

UNDERSTANDING THE PERSONAL AND PROFESSIONAL IDENTITY OF CLINICAL  
LABORATORY PRACTITIONERS THROUGH NARRATIVE

by

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(Under the Direction of John W. Schell)

ABSTRACT

The purpose of this qualitative study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). Thirty-four demographic questionnaires were completed and returned from clinical laboratory practitioners in three hospital laboratories. From these 34 demographic questionnaires a maximum variation strategy was used to select nine clinical laboratory practitioners that were certified, with more than one year of experience, had minimal supervisory duties, and were employed full-time. Data collection utilized the general interview guide approach in which participants were individually interviewed on two occasions at their workplace setting. Evaluation of data used narrative thematic analysis that consisted of a systematic approach of searching for patterns and themes within collected narratives.

The findings provided a better understanding of the professional identity of clinical laboratory practitioners. Six overarching themes emerged from the data including: (a) perceived changes within the profession, (b) entry pathways into clinical laboratory profession, (c) lack of awareness on the part of healthcare professionals and the public, (d) being misunderstood by fellow healthcare professionals, (e) retention issues, and (f) perceived role and value of clinical

laboratory practitioners. The components of professional identity of clinical laboratory practitioners that emerged from the data indicate that the profession is vital, misunderstood, and generally unknown. With these data, I now believe that the workplace shortage is exacerbated by a professional identity that is misunderstood and unknown. From this study, strategies were developed that could be used to increase recruitment into the clinical laboratory science profession and retention of those in the profession, thereby alleviating the workplace shortage.

**INDEX WORDS:** Professional identity, Personal identity, Narrative identity theory, Dan McAdams, Life story model, Clinical laboratory science, Clinical laboratory scientist, Clinical laboratory technician, Medical technologist

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A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial

Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2010

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IN MEMORY OF

Patricia Morgan Montgomery

(My mother)

January 20, 1950 – December 21, 2008

## ACKNOWLEDGEMENTS

Let me begin by saying that I would not be here today if it were not for the tremendous guidance and support from numerous people. Foremost, I was not alone on this four year journey as He was with me during every road trip from Savannah to Athens and back. He enabled me to balance being a wife, student, teacher, and daughter. And He guided me through days of doubt and despair. Everyday God strengthens my faith that He is with me and has a plan for me.

I would like to thank my husband, Matt Butina, for being by my side throughout this chapter of my life. He has graciously taken over most of our daily chores and errands so that I could complete this degree and for that I am truly blessed. He is my best friend and I dearly look forward to our upcoming chapters together.

Besides my mother, the most influential person in my life has been my god-father, Dr. John Charles Eldridge. Although Chuck's influence has been tremendous and would fill multiple pages, I will share just a few examples. He introduced me, an impressionable teenager, to a world outside of Tobaccoville, North Carolina; he led me to investigate clinical laboratory science as a career because he believed it a good fit; he had confidence that I would excel at Michigan State University when I lacked it; and he continually shared his love of teaching which inspired me to enter academia.

I would like to give special thanks to my major professor, Dr. John Schell. He believed in me from the beginning when others doubted, and for that I will always be grateful. Throughout these past four years, whenever I have needed a pep talk about school, work, or life he was there.

Even though his role as my major professor is ending I expect that he will continue as a mentor and friend.

Next I would like to express appreciation to my dissertation committee members: to Dr. Elaine Adams for serving as role model, editor, and encourager, to Dr. Melissa Freeman for introducing me to qualitative research through her courses, and for serving as a qualitative specialist on my committee, and to Dr. Roger Hill for his insightful questions and guidance which led me to expand my thoughts and study to include assessing healthcare providers.

I would also like to extend appreciation to the Jennifer Geddings, Debbie Hockensmith, and Donna McClellan who facilitated my interviews of clinical laboratory practitioner staff in their laboratories. Additionally, I would like to thank all the clinical laboratory practitioners who volunteered to participate in my study, especially the interview participants who shared so many outstanding narratives.

Finally, I wish to acknowledge a number of colleagues and fellow educators: Paula Garrott, Lynn Ingram, Joan Polancic, and Gilma Roncancio-Weemer, who served as the validation team, Drs. Elizabeth Kenimer Leibach, Lester Pretlow and Barbara Russell, collegial friends at the Medical College of Georgia, and Dr. Kathy Doig, Linda Comeaux, and Lynn Maedel for becoming supportive role models.



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## CHAPTER 1

### INTRODUCTION

In the United States clinical laboratory personnel are certified as clinical laboratory scientists, clinical laboratory technicians, medical technologists, or medical laboratory technicians. These individuals, “as members of the health care delivery team, are responsible for assuring reliable and accurate laboratory test results which contribute to the diagnosis, treatment, prognosis, and prevention of physiological and pathological conditions in humans” (American Society of Clinical Laboratory Science, 2001, ¶ 7). The major principal practice areas within the field of clinical laboratory science include: (a) hematology, the evaluation of blood cells for diseases including anemia and leukemia, (b) coagulation or hemostasis, the evaluation of bleeding and clotting problems, (c) urinalysis, the evaluation of urine at the physical, chemical and microscopic levels, (d) clinical chemistry, the analysis of body fluids for chemical constituents that lead to the detection of diseases and disorders, (e) immunohematology, the practice of transfusion medicine that ensure safe and compatible blood products for transfusion, (f) immunology/serology, the evaluation of the body’s immune system for identification of infectious diseases and compatibility for tissue transplantation, and (g) microbiology, the identification of microorganisms that cause infections/diseases (Karni, 2002; Linné & Ringsrud, 1999).

