in the field of radiologic technology for 5 years. After 2 years working in direct patient care, she returned to East Tennessee State University (ETSU) and is currently pursuing a Master of Science degree in Allied Health with concentrations in education and administration. While serving as an adjunct faculty member at ETSU, she taught radiography courses in radiographic procedures, procedures labs, imaging and quality control, and pathology. She also taught a course in allied health leadership. Presently she serves as the interim Clinical Coordinator for East Tennessee State University's radiography program.

The researcher believes that effective interprofessional communication is vital to increasing positive outcomes in health care. She also believes that the findings in this study could provide insight into ways the health care community can encourage and motivate health care professionals to improve the quality of interprofessional communication in the hope of providing the highest quality of care to their patients.

Timeframe

The pilot study was conducted in December 2008 and January 2009. Results were analyzed and revisions were made in February and March 2009. The researcher applied for Institutional Research Board (IRB) for the Protection of Human Subjects approval in April. After undergoing exemption review, approval was granted the following month. Upon approval of the research design and methods, the study was conducted in June. Questionnaires were distributed with the expectation of receiving a 50% response rate. A separate cover letter (Appendix A) and questionnaire (Appendix B) were administered to radiologic technologists in Northeast Tennessee. Responses were collected through June 19, 2009, at which time a 60% response rate was achieved and the study was closed.

The researcher met with the statistician during the final week of June to tabulate the results of the study. The results of this study, along with the findings and recommendations, followed during the months of July, August, and September.

CHAPTER 4

PRESENTATION AND ANALYSIS OF THE DATA

This study was designed to determine radiologic technologists' perceptions of interprofessional communication and the effects of interprofessional communication on patient care, occupational stress, and job satisfaction. In particular, did demographic characteristics influence these perceptions?

The study asked questions of radiologic technologists in an effort to answer the following questions:

Question 1: With which of the identified groups of healthcare workers do radiologic technologists experience the most difficulty communicating?

Question 2: What do radiologic technologists perceive as the most significant barriers to interprofessional communication with radiologists, other physicians encountered in the hospital setting, surgeons, emergency department doctors, nurse practitioners, physician assistants, nurses, surgical technologists, respiratory therapists, and laboratory technicians?

Question 3: Do radiologic technologists perceive that interprofessional communication affects quality of patient care?

Question 4: Is poor interprofessional communication a source of occupational stress for radiologic technologists?

Question 5: Would an increase in the quality of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists?

Question 6: Would an increase in the quantity of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists?

Question 7: Does education regarding the roles of other health care professional groups influence radiologic technologists' perceptions of interprofessional communication?

Question 8: Do radiologic technologists perceive that other healthcare professional groups understand the field of radiologic technology?

Question 9: Do radiologic technologists perceive that other healthcare professional groups respect the field of radiologic technology?

Question 10: Do radiologic technologists perceive that they understand other healthcare disciplines?

Question 11: Do radiologic technologists perceive that they respect other healthcare disciplines?

Question 12: Do the following demographic variables affect radiologic technologists' perceptions of interprofessional communication: age, educational degree, facility size, gender, and years of work experience?

Analysis of the Data

Respondents

Using the data collection procedure detailed in Chapter 3, data were collected during a 3-week period in June 2009. The initial survey collection resulted in 51 (60%) responses of the target population of radiologic technologists employed at selected hospital facilities.

Population

The radiologic technologists responding were representative of the population. In a 2004 study, the ASRT reported that 76.7% of radiographers were female and 23.3% were male.

Similar to the ASRT study, 70.6% of respondents in this study were female and 25.5% were male. Two respondents elected not to provide information regarding gender.

Research Question 1: Most Difficult Group

Research question 1 was stated as follows: With which of the identified groups of healthcare workers do radiologic technologists experience the most difficulty communicating? Regarding the first survey item, 37.3% indicated that nurses were the professional group with whom they experienced the most difficulty communicating. Surgeons followed with 17.6%. Surprisingly, 17.6% of respondents chose not to answer this question (See Table 1).

Table 1

Group With Whom Radiologic Technologists Experience the Most Difficulty Communicating

	<i>f</i>	%
Nurses	19	37.3
Surgeons	9	17.6
No Response	9	17.6
Other Physicians	4	7.8
NPs/PAs	4	7.8
Laboratory Technicians	3	5.9
ER Physicians	2	3.9
Radiologists	1	2
Respiratory Therapists	-	-

Research Question 2: Communication Barriers

Research question 2 was stated as follows: What do radiologic technologists perceive as the most significant barriers to interprofessional communication with radiologists, other physicians encountered in the hospital setting, surgeons, emergency department doctors, nurse practitioners, physician assistants, nurses, surgical technologists, respiratory therapists, and laboratory technicians?

A large majority of radiologic technologists (92.7%) agreed or strongly agreed that other professional groups' poor understanding of the scope of practice of radiographers is a barrier to interprofessional communication. Less than 6% disagreed or strongly disagreed and only 2% indicated the absence of opinion.

The second most perceived barrier to interprofessional communication was job stress. Over 82% of respondents agreed or strongly agreed that job stress was a barrier and 11.8% disagreed.