When laboratory tests are ordered by healthcare providers (e.g., physicians, nurse practitioners, and physician assistants) phlebotomists will collect the blood and body fluid specimens which are then processed and delivered to appropriate clinical laboratory departments

or practice areas. Testing within each department is predominantly performed by trained and certified clinical laboratory practitioners. Departments usually have lead technologists or supervisors that are often required to have a specialty certification in that practice area. Typically, the laboratory chain of command includes a physician pathologist(s) or medical director, a laboratory manager, and then the department supervisor (Linné & Ringsrud, 1999).

As Karni (2002) explained “since its origin, the field of clinical laboratory science has grown in complexity and responsibility from a helping occupation limited to elementary functions, to its status today as a multifaceted profession that includes many other roles as well” (p. 8). In traditional settings, clinical laboratory practitioners perform laboratory testing to analyze and evaluate blood and body fluid specimens to assist in the diagnosis, monitoring, and treatment of patients. Other roles for clinical laboratory practitioners within the healthcare system, but outside of the clinical laboratory, include research, health care administration, consulting services, and public health. Practitioners leaving the healthcare system can pursue career paths in education, development and sales of laboratory supplies/instruments, veterinary science, and environmental science (Karni).

Today clinical laboratory practitioners have numerous opportunities but many of these positions remain vacant as the profession suffers from a chronic personnel shortage.

*Money Magazine* recently ranked lab technologist as one of the best jobs in America, pointing to an average salary of \$51,502 and 10-year job growth of almost 21%. Yet positions in clinical labs remain unfilled, the number of educational programs has plummeted, and the field has suffered an accompanying, precipitous decline in the number of young people entering it. On top of these problems, the profession is nervously



anticipating a mass exodus of its members as a generation of current lab professionals retire in the coming year. (Kibak, 2008, p. 1)

The American Society of Clinical Pathology (ASCP) estimates 81,000 technologists and technicians will be needed to replace retirees by 2014 (Hilborne, 2008). Graduates of clinical laboratory technician (CLT) and clinical laboratory scientist (CLS) programs averages about 4,500 annually therefore this will not be enough to fulfill the estimated need (Anderson, 2006).

There are numerous reasons for the current personnel shortage. One of the major factors, mentioned above, is the fact that 40% of the current workforce will retire within 10 years (Hilborne, 2008). A second factor is the decrease of National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) accredited clinical laboratory education programs. In 1975, there were 770 CLS NAACLS-accredited programs and in 2007 there were 222 (Hilborne). A final factor is the retention of clinical laboratory practitioners. Those who are dissatisfied and leave the profession do so because of salary, lack of recognition, limited advancement opportunities, job stress, and poor benefits (Beck & Doig, 2005).

The clinical laboratory profession has changed drastically since it began in the early 1900s. Throughout the twentieth century the role of the clinical laboratory practitioner evolved and expanded, as new tests and technologies were introduced, which led to a demand for research in attrition, job satisfaction, personnel shortages, and salaries (Kotlarz, 2001). The literature includes substantial quantitative research on retention and personnel shortages. Multiple retention and shortage factors have been studied but identity (of any nature) has not been a primary factor. Only a limited number of articles have appeared with regards to the collective or personal professional identities among clinical laboratory practitioners.

Identity is a concept that has been studied for centuries often focusing on an individual or personal identity whereas professional identity focuses on the fundamental and enduring attributes of a profession (Whetten, 2006). Professional identity in a broad sense is “a term used to describe both the collective identity of a profession and an individual’s own sense of the professional role” (Feen-Calligan, 2005, p. 122). Professional identity within a healthcare field may be more appropriately defined as “the values and beliefs held by the nurse that guide her thinking, actions, and interaction with the patient” (Fagermoen, 1995, p. 26) substituting nurse with any healthcare field. Professional identity is fundamentally formed by a group of employees with individual identities, yet their individual identities can be influenced by their professional identity therefore practitioners of that profession possess both a personal identity and a professional identity which are interconnected (Puusa & Tolvanen, 2006).

#### Statement of the Problem

Sources of the chronic shortage of clinical laboratory staffing in the United States has been examined and discussed by Kotlarz (2001) and McClure (2008), among others. However, there has been only limited examination of possible linkages between these shortages and professional identity, perhaps because the topic is not sufficiently understood. Specifically, I believed that the laboratory personnel shortage is indeed exacerbated by a professional identity that is changing, inconsistent, underdeveloped or absent. A changing professional identity would indicate that practitioners believe their roles have changed since entering the profession. An inconsistent professional identity would suggest that practitioners have widely varied and possibly conflicting views of the profession. An underdeveloped professional identity would indicate that practitioners have a nascent sense of their role but not certain they are fulfilling it. Finally, an absent professional identity would indicate that practitioners believe their

professional identity is lacking or not yet established. Each of the above scenarios illustrates a professional identity dilemma that could threaten the health of an organization (Corley & Gioia, 2004; Lin, 2004).

These possibilities led me to design a study to determine if the professional identity of the clinical laboratory profession was changing, inconsistent, underdeveloped or absent. Prior to conducting the study, it seemed possible that my findings could indicate that the professional identity is a combination of these identities, none of the identities, or a new identity or identities are emerging. Another possible finding is that the personnel shortage is not exacerbated by professional identity.

Professional identity of clinical laboratory practitioners for this study encompassed: (a) definition and description of a clinical laboratory practitioner, (b) roles of a clinical laboratory practitioner, and (c) influences or challenges that have shaped the profession. A few studies have included components of professional identity, such as Doig and Beck's (2005) survey on retention that inquired about the importance of clinical laboratory practitioner's work, and Kotlarz's (2000) historical article that described the evolution of the profession as development of professional identity. Yet, I did not find literature reports where researchers have specifically interviewed clinical laboratory practitioners about their personal and professional identity. Since professional identity is based on an individual's feelings, beliefs, values, and thoughts (who they are, what they do, their multiple roles, and their significance) I concluded that a qualitative study was the best research approach for obtaining this form of data (Öhlén & Segesten 1998).

The qualitative strategy of narrative research or inquiry was utilized to determine the professional identity of clinical laboratory science. Creswell (2009) defined narrative research as "a form of inquiry in which the researcher studies the lives of individuals and asks one or more

individuals to provide stories about their lives” (p. 13). Narrative research was ideal because it is a common method used to learn about identity, as Lieblich, Tuval-Mashiach and Zilber (1998) explain:

One of the clearest channels for learning about the inner world is through verbal accounts and stories presented by individual narrators about their lives and their experienced reality. In other words, narratives provide us with access to people’s identity and personality. (p. 7)

### Purpose of the Study

The purpose of this qualitative study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). The study collected the perceptions (thoughts, feelings, opinions) and experiences of clinical laboratory practitioners in order to explore their identity narratives, their definitions and descriptions of their profession, and their perceived role in healthcare. This study proposed that analysis of these narratives would provide clinical laboratory science educators, others in healthcare, and the larger public a better understanding of the contributions clinical laboratory practitioners make to the healthcare system. A better understanding of these contributions could change the practice and policy of current recruitment into the clinical laboratory science profession and retention of those in the profession.

### Research Questions

1. What identity components are expressed by clinical laboratory practitioners?
2. How do clinical laboratory practitioners describe their profession?
3. What are clinical laboratory practitioners’ perceptions of their role in healthcare?

4. What are clinical laboratory practitioners' perceptions of the major influences that have shaped the profession?

#### Supporting Theoretical Framework

Creswell (2009) defined theory as “an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables” (p. 51). In quantitative studies researchers use a deductive process to verify a theory, whereas in qualitative studies researchers use an “inductive process of building from the data to broad themes to a generalized model or theory” (Creswell, 2009, p. 63). This qualitative study used an inductive process and theoretical framework to help explain the essence of the study. A theoretical framework is described as the researcher's conceptual perspective or the “lens through which [the researcher] view[s] the world” (Merriam, 1998, p.45).

Pertinent literature did not provide specific professional identity theories. Instead, various theories relating to components of professional identity, such as processes to develop a professional identity, have been found but were not considered optimal for the study. The supporting theoretical framework for this study was narrative identity theory as proposed by McAdams.

McAdams (2008b) defined narrative identity as “an individual's internalized, evolving, and integrative story of the self” (p. 242). Narrative identities can be described as:

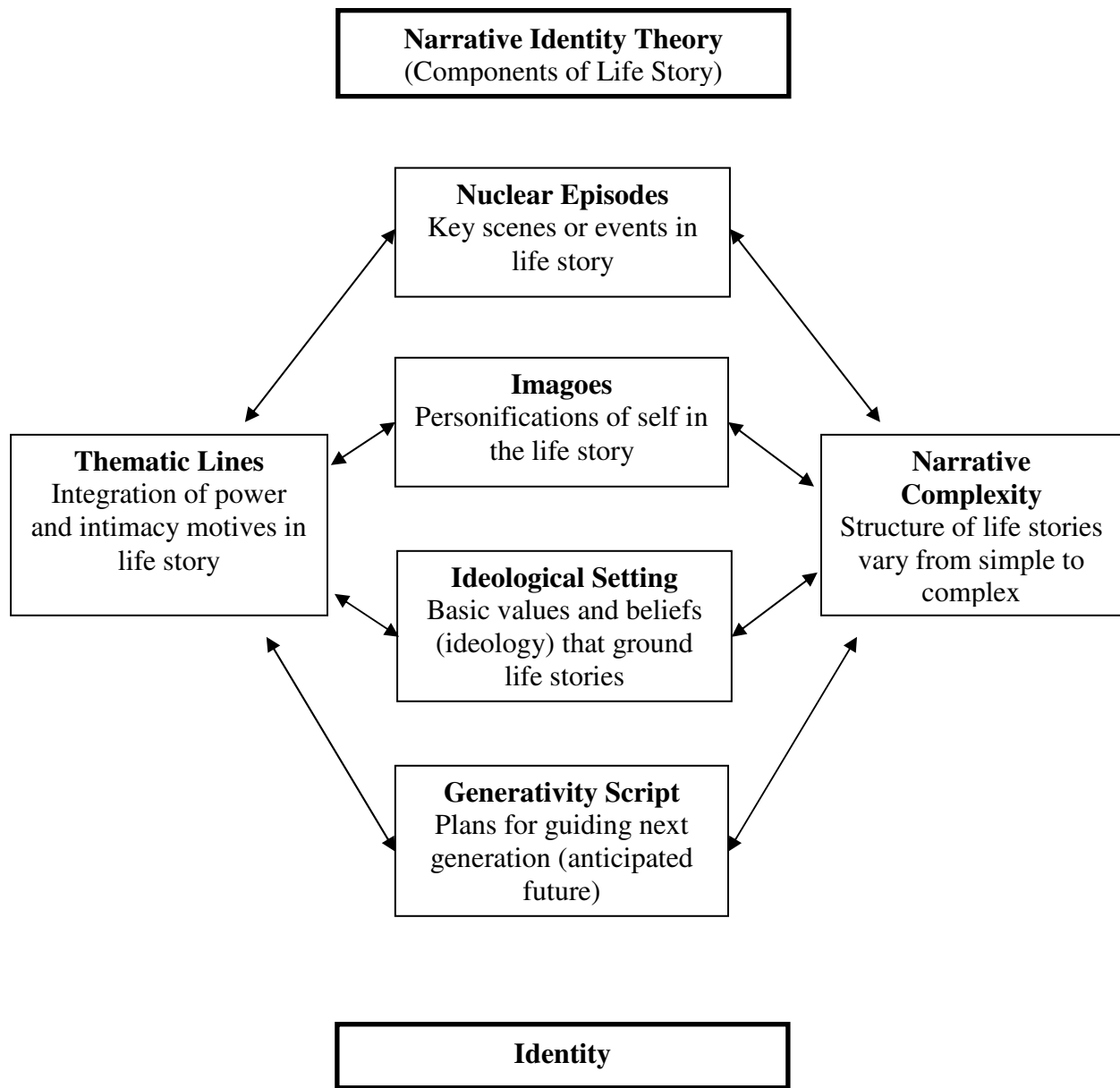
Stories we construct to make sense of our lives are fundamentally about our struggle to reconcile who we imagine we were, are, and might be in our heads and bodies with who we were, are, and might be in the social contexts of family, community, the workplace, ethnicity, religion, gender, social class, and culture writ large. (McAdams, 2008b, p. 243)