The third most recognized barrier pertained to professional respect. Over three quarters (78.4%) of respondents agreed or strongly agreed that lack of respect for the profession of radiography was a communication barrier while 17.7% disagreed or strongly disagreed.

The fourth most identified barrier was understaffing. An over three quarters majority (76.5%) agreed or strongly agreed and 17.7% disagreed or strongly disagreed that understaffing is a source of interprofessional communication barriers.

The fifth most perceived barrier was territorial disputes. Over 70% of respondents agreed or strongly agreed and 19.6% disagreed that territorial disputes can interfere with interprofessional communication.

The sixth most recognized barrier was intimidation. Over half of respondents (54.9%) agreed or strongly agreed and 41.2% disagreed or strongly disagreed that intimidation plays a destructive role in interprofessional communication.

The least identified barrier was radiographers' limited understanding of other professions. Less than half (43.1%) of radiologic technologists agreed that their limited understanding of other professions' scopes of practice is a barrier to interprofessional communication, while 47% disagree or strongly disagree (See Table 2).

Table 2

Barriers to Interprofessional Communication

	Agree or Strongly Agree		Disagree or Strongly Disagree	
	<i>f</i>	%	<i>f</i>	%
Other professionals groups poor understanding of radiographers scope of practice	47	92.7	3	5.9
Job stress	42	82.4	6	11.8
Lack of respect for radiography	40	78.4	9	17.7
Understaffing	39	76.5	9	17.7
Territorial disputes	36	70.6	10	19.6
Intimidation	28	54.9	21	41.2
Radiographers' limited understanding of other professions' scopes of practice	22	43.1	24	47.1

Research Question 3: Effect on Interprofessional Communication on Patient Care

Research question 3 was stated as follows: Do radiologic technologists perceive that interprofessional communication affects quality of patient care? Over 90% of radiologic technologists agreed or strongly agreed that patient care would be improved by increasing the level of interprofessional communication. Two percent disagreed and 7.8% strongly disagreed that increasing interprofessional communication would improve patient care (See Table 3).

Table 3

Patient Care Would be Improved by Increasing Interprofessional Communication

	<i>f</i>	%
Strongly Agree	31	60.8
Agree	15	29.4
Disagree	1	2.0
Strongly Disagree	4	7.8
No Opinion	-	-

Research Question 4: Effect of Interprofessional Communication on Radiographers' Occupational Stress

Research question 4 is stated as follows: Is poor interprofessional communication a source of occupational stress for radiologic technologists? Approximately 92% of participants agreed or strongly agreed that poor interprofessional communication is a source of occupational stress. Two percent disagreed and approximately 6% strongly disagreed that occupational stress can be caused by poor communication between professional groups (See Table 4).

Table 4

Poor Interprofessional Communication Causes Occupational Stress

	<i>f</i>	%
Strongly Agree	24	47.1
Agree	23	45.1
Disagree	1	2.0
Strongly Disagree	3	5.9
No Opinion	-	-

Research Question 5: Effect of Quality of Interprofessional Communication on Job Satisfaction

Research question 5 was stated as follows: Would an increase in the quality of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists? Over 88% agreed or strongly agreed that improving the quality of interprofessional communication would increase their job satisfaction. Less than 10% disagreed or strongly disagreed and 2% indicated the absence of an opinion (See Table 5).

Table 5

Increase in Job Satisfaction Due to Improved Quality of Interprofessional Communication

	<i>f</i>	%
Strongly Agree	23	45.1
Agree	22	43.1
Disagree	2	3.9
Strongly Disagree	3	5.9
No Opinion	1	2.0

Research Question 6: Effect of Quantity of Interprofessional Communication on Job Satisfaction

Research question 6 was stated as follows: Would an increase in the quantity of interprofessional communication between radiologic technologists and the other healthcare professional groups included in this study increase job satisfaction for radiologic technologists? Over three quarters of respondents (76.4%) agreed or strongly agreed that increasing the quantity of interprofessional communication would improved their job satisfaction. Less than one fifth (17.7%) disagreed or strongly disagreed. Approximately 4% indicated the absence of opinion and 2% did not respond to the question (See Table 6).

Table 6

Increase in Job Satisfaction Due to Increased Quantity of Interprofessional Communication

	<i>f</i>	%
Strongly Agree	9	17.6
Agree	30	58.8
Disagree	6	11.8
Strongly Disagree	3	5.9
No Opinion	2	3.9

Research Question 7: Effect of Interprofessional Education on Perceptions of Interprofessional Communication

Research question 7 was stated as follows: Does education regarding the roles of other health care professional groups influence radiologic technologists' perceptions of interprofessional communication? Approximately 43% of respondents indicated that their radiography education included information about the roles of other healthcare professions (See Table 7).

Table 7

Interprofessional Education

	<i>f</i>	%
Yes	22	43.1
No	25	49.0
No Response	4	7.8

The effect of interprofessional education on radiographers' perceptions of interprofessional communication was found to be statistically significant in 2 of the 25 elements analyzed: (1.) radiographers respect other healthcare disciplines (Sig. = 0.012) and (2.) ease of communication with nurses (Sig. = 0.020).