These life stories are drawn upon to help explain our role to others, share our experiences, and guide our decisions (McAdams, 2008a).

McAdams (1988) has proposed that a person's life story has six components. The primary components include: (a) nuclear episodes, vivid memories or great moments in our life story, (b) imagoes, parts the narrator plays in their life story such as caregiver, teacher, or provider, (c) ideological setting, basic belief and value system of the narrator which often serves as the backdrop in life stories, and (d) generativity script, the actions the narrator takes for leaving a legacy or guiding the next generation. The secondary components include thematic lines, the blend of power and intimacy motivators found in the backdrop of life stories, and narrative complexity, examination of the structure of life stories to determine if they are simple or more complex based on the number of episodes, plots, characters, and actions. Figure 1.1 depicts a graphical representation of the six life story components which ultimately leads to the identity of the narrator.

McAdams (2008a) proposed that narratives "spell out our identities" (p. 21) as such narratives can be collected and analyzed for a better understanding of identity. Narrative identity theory encompasses all components of an individual's life (e.g., religion, work, and social class) although a major component of life for most individuals is their profession and I felt that this theory can be used to focus on this one component (profession).

This theoretical framework was selected because it corresponds and supports the research questions guiding this qualitative study. In addition, this framework was used to support this study during data collection and data analysis. Specifically, it assisted in the development of interview questions and codes or themes that were used in data analysis.



*Figure 1.1.* Relationship between the six components of the life story model of identity.

*Note.* From *Power, Intimacy and the Life Story: Personological Inquiries into Identity*, by D. P. McAdams, 1988, New York: Guilford. Copyright 1988 by Guilford Press. Adapted with permission of Guilford Press.

### Significance of Study

It is anticipated that from this study I would gain a better understanding of the professional identity of individuals who are clinical laboratory practitioners. The study would contribute to a better understanding of the relationship between professional identity and the chronic personnel shortage if one exists. The outcomes gained from a better understanding of the professional identity of clinical laboratory science could change the practice and policy of current recruitment into the profession and retention of those in the profession.

Outcomes of this study, including narratives describing the clinical laboratory profession, can be used to describe the profession to primary and secondary school students thereby making students aware of this profession as a career option. Outcomes can be shared with legislators (state and federal) promoting awareness which can result in an increase in funding for scholarships and the creation of new educational programs. The decline of educational programs has been a major contributing factor of the shortage and findings highlighting the role of the profession in healthcare can promote educational expansion (Hillborne, 2008).

The findings of this study can also be used to retain clinical laboratory practitioners in the profession. Retention of personnel is another contributing factor of the shortage and those leaving the profession do so primarily because of perceived lower salaries (compared to other healthcare professionals) and lack of recognition (Beck & Doig, 2005). A collection of personal narratives, stories that highlight the role of clinical laboratory practitioners in healthcare, can persuade hospital administrators and other pertinent stakeholders to increase salaries and provide additional funding for continuing education.

In addition, findings may indicate that aspects of professional identity should be incorporated into the clinical laboratory science curriculum or shared through continuing



education of clinical laboratory practitioners. These approaches can be used to develop or strengthen the professional identity of clinical laboratory practitioners hopefully leading to a better understanding of their role and value in healthcare. This understanding can improve self esteem, self image, and motivation thereby increasing retention.

Professional identity is a critical aspect of any profession as it describes who the individuals are, who they think they are, and their role in the profession (Korthagen, 2004). Delving into the professional identity of clinical laboratory practitioners may lead to linkages between the personnel shortage and identity. From a collection of narratives describing and portraying the professional identity of clinical laboratory practitioners, as told by practitioners, powerful tools for recruitment and retention may be developed.

#### Summary

The clinical laboratory profession suffers from a personnel shortage that has been continuous for more than two decades with projections for continuation due to an increase in retirement of baby boomers. The shortage has been studied from several different perspectives yet I believed there was a relationship between the shortage and professional identity of clinical laboratory practitioners that had not been fully researched. This qualitative study proposed to better understand the professional and personal identity of clinical laboratory practitioners as represented through their personal narratives. The theoretical constructs of narrative identity theory provided the framework for developing the study and analyzing the data. The outcomes of the study could significantly change the practice and policy of recruitment and retention methods in clinical laboratory science.

## CHAPTER 2

### REVIEW OF LITERATURE

This chapter is a review of the professional literature related to the prominent components of this study. First is a review of the clinical laboratory science profession including its history, importance in healthcare, and significant challenges. Next is a review of identity research including occupational and professional identity literature. Finally, the three theoretical perspectives considered for this study are reviewed.

#### Clinical Laboratory Science

##### *History*

“The oldest known test on body fluids was done on urine in ancient times (before 400 BC). Urine was poured on the ground and observed to see whether it attracted insects. If it did, patients were diagnosed with boils” (Berger, 1999a, p. 29). Urine remained the only body fluid crudely examined for centuries and in the seventeenth century it was discovered that the sweet taste of urine indicated diabetes mellitus (Berger, 1999a). By the early 1900’s laboratory tests were rudimentary, few in number, and often performed by a physician in his office or by a pathologist in hospitals. Epidemic outbreaks of diphtheria, pneumonia, typhoid, and tuberculosis created a demand for additional laboratory tests and individuals to perform them. Testing was typically conducted by women because salaries were too low to attract men and women had fewer job options (Kotlarz, 1998d). These women, often considered as assistants to the pathologists, performed routine procedures such as testing urine for levels of urea, ammonia, creatinine, uric acid, total nitrogen and chloride (Berger, 1999b).

The increase in civilian and military clinical laboratories during World War I and the new American College of Surgeons requirement that hospitals establish a clinical laboratory contributed to a severe shortage of laboratory personnel (Kotlarz, 1998b). The shortage led to on-the-job training by pathologists as there were no established training standards or educational requirements (Southern, 1999). This lack of formal training and curricular structure became a primary concern of the American Society of Clinical Pathologists (ASCP) and in 1928 the ASCP formed the Board of Registry (BOR) to define and classify laboratory personnel, and to certify those who met the standards set forth (Kotlarz; Southern).

During the next decade the BOR developed standards of competence for entry-level technicians, established requirements for education, and developed a certification examination to evaluate those graduating from newly developed educational programs. Technicians certified by the BOR were known as “Medical Technologists” (MTs) and were initially required to complete one year of college-level courses in basic sciences, plus one year of clinical laboratory experience. Educational programs could be found in hospital laboratories (mostly teaching hospitals), private laboratories, commercial or proprietary laboratories, or at colleges and universities (Kotlarz, 1998b).

In 1932, a group of MTs met during an ASCP meeting and “determined that a separate professional organization was necessary to represent the specific interests of clinical laboratory personnel” (Kotlarz, 1998a, p. 275). This new professional association, called the American Society of Clinical Laboratory Technicians (ASCLT), had a strong desire for medical technology to become its own profession separate from pathology. In 1936, the ASCLT took its first steps toward independence when it incorporated as an organization with the name of American Society of Medical Technologists (ASMT) (Kotlarz).

During World War II civilian and military hospitals experienced another shortage of clinical laboratory personnel due to: (a) an increase in the number of hospitals and patients seen, (b) required physical examination of military personnel, (c) a growing test volume as laboratory tests were increasingly demonstrated to aid in diagnosis, and (d) growth in public health laboratories (Kotlarz, 1998c). The BOR primarily addressed this shortage by allowing accredited educational programs to increase enrollment. Secondary measures to address the shortage included creation of certification categories (an individual with academic and clinical training in chemistry or microbiology could become certified in this category only), and specialist certifications (medical technologists who held advanced degrees could attain specialized certification in a specific area of the laboratory, such as blood banking) (Kotlarz).

After World War II the field of medical technology made several additional advances toward recognition as its own profession. First, the BOR increased the requirement of two years of college to three years, which encouraged many students to finish an undergraduate degree. Second, ASMT membership increased from 2100 members in 1944 to over 7000 by the early 1960's and the organization began offering continuing education (Kotlarz, 1999a). Third, medical technologists sought governmental recognition by pursuing personnel licensure laws within individual states.

During the 1960's and 1970's advances in scientific knowledge and technology led to the development of new laboratory tests and methods of analysis. Automated instruments were developed and began appearing in clinical laboratories in the early 1960's. Laboratory expansion created a need for administrative technologists, and the number of medical technology graduate-level programs blossomed from 3 in 1961 to over 100 by 1970 (Kotlarz, 2000). The BOR began

requiring a baccalaureate degree for certification and created a new category, the medical laboratory technician (MLT), for those with an associate degree in medical technology (Kotlarz).