Research Question 8: Perception of Understanding Radiologic Technology

Research question 8 was stated as follows: Do radiologic technologists perceive that other healthcare professional groups understand the field of radiologic technology? The majority (94.1%) of participants disagreed or strongly disagreed that other healthcare professionals understand radiologic technology. Less than 4% strongly agreed and no participants agreed. Two percent indicated the absence of opinion (See Table 8).

Table 8

Other Healthcare Professionals Understand Radiologic Technology

	<i>f</i>	%
Strongly Agree	2	3.9
Agree	-	-
Disagree	32	62.7
Strongly Disagree	16	31.4
No Opinion	1	2.0

Research Question 9: Perception of Respecting Radiologic Technology

Research question 9 was stated as follows: Do radiologic technologists perceive that other healthcare professional groups respect the field of radiologic technology? Over 70% disagreed or strongly disagreed that other healthcare professionals respect the profession of radiologic technology. Just over 20% agreed or strongly agreed and almost 6% indicated the absence of opinion (See Table 9).

Table 9

Other Healthcare Professionals Respect Radiologic Technology

	<i>f</i>	%
Strongly Agree	2	3.9
Agree	9	17.6
Disagree	22	43.1
Strongly Disagree	15	29.4
No Opinion	3	5.9

Research Question 10: Perception of Understanding Other Healthcare Disciplines

Research question 10 was stated as follows: Do radiologic technologists perceive that they understand other healthcare disciplines? The majority of participants agreed or strongly agreed that radiologic technologists understand other healthcare disciplines. Approximately one

quarter (25.5%) disagreed or strongly disagreed and 2% indicated the absence of opinion (See Table 10).

Table 10

Radiographers Understand Other Healthcare Disciplines

	<i>f</i>	%
Strongly Agree	5	9.8
Agree	32	62.7
Disagree	12	23.5
Strongly Disagree	1	2.0
No Opinion	1	2.0

Research Question 11: Perception of Respecting Other Healthcare Disciplines

Research question 11 was stated as follows: Do radiologic technologists perceive that they respect other healthcare disciplines? Almost 90% agreed or strongly agreed that radiographers respect other healthcare disciplines. Almost 4% disagreed and approximately 8% indicated the absence of opinion (See Table 11).

Table 11

Radiographers Respect Other Healthcare Disciplines

	<i>f</i>	%
Strongly Agree	6	11.8
Agree	39	76.5
Disagree	2	3.9
Strongly Disagree	-	-
No Opinion	4	7.8

Research Question 12: Effect of Demographic Variables on Perceptions

Research question 12 was stated as follows: Do the following demographic variables affect radiologic technologists' perceptions of interprofessional communication: age, educational degree, facility size, gender, and years of work experience?

The variables of age, educational degree, and facility size did not affect radiologic technologists' perceptions in a statistically significant manner.

The perception of radiologic technologists respecting other healthcare disciplines was significantly affected by the years of work experience the participant possessed (Sig. = 0.008). Radiographers with 4 to 6 years of experience were more likely to agree that radiographers respect other healthcare disciplines than radiographers with less than 1, 1 to 3, 7 to 10, or 10 or more years experience.

Gender was found to have a statistically significant influence on perceptions of ease of communication with surgeons (Sig. = 0.030) and nurses (Sig. = 0.036). Female participants were more likely than male participants to indicate that communication with nurses and surgeons was difficult or very difficult. Almost half (47.2%) of female participants indicated that communicating with nurses was difficult or very difficult while only 15.4% of male participants reported communication with nurses was difficult or very difficult. The gap between the sexes was somewhat less in rating the difficulty of communication with surgeons. Again, close to half (45.7%) of female participants indicated that communication with surgeons was difficult or very difficult while 30.8% of males rated communication with surgeons as difficult or very difficult.

Comments

While each survey instrument provided space for comments, only 10 of 51 (19.6%) responding radiologic technologists made comments regarding the research (Appendix E). Three comments concerned lack of interprofessional understanding. Three radiologic technologists made comments pertaining to communication. Two other radiographers mentioned problems within the radiology department. Another radiographer mentioned lack of respect. One comment regarded clarity of orders.

Summary

On the whole, this study found that radiologic technologists experience the most difficulty communicating with nurses and surgeons. Respondents perceived the most significant barrier to interprofessional communication to be other professional groups' poor understanding of the scope of practice of radiographers. Participants agreed that improving interprofessional communication would have a positive impact on patient care and job satisfaction. Additionally, poor interprofessional communication was a cause of occupational stress. The effect of interprofessional education was limited, but no conclusions can be drawn because the study did not address the quality or quantity of the educational experience. Respondents perceived that other healthcare professions neither respected nor understood radiography but radiographers respected and understood other disciplines. Demographic variables had a very limited influence on perceptions.

CHAPTER 5

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

The primary focus of this study was radiologic technologists' perceptions regarding the role and effect of interprofessional communication on patient care, occupational stress, and job satisfaction. In particular, what did radiologic technologists perceive to be the most influential barriers to interprofessional communication? It was also designed to gain insight regarding which other healthcare disciplines radiologic technologists experienced the most difficulty communicating.