The discord between ASCP and ASMT expanded throughout the 1960's and 70's as ASMT sought greater autonomy and independence from ASCP, which was dominated by pathologists (Kotlarz, 2000). The Board of Schools (BOS), established in 1949, was the body within ASCP that set educational standards and accreditation of MT programs while the BOR was the certifying body for individual professionals (Southern, 1999). In 1969, ASMT filed suit against ASCP based on allegations of ASCP monopolization of clinical laboratory operations as well as control over accreditation of educational programs. Eventually, ASCP was forced to disband the BOS in 1973 and the functions were taken over by a new National Accrediting Agency for Clinical Laboratory Science (NAACLS) (Kotlarz, 1999b).

ASMT also felt that the ASCP should establish an independent board for certification of laboratory personnel but the latter did not want to relinquish their control over certification. In 1978, ASMT established an autonomous certification agency, the National Certification Agency for Laboratory Personal (NCA) (Kotlarz, 1999b). To this day ASCP utilizes the credential names "Medical Technologist" and "Medical Laboratory Technician", whereas the credential names of NCA are "Clinical Laboratory Scientist" (CLS) and "Clinical Laboratory Technician" (CLT) for the associate degree.

The last three decades have revolved around technology and automation. Manual testing has become increasingly replaced by robotics, especially in the larger laboratories. Employment opportunities have expanded into other types of settings including public health, physician offices, research, environment, veterinary medicine, accreditation inspectors, laboratory management and consulting, education, industry, and sales (Kotlarz, 2001).

In 1993, ASMT became the American Society for Clinical Laboratory Science (ASCLS) because many clinical laboratory practitioners felt that “medical technology” was an outdated term. Thus, from this point forward I will use the term “clinical laboratory science” to mean “medical technology”. A number of states have adopted personnel licensure laws. Although only eleven states had successfully created licensure by 2005, another twenty states are in the process of pursuing it (Hansen & Lavanty, 2005). Additionally, in 2006 the NCA and BOR jointly announced plans to unite in the fall of 2009 (Fritsma, 2006). The resulting credentialing agency will be the Board of Certification (BOC) and the new credential names will be medical laboratory scientist (MLS) and medical laboratory technician (MLT) (National Credentialing Agency for Laboratory Personnel, & American Society for Clinical Pathology, 2009).

#### *Importance of Clinical Laboratory Practitioners*

The history of clinical laboratory science demonstrates that clinical laboratory personnel passionately sought to become their own profession with a collective identity. The American Society for Clinical Laboratory Science (2001) has established that:

Clinical laboratory science is a profession: a) distinct from the practice of medicine; b) characterized by its own, internally-defined Body of Knowledge and Scope of Practice; c) which certifies its own practitioners, and d) requires of its practitioners competency in scientific, technical, managerial and scholarly principles, and high standards of performance and professional conduct. (§ 5)

ASCLS claimed that clinical laboratory science is its’ own profession, although it has not completely severed ties with ASCP. The BOR continues to certify significant numbers of practitioners and pathologists have the highest authority in clinical laboratories (Kotlarz, 2000). In addition, many clinical laboratory practitioners believe personnel licensure will give them

more control over their profession, yet only eleven states have succeeded in implementing these laws (Kotlarz).

Establishing a collective professional identity has been difficult for various reasons. First is the continuation of two distinct professional organizations, ASCP and ASCLS, representing the interests of clinical laboratory practitioners. Second, the inclusion of different levels and the specialization of clinical laboratory practitioners contribute to a loss of a cohesive identity for the entire laboratory staff. In previous times the majority of practitioners were all certified at the same level (Kotlarz, 2000). Lastly, there remain two credentialing agencies, with distinct credentialing names (MT or CLS) for people doing exactly the same work.

Above, the profession (as a group) was discussed, now the focus shifts more toward individual practitioners. Clinical laboratory practitioners' perceptions of their role or duties can be found in studies on job satisfaction. Harmening, Castleberry, and Lunz (1994) reported that more than 75% of practitioners were satisfied with their jobs. Doig and Beck (2005) surveyed roughly 600 clinical laboratory practitioners and found that the majority was either very satisfied (36.8%) or somewhat satisfied (44.5%) with their career selection and almost 100% agreed that their work was important (Doig & Beck).

Even though clinical laboratory practitioners believe their work to be important and significant, literature demonstrating the value of clinical laboratory practitioners is scarce. This may be due to the fact that the contributions of clinical laboratory practitioners seem to be often "undervalued" despite their major impact in the vast majority of clinical decisions (Iancu & Handy, 2009). It begs a question of why roughly 6.8 billion laboratory tests are ordered and performed annually in the United States if they are not valuable (Iancu & Handy).

The American Society for Clinical Laboratory Science (2001) explained that the clinical laboratory science scope of practice is that of “clinical laboratory personnel, as members of the health care delivery team, are responsible for ensuring reliable and accurate laboratory test results that contribute to the diagnosis, treatment, prognosis, and prevention of physiological and pathological conditions in humans” (§ 7). According to ASCLS (2005) clinical laboratory practitioners:

Provide information and services that contribute to maximizing the effective delivery of care in today’s complex healthcare system by assuring that the correct test is performed on the right person, at the right time, producing accurate test results that enable providers to make the right diagnostic and therapeutic decisions using the right level of health care resources. (§ 1)

Laboratory tests that are accurately ordered, performed, reported and interpreted, can significantly contribute to early detection and diagnosis that result in greater health care savings and more positive patient outcomes (Wolcott, Schwartz, & Goodman, 2008).

The plethora of available laboratory tests can be used to: (a) diagnose conditions, (b) screen for risk factors of developing specific disorders, (c) evaluate prognosis of a disease, (d) monitor treatment in acute and chronic diseases, (e) monitor public health, and (f) evaluate potential adverse outcomes of treatment (Wolcott et al., 2008). Although “laboratory services may make up 5% of a hospital’s budget but leverage 60-70% of all critical decision-making such as admittance, discharge and medication” (Forsman, 1996, p. 813). As Forsman, (2002) proclaimed, “it is incumbent upon those of us who work in the clinical laboratory to ensure that the daily contributions made by the laboratory to the lives of our patients are not overlooked” (p. 370).



### *Principal Challenge*

Today, the foremost challenge facing the clinical laboratory science profession is a chronic personnel shortage that has been continuous for approximately twenty years (Castleberry & Wargelin, 1999; Epner, 2007; Mass, 2002). The U. S. Department of Labor (2007) reported a growth rate of 14%, for the decade of 2006 to 2016, or a need for 43,000 new CLSs and CLTs. The ASCP Wage and Vacancy Survey, conducted in 2008, estimated “that an average of 13% of the current laboratory staff is likely to retire within the next five years” (Bennett, Thompson, Holladay, Bugbee, & Steward, 2009, p. 140), thus a potential of roughly 82,000 jobs may be vacated during the next 10 years. In addition, “the overall vacancy rate for staff level certified CLTs was 10.4%” (Bennett et al., p. 119) and 6.4% for CLTs. Graduates at both levels, CLS and CLT, averages only about 4,500 annually, thus taking into consideration growth rate, retirement rate, and the current vacancy rate the number of annual graduates is drastically insufficient (Anderson, 2006).

Numerous reasons are proposed for the current shortage today. One of the foremost factors is the onset of retiring baby boomers; it is estimated that the average age of the clinical laboratory practitioner is now 49.2 (Hilborne, 2008). A second factor is the decrease of clinical laboratory science education programs. In 1975, there were 770 NAACLS-accredited clinical laboratory scientist programs, but by 2007 there were 222. Clinical laboratory technician training programs have experienced a less drastic decrease in number (Hilborne). Existing programs are typically closed because of combinations of “low enrollments, difficulty in finding clinical training sites, and budget constraints in the academic and laboratory environment” (Ward-Cook, Simpson, & Brito, 2000, p. 554).

A third problem for the profession is the retention of clinical laboratory practitioners as it is estimated that 5% of employees leave their job annually (Beck & Doig, 2005). These authors found that employees who left did so because of obtaining a new laboratory job, retirement, or leaving the field. Those who leave the profession do so because of low salary, lack of recognition, limited advancement opportunities, job stress, and poor benefits (Beck & Doig).

Other reasons proposed for the shortage of personnel include lack of awareness of the profession, more career options becoming available for women, and lack of flexible scheduling (Epner, 2007; Hansen & Lavanty, 2001). The shortage has greatly influenced major issues addressed, discussed, and researched by clinical laboratory practitioners and their professional organizations. In the past twenty years ASCP and ASCLS have attempted to: (a) increase public awareness, (b) increase student recruitment into the profession, (c) develop career ladders or practice levels, (d) develop non-traditional models of educational program to prevent closures, and (e) lobby on issues affecting the profession with state and federal government officials, including the shortage.

The consequences of the chronic clinical laboratory personnel shortage are numerous. First, the understaffed work environment has led to overworked clinical laboratory practitioners as they are asked to work longer shifts to compensate for the current vacancies. This has led to poor morale, distrust, and disloyalty as some practitioners have left the profession for opportunities with more respect and less stress (Mass, 2002). In addition, these overworked clinical laboratory practitioners have a greater chance of delaying a diagnosis, issuing inaccurate test results, and delaying the treatment of patients (Beckering & Brunner, 2003).

Second, has been a push towards automation to increase overall productivity and efficiency (Craig, 2003; Hansen & Lavanty, 2001). Many hospitals have experienced an increase

in test volume without an increase in budget, physical laboratory size, or staffing positions therefore automation has become an appealing option (Craig). As Craig explained “automation offers laboratories the ability to improve patient care, enhance client and employee satisfaction, and increase workload capacity while maintaining a cost-effective department” (p. 21).

Last, some laboratories have hired individuals without formal clinical laboratory science education and supplied them with on the job training (OJT) (Mass, 2002). These individuals are not eligible for certification because they have not graduated from a NAACLS accredited clinical laboratory science program. Laboratory managers and hospital administrators are able to hire personnel without certification to work in laboratories because most states do not have licensure requirements for laboratory personnel (Mass).