Data were collected using the Communication in the Radiology Department survey [Appendix B] developed as described in Chapter 3. Data were collected using the methodology explained in the same chapter. The instrument was distributed to 85 radiologic technologists at the selected hospital facilities. Fifty-one (60%) of radiologic technologists employed at participating hospital facilities provided input for the study.

Conclusions

In drawing conclusions, one must remember that the study was limited to the perceptions of 51 radiologic technologists employed at participating hospital facilities located in Northeast Tennessee as of June 2009. The following conclusions can be drawn concerning the effect of interprofessional communication on the perceptions of radiologic technologists.

1. Of the healthcare disciplines listed, study participants experienced the most difficulty communicating with nurses and surgeons.
2. Lack of interprofessional understanding and respect between radiologic technologists and other healthcare disciplines is a major barrier to interprofessional communication.

3. Participants recognized the effect of interprofessional communication on the quality of patient care and agreed that increasing the level of interprofessional communication would have a positive impact.
4. Poor interprofessional communication was a source of occupational stress for study participants. Furthermore, participants perceived that increasing the quality and quantity of interprofessional communication would increase their job satisfaction.
5. The effect of interprofessional education on participants' perceptions was limited. This study did not include questions regarding the quality or quantity of this educational experience so it was difficult to make any concrete conclusions regarding this element of the study.
6. Participants felt that their profession was neither understood nor respected by other healthcare professional groups. However, they felt that radiologic technologists understood and respected other healthcare disciplines.
7. The effect of demographic variables was small. The localized group of radiologic technologists perceptions varied very little based on age, educational degree, facility size, gender, and years of work experience.

Discussion

The strained communication between radiologic technologists and nurses can be a major hurdle for both groups. One of the participant's survey comments [Appendix E] sums up the radiologic technologist's perception quite well: "Sometimes nurses resent when we try to communicate. They are busy and [it] seems like trying to explain the situation interferes with their routine. Not much compassion." Another participant stated, "Nurses don't know what happens in x-ray and thus don't understand patient preparation."

While participants perceived a lack of respect and understanding for their profession, they also reported this as a one-sided problem because they felt that they both understood and respected other healthcare professionals. It is a mistake for radiologic technologists to place all the blame for poor interprofessional communication and understanding on other professional groups. This attitude is a barrier in and of itself.

One participant pleaded the case for interprofessional education: “I think that other professions should spend some clinical time in our department to better understand our profession and that we do a lot more than just push a button.” This is a good idea, but in order for such an effort to be truly successful radiologic technologists need to spend some time in various other disciplines as well.

Recommendations for Further Study

Further research could answer the following questions:

1. What role does environment play on radiologic technologists’ perceptions of interprofessional communication? Would responses vary based on facility type (hospital, outpatient diagnostic center, physician’s office, etc.)?
2. Are the results of this study specific to the location or are similar problems experienced throughout the region and nation?
3. How would this study’s results compare with a study conducted in hospital facilities that teach teamwork?
4. Why hasn’t interprofessional education been integrated into health professions degree programs? What are the barriers to implementation of IPE? What are the perceptions of various programs’ faculty regarding IPE?

5. Do allied health professionals in other disciplines experience similar feelings of lack of respectful communication and understanding?

REFERENCES

- Allen, I., & Seaman, C. (2007). Likert scales and data analyses. *Quality Progress*, 40(7), 64-65.
- American Society of Radiologic Technologists (ASRT). (2004). Radiologic technologist wage and salary survey. Retrieved October 10, 2009 from:
https://www.asrt.org/media/pdf/WSS2004_Demograf.pdf.
- American Society of Radiologic Technologists (ASRT). (2006). News release: ASRT responds to report on medication errors in radiology. Retrieved June 9, 2008 from:
<https://www.asrt.org/content/News/PressRoom/PR2006/ASRTRespon060118.aspx>.
- American Society of Radiologic Technologists (ASRT). (2007). The practice standards for medical imaging and radiation therapy: Radiography practice standards. Retrieved April 19, 2009 from:
https://www.asrt.org/media/pdf/practicestds/GR06_OPI_Strds_Rad_Adpd.pdf.
- American Society of Radiologic Technologists (ASRT). (2008). Recruitment and retention toolkit: The interdisciplinary team in radiologic technology. Retrieved June 9, 2008 from:
https://www.asrt.org/content/RecruitmentRetention/RetentionTools/Interdisciplinary_Team.aspx.
- Akroyd, D., Caison, A., & Adams, R. (2002). Patterns of burnout among U.S. radiographers. *Radiologic Technology*, 73, 215-223.
- Atwal, A., & Caldwell, K. (2006). Nurses' perceptions of multidisciplinary team work in acute health-care. *International Journal of Nursing Practice*, 12, 359-365.
- Bailey, D. (1997). *Research for the health professional: A practical guide*. Philadelphia, PA: F.A. Davis.

- Berdie, D., Anderson, J., & Niebuhr, M. (1986). *Questionnaires: Design and use*. Metuchen, NJ: Scarecrow Press.
- Blendon, R., Brodle, M., Benson, J., Altman, D., & Buhr, T. (2006). Americans' views of health care costs, access, and quality. *The Milbank Quarterly*, 84(4), 1-14.
- Bolman, L., & Deal, T. (2003). *Reframing organizations: Artistry, choice, and leadership*. San Francisco, CA: Jossey-Bass.
- Carifio, J., & Perla, R. (2007). Ten common misunderstandings, misconceptions, persistent myths and urban legends about Likert response formations and their antidotes. *Journal of Social Sciences*, 3, 106-116.
- Chant, S., Jenkinson, T., Randle, J., Russell, G., & Webb, C. (2002). Communication skills training in healthcare: A review of the literature. *Nurse Education Today*, 22, 189-202.
- Cottrell, R. & McKenzie, J. (2005). *Health promotion & education research methods: Using the five-chapter thesis/dissertation model*. Sudbury, MA: Jones & Bartlett.
- Crowley, S., & Wollner, I. (1987). Collaborative practice: A tool for change. *ONF*, 14(4), 59-63.
- Curran, V., Sharpe, D., & Forristall, J. (2007). Attitudes of health sciences faculty members towards interprofessional teamwork and education. *Medical Education*, 41, 892-896.
- D'Avray, L., Cooper, S., & Hutchinson, L. (2004). Developing IPE in practice: Report 1 – Development, implementation & preliminary evaluation of “process mapping” as an exercise for interprofessional learning in practice. *Interprofessional Education for Health & Social Care*. Retrieved March 29, 2007 from <http://www.kcl.ac.uk.ipe>.
- DiGiacomo, M., & Adamson, B. (2001). Coping with stress in the workplace: Implications for new health professionals. *Journal of Allied Health*, 30, 106-111.

- Dixon, J., Larison, K., & Zabari, M. (2006). Skilled communication: Making it real. *AACN Advanced Critical Care, 17*, 376-382.
- Dutta, A., Pyles, M., & Miederhoff, P. (2005). Stress in health professions students: Myth or reality? A review of the Existing literature. *Journal of National Black Nurses Association, 16*(1), 63-68.
- Eslick, G., & Raj, V. (2002). Occupational stress amongst radiographers: Does working in private or public practice make a difference? *Radiography, 8*, 47-53.
- Feaster, S., & Joy, L. (2003). Portable procedures: Improving radiology and nursing relations. *Continuing Education in Radiologic Technology, 1*(2), 42-47.
- Ferlie, E., & Shortell, S. (2001). Improving the quality of health care in the United Kingdom and the United States: A framework for change. *The Milbank Quarterly, 27*, 281-315.
- Gardner, D. (2005). Ten lessons in collaboration. *Online Journal of Issues in Nursing, 10*(1).
- Glass, G., Peckham, P., & Sanders, J. (1972). Consequence and failure to meet assumptions underlying the analyses of variance and covariance. *Review of Educational Research, 42*, 237-288.
- Grol, R., Bosch, M., Hulscher, M., Eccles, M., & Wensing, M. (2007). *The Milbank Quarterly, 85*, 93-138.
- Hackman, M., & Johnson, C. (2004). *Leadership: A communication perspective*. Long Grove, IL: Waveland Press.
- Hall, P. (2005). Interprofessional teamwork: Professional cultures as barriers. *Journal of Interprofessional Care, Supplement 1*, 188-196.
- Hall, P., & Weaver, L. (2001). Interdisciplinary education and teamwork: A long and winding road. *Medical Education, 35*, 867-875.

- Harris, E. (1995). *The shadowmakers: A history of radiologic technology*. Albuquerque, NM: American Society of Radiologic Technologists.
- Irvine, R., Kerridge, I., McPhee, J., & Freeman, S. (2002). Interprofessionalism and ethics: Consensus or clash of cultures? *Journal of Interprofessional Care*, *16*, 199-210.
- Keller, V., Kemp White, M., & Goldstein, M. (2003). The “intensive” – A program to improve communication performance. *JCOM*, *10*, 155-158.
- Kelly, A. (2005). Relationships in emergency care: Communication and impact. *Topics in Emergency Medicine*, *27*, 192-197.
- Kramer, M., & Schmalenberg, C. (2003). Securing “good” nurse/physician relationships. *Nursing Management*, *34*(7), 34-38.
- Leipzig, R., Hyer, K., Ek, K., Wallenstein, S., Vezina, M., Fairchild, S., Cassel, C., & Howe, J. (2002). Attitudes toward working on interdisciplinary healthcare teams: A comparison by discipline. *Journal of the American Geriatrics Society*, *50*, 1141-1148.
- Levin, J., & Fox, J. (2006). *Elementary statistics in social research*. Boston, MA: Pearson Education.
- Lewin, K., Lippitt, R., & White, R. (1939). Patterns of aggressive behavior in experimentally created social climates. *Journal of Social Psychology*, *10*, 271-299.
- Lewis-Beck, M., Bryman, A., & Liao, T. (2004a). *The SAGE encyclopedia of social science research methods*. Thousand Oaks, CA: SAGE.
- Lewis-Beck, M., Bryman, A., & Liao, T. (2004b). *The SAGE encyclopedia of social science research methods*. Thousand Oaks, CA: SAGE.
- Lewis-Beck, M., Bryman, A., & Liao, T. (2004c). *The SAGE encyclopedia of social science research methods*. Thousand Oaks, CA: SAGE.

- Maslach, C., Schaufeli, W., & Leiter, M. (2001). Job burnout. *Annual Review of Psychology*, 52, 397-422.
- McCallin, A. (2001). Interdisciplinary practice – A matter of teamwork: An integrated literature review. *Journal of Clinical Nursing*, 10, 419-428.
- McCallin, A. (2005). Interprofessional practice: Learning how to collaborate. *Contemporary Nurse*, 20(1), 28-37.
- McCallin, A. (2006). Interdisciplinary teamwork: Labeling is not enough. *Journal of the Australasian Rehabilitation Nurses' Association*, 9(2), 6-10.
- Northouse, P., & Northouse, L. (1998). *Health communication: Strategies for health professionals*. Stamford, CT: Appleton & Lange.
- O'Rourke, T. (1999). *The importance of an adequate survey response rate and ways to improve it*. *American Journal of Health Studies*, 15, 107-109.
- Peloquin, S., & Davidson, D. (1993). Interpersonal skills for practice: An elective course. *The American Journal of Occupational Therapy*, 47, 260-264.
- Piehl, S. (1999). Using effective communication skills. *Seminars in Radiologic Technology*, 7(1), 10-18.
- Raj, V. (2006). Occupational stress and radiography. *Radiologic Technology*, 78, 113-122.
- Rodger, B., Mickan, S., Marinac, J., & Woodyatt, B. (2005). Enhancing teamwork among allied health students: Evaluation of an interprofessional workshop. *Journal of Allied Health*, 34, 230-235.
- Rutter, D., & Lovegrove. (2008). Occupational stress and its predictors in radiographers. *Radiography*, 14, 138-143.

- Salkind, N. (2008). *Statistics for people who (think they) hate statistics*. Thousand Oaks, CA: SAGE.
- Salvatori, P., Mahoney, P., & Delottinville, C. (2006). An interprofessional communication skills lab: A pilot project. *Education for Health, 19*, 380-384.
- Saris, W., & Gallhofer, I. (2007). *Design, evaluation, and analysis of questionnaires for survey research*. Hoboken, NJ: John Wiley & Sons.
- Sechrist, S., & Frazer, G. (1992). Identification of stressors in radiologic technology. *Radiologic Technology, 64*, 97-103.
- Schaufeli, W., & Greenglass, E. (2001). Introduction to special issue on burnout and health. *Psychology & Health, 16*, 501-510.
- Schuster, M., McGlynn, E., & Brook, R. (2005). How good is the quality of health care in the United States? *The Milbank Quarterly, 83*, 843-895.
- Scott, A. (2007). Improving communication for better patient care. *Radiologic Technology, 78*, 205-218.
- United States Pharmacopeia. (2006). Harmful medication errors seven times higher in radiological sciences. Retrieved April 19, 2009 from: <http://www.onlinepressroom.net/uspharm>.
- Weisberg, H., Krosnick, J., & Bowen, B. (1996). *An introduction to survey research, polling, and data analysis*. Thousand Oaks, CA: SAGE.
- Whitehead, C. (2007). The doctor dilemma in interprofessional education and care: How and why will physicians collaborate? *Medical Education, 41*, 1010-1016.

- Xyrichis, A., & Lowton, K. (2008). What fosters or prevents interprofessional teamworking in primary and community care? A literature review. *International Journal of Nursing Studies*, 45, 140-153.
- Yates, J. (2006). Collaborative learning in radiologic science education. *Radiologic Technology*, 78(1), 19-27.
- Young, L., Baker, P., Wallner, S., Hodgson, L., & Moor, M. (2007). Knowing your allies: Medical education and interprofessional exposure. *Journal of Interprofessional Care*, 21, 155-163.
- Zwarenstein, M., Reeves, S. (2006). Knowledge translation and interprofessional collaboration: Where the rubber of evidence-based care hit the road of teamwork. *The Journal of Continuing Education in the Health Professions*, 26(1), 46-54.

APPENDICES

Appendix A: Survey Cover Letter



**East Tennessee State University
College of Clinical and Rehabilitative Health Sciences
Department of Allied Health Sciences**

Nave Center • 1000 Jason Witten Way • Elizabethton, Tennessee 37643 • (423) 547-4900 • Fax: (423) 547-4921

4-20-2009

Dear Participant:

My name is Stacey Deshkulkarni and I am a graduate student at East Tennessee State University. I am working on my master's degree in Allied Health Sciences. In order to finish my studies, I need to complete a research project. The name of my research study is Perceptions of interprofessional communication: Causes and effects on patient care, occupational stress, and job satisfaction.

The purpose of this study is to identify which professional groups Registered Radiologic Technologists experience the most difficulty communicating with and to identify which barriers to communication and teamwork are viewed as the most influential. I would like to give a brief survey questionnaire to Registered Radiologic Technologists. It should only take about 5 – 10 minutes to complete. You will be asked questions about communication. Since this project deals with personal experience and opinions, it might cause some minor stress. However, you may also feel better after you have had the opportunity to express yourself. This study may provide benefit by providing more information about the experiences of radiographers.

This method is completely anonymous and confidential. In other words, there will be no way to connect your name with your responses. Although your rights and privacy will be maintained, the Secretary of the Department of Health and Human Services, the ETSU IRB and personnel particular to this thesis research study have access to the study records.

If you do not want to fill out the survey, it will not affect you in any way. There are no alternative procedures except to choose not to participate in the study.

Participation in this research experiment is voluntary. You may refuse to participate. You can quit at any time. If you quit or refuse to participate, the benefits or treatment to which you are otherwise entitled will not be affected.

If you have any research-related questions or problems, you may contact me at (423) 797-0558. I am working on this project together under the supervision of Dr. Ester Verhovsek. You may reach her at (423) 547-0235. Also, the chairperson of the Institutional Review Board at East Tennessee State University is available at (423) 439-6055 if you have questions about your rights as a research subject. If you have any questions or concerns about the research and want to talk to someone independent of the research team or you can't reach the study staff, you may call an IRB Coordinator at (423) 439-6055 or (423) 439-6002.

Sincerely,

Stacey Q. Deshkulkarni, RT(R)

Stacey Q. Deshkulkarni, RT(R)

Appendix B: Survey Instrument

Communication in the Radiology Department

Please indicate the extent to which you agree or disagree with the following statements by placing **one** checkmark in the appropriate box.

I believe:	Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
Patient care could be improved by increasing the level of interprofessional communication in healthcare.					
Poor interprofessional communication is a source of occupational stress for healthcare professionals.					
My job satisfaction would be improved if interprofessional communication among healthcare workers improved in quality .					
My job satisfaction would be improved if interprofessional communication among healthcare workers increased in quantity .					
Other healthcare professionals understand the field of radiologic technology.					
Other healthcare professionals respect the field of radiologic technology.					
Radiographers understand other healthcare disciplines.					
Radiographers respect other healthcare disciplines.					

Please rate your ease of communication with the following groups by placing **one** checkmark in the appropriate box.

	Very Difficult	Difficult	Neither Easy Nor Difficult	Easy	Very Easy	No contact with this group
Radiologists						
Surgeons						
ER Physicians						
Other Physicians						
Nurse Practitioners and Physician Assistants						
Nurses						
Surgical Technologists						
Respiratory Therapists						
Laboratory Technicians						

With which **one** of these groups do you experience the most difficulty communicating? _____

Please indicate the extent to which you agree or disagree that the following barriers are causes of poor communication between radiographers and other healthcare professionals by placing **one** checkmark in the appropriate box.

I believe the following barrier is a cause of poor communication:	Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
Your limited understanding of other professions' scopes of practice					
Other professional groups' poor understanding of your scope of practice					
Intimidation					
Lack of respect for your profession					
Understaffing					
Job stress					
Territorial disputes (determining task assignment)					

Please respond to the following questions by placing **one** checkmark in the appropriate box.

Size of Your Facility

- 0-199 inpatient beds
 200-399 inpatient beds
 400 or more inpatient beds

Shift worked the majority of the time

- Day shift Evening Shift
 Middle shift Night Shift

Age

- 20-25 41-45
 26-30 46-50
 35-40 Over 50

Gender

- Male Female

Type of radiography degree

- Certificate Associate degree
 Bachelor's degree

Years of experience in radiography

- Less than 1 7-9
 1-3 10 or more
 4-6

Did your education include information about the roles of other healthcare disciplines?

- Yes No

Indicate the choice that best describes your current position.

- Diagnostic staff radiographer Lead Tech / Supervisor
 Clinical instructor

Additional comments concerning communication between radiographers and other healthcare professionals:

Results of this study will be available on the ETSU electronic thesis and dissertation database. This database is searchable through the ETSU Sherrod Library website.

Thank you for your participation in this research survey. Your time and input are greatly appreciated!

Appendix C: Pilot Study Cover Letter



**East Tennessee State University
College of Clinical and Rehabilitative Health Sciences
Department of Allied Health Sciences**

Nave Center • 1000 Jason Witten Way • Elizabethton, Tennessee 37643 • (423) 547-4900 • Fax: (423) 547-4921

Dear Fellow Radiologic Technologist:

I am a student currently enrolled in the Master of Science in Allied Health program at East Tennessee State University. As the last step in finishing my degree, a thesis research project is required.

This study seeks to determine which barriers to open and effective communication are most commonly experienced by radiologic technologists and to identify the healthcare professional groups with which communication is the most difficult. Your time by completing this brief survey concerning interprofessional communication between Radiologic Technologists and other members of the healthcare team is greatly appreciated.

By completing this survey, you are helping further develop my survey tool. Feel free to make comments, cross out any questions that you feel are not applicable and add any questions you feel would be beneficial to the study. Also, change any questions that you believe need clarification.

Your help is essential to progress within our profession. My goal is to identify barriers and improve communication between radiographers and other healthcare workers and also become an educator in Radiography. Thank you for your time.

Sincerely,

A handwritten signature in cursive script that reads "Stacey Q. Deshkulkarni, RT(R)".

Stacey Q. Deshkulkarni, RT(R)
Master's Candidate
East Tennessee State University

Appendix D: Pilot Study Survey Instrument

Communication in the Radiology Department

Size of Your Facility

- 0-199 inpatient beds
- 200-399 inpatient beds
- 400 or more inpatient beds

Age

- 20-25
- 26-30
- 35-40
- 41-45
- 46-50
- Over 50

Gender

- Male
- Female

Type of radiography education you received

- Certificate
- Associate degree
- Bachelor's degree

Years of experience in radiography

- Less than 1
- 1-3
- 4-6
- 7-9
- 10 or more

Did your education include information about the roles of other healthcare disciplines?

- Yes
- No

Indicate the choice that best describes your current position.

- Diagnostic staff radiographer
- Lead tech
- Clinical instructor

Please rank the following groups from one (1) to ten (10), with the group that is easiest to communicate with being ranked one (1) and the group that is hardest to communicate with being ranked ten (10). Please fill in the rank number in the blank provided.

- ___ Radiologists
- ___ Surgeons
- ___ Emergency Department Physicians
- ___ Other Physicians
- ___ Nurse Practitioners
- ___ Physician Assistants
- ___ Nurses
- ___ Surgical Technologists
- ___ Respiratory Therapists
- ___ Laboratory Technicians (Phlebotomists)

Regarding the group that you identified as the hardest to communicate with, please rank the following communication barriers with one (1) being assigned to the most likely cause of communication barriers and seven (7) being assigned to the least likely cause.

- Your limited understanding of that group's job scope of practice
- That group's poor understanding of your scope of practice
- Intimidation
- Lack of respect for your profession
- Understaffing (staff to patient ratio)
- Job stress
- Territorial disputes (determining task assignment)

Please indicate the extent to which you agree or disagree with the following statements by placing a checkmark in the appropriate box.

I believe:	Strongly Disagree	Disagree	Agree	Strongly Agree	No Opinion
Patient care could be improved by increasing the level of interprofessional communication in healthcare.					
Poor interprofessional communication is a source of occupational stress for healthcare professionals.					
My job satisfaction would be improved if interprofessional communication among healthcare workers improved in quality.					
My job satisfaction would be improved if interprofessional communication among healthcare workers increased in quantity.					
Other healthcare professionals understand the field of radiologic technology.					
Other healthcare professionals respect the field of radiologic technology.					
Radiographers understand other healthcare disciplines.					
Radiographers respect other healthcare disciplines.					

Anything you would like to add about communication within the healthcare team?

If you would like to receive this study's results please supply an email address.

Thank you for your participation in this research survey. Your time is greatly appreciated!

Appendix E: Comments

“I definitely agree that better communication with other staff members throughout the hospital would improve patient care. I also believe that our profession is viewed as inferior by other staff members with an equal or lesser degree of education.”

“Very frustrating when patient care is put to the side because communication with the patient’s physician is very poor.”

“Sometimes nurses resent when we try to communicate. They are busy and [it] seems like trying to explain the situation interferes with their routine. Not much compassion.”

“Residents are too inexperienced to know which test to order and chronologically which test to order first, second, etc. Nurses don’t know what happens in x-ray and thus don’t understand patient preparation. Clerical staff has the least education yet has to be the point person for initial communication.”

“I think that other professions should spend some clinical time in our department to better understand our profession and that we do a lot more than just push a button.”

“I do think other professionals don’t understand radiology and it causes misunderstandings. Most problems are from individuals who come off abrasive to everyone. I’ve seen this from all positions (nurses, doctors, even other rad techs).”

“Main problems do not come from people in other professions not understanding ours but rather from those in our profession who play dumb or spend loads of time avoiding work or making excuses rather than going the extra mile to help. Teamwork solves all problems!”

“There are a lot of lazy people in [the] x-ray department, especially dayshift. The more you do, the harder you work, the more people expect of you. People aren’t very appreciative when you are an overachiever, but I have noticed when a lazy person does do work, they are praised for it. I don’t know if every workplace and every profession has the same problems, but they probably do.”

“We are just totally disrespected and are treated like we are not priority. At the same time, they put the responsibility of turn around times largely on radiology. Radiology is usually the first person trying to do the patient’s exam but gets pushed aside.”

“CLARITY! Orders are commonly confused because there isn’t enough clarity between doctor’s orders and the person putting the order in.”

VITA

STACEY Q. DESHKULKARNI

Personal Data:

Date of Birth: November 29, 1979

Place of Birth: Kingsport, Tennessee

Marital Status: Married

Education:

Public Schools, Gate City, Virginia

B.S. Allied Health, East Tennessee State University, Johnson City,
Tennessee, 2004

M.S. Allied Health, East Tennessee State University, Johnson City,
Tennessee, 2009

Professional Experience:

Radiologic Technologist, Indian Path Medical Center, Kingsport,
Tennessee, 2004-2006

Adjunct Faculty, East Tennessee State University, College of
Clinical and Rehabilitative Health Sciences, Radiography
Program, 2006-2009