Mass (2002) studied the utilization of OJT individuals to alleviate the current personnel shortage. She found few positive outcomes from the utilization of OJTs but found numerous negative outcomes. The foremost negative outcome is the increased potential for jeopardizing the health and care of patients. Another negative outcome is the intellectual incompetence of these individuals as they lack the necessary clinical laboratory science knowledge resulting in poor critical thinking skills. Additionally, is the increase in costs due to the extra training required and sloppy laboratory skills. Passiment (2005) explained the implications of OJTs as “hiring individuals without the appropriate education and training places every patient and every caregiver in harm’s way” (p. 631). She continued to elaborate by stating that:

These individuals are performing tests and have no idea if the test is clinically valid or if the result produced is clinically useful. They do not know how the integrity of the specimen or the preparation of the patient impacts the results. They do not know what the abnormal test result means – to the clinician or the patient. (p. 632)

States with laboratory personnel licensure laws have been protected from the dangers of utilizing individuals not formally trained or incompetent as they control professional entry. As Hansen and Lavanty (2005) explained “licensure legislation would ensure that laboratory personnel possess appropriate academic and clinical training, pass competency-based examinations conducted by an approved national certifying organization, and participate in continuing education programs (p. 194). Currently, 11 states have laws that mandate licensure for laboratory personnel including California, Florida, Hawaii, Louisiana, Montana, Nebraska, New York, North Dakota, Rhode Island, Tennessee, and West Virginia (American Society of Clinical Pathology, 2005; Gatscha, 2006). Clinical laboratory practitioners have been actively promoting state licensure of laboratory personnel for years and twenty states are currently in some phase of licensure activity (Hansen & Lavanty).

Major opposition to personnel licensure extends from hospital associations and physician groups, mainly pathology groups. For example, clinical laboratory practitioners in Illinois have been working since 1999 to pass a licensure bill but they have been consistently opposed by the Illinois Society of Pathology and Illinois Hospital Association (Hansen & Lavanty, 2003). These entities have claimed that licensure would lead to an increase in hospital costs and salaries, and restrict hiring practices (Hansen & Lavanty, 2000; Hansen & Lavanty, 2005).

Traditionally, ASCP has been one of the prominent groups opposing states seeking personnel licensure laws. In 1925, ASCP began its long-term opposition to personnel licensure which endured until June 2005 (Kotlarz, 1998a; Steward & Schulze, 2005). In 2005, ASCP approved a policy statement that began with “Because the important work performed by laboratory professionals affects the health, safety, and welfare of the public, the American

Society for Clinical Pathology (ASCP) believes that states should license laboratory personnel” (§ 1).

Stegall and Stegall (2006) suggested that in order to protect patient safety and health, medical schools and physicians need to step forward in support of the clinical laboratory. They also suggested that physicians and hospital administrators need to be aware of the value of the profession and the consequences of using untrained laboratory personnel. A background survey of healthcare providers that order laboratory testing (physicians, physician assistants, and nurse practitioners) will be conducted assessing their knowledge on the minimum qualification of clinical laboratory practitioners to determine if they are aware of the formal training required to accurately and efficiently perform laboratory testing.

As mentioned above, another consequence of the shortage has been a push for more automation and the introduction of robotics to increase laboratory productivity and efficiency. Four decades ago automation was introduced into the clinical laboratory and consists of robotics, instrumentation, specimen processing systems, and computer/software. Today, automated instruments are available in most of the clinical laboratory departments, yet this does indicate that there is no longer manual testing in those departments or that all laboratories have acquired these instruments (Stat, 2000).

Robotics is one component of automation that is not found in most clinical laboratories and its growth is actually declining. Robotics found in clinical laboratories consists of robots transporting specimens and stationary one-armed robots pipetting and dispensing specimens (Boyd, 2002). Literature on the use of robotics in clinical laboratory testing appeared in the early 1980's with a flurry of enthusiasm but in reality the robotic fever did not come to full fruition for two major reasons. First, robotics are a multi-million dollar cost and only the largest reference

laboratories can afford the systems (Boyd; Stat, 2000). Second, is the lack of communication abilities between clinical instruments and robotics since they were developed by different vendors (Boyd). Today the use of robotics is found primarily in large reference laboratories where there is a demand to process significant numbers of samples daily.

With advanced automation (instrumentation, specimen processing systems and computer/software) laboratories are able to “minimize the chances for human errors and speed delivery of results” (Uettwiller-Geiger, 2005, p. 26) thereby improving patient care and safety. These advances have led to laboratory testing that is faster and more reliable but does it indicate that clinical laboratory practitioners are “becoming an endangered species?” (Teshima, Brown, Gon, Nelson, & Gushikuma, 1998, p. 269). An initial fear when automation began growing was that the clinical laboratory practitioner would become extinct however this fear has subsided as it has become evident that practitioners are still in demand (Stat, 2000).

Practitioners are needed to evaluate and verify the results from automated instruments and to maintain/troubleshoot these instruments requiring knowledge of scientific theory behind the instrumentation. When automation decreases the need for practitioners they may be transferred into other laboratory departments that require more interpretative skills such as blood banking, microbiology, or molecular diagnostics (Stat, 2000). Or they may be needed in departments that have experienced an increase in testing volume as the number and complexity of tests are continually increasing with advances in medicine and technology (Guidi & Lippi, 2006).

As medicine evolves so does the role of the clinical laboratory practitioner and new opportunities within the clinical laboratory are available including positions in consultation services, laboratory information computer systems, point-of-care testing, research, quality

assurance/patient safety, and educational services. “Automation and technology have not solved, and cannot solve, the need for highly skilled, competent people anymore than autopilots in airplanes obviate the need for pilots” (Mass, 2002, p. 507).

## Identity

### *Introduction to Identity Research*

Identity is a concept that has been studied for centuries, as historical references inform us that Aristotle, Plato, and Socrates all considered issues of identity (Gioia, 1998). For years identity has been studied in multiple disciplines and as such it has innumerable definitions and concepts, which complicates a simple definition or description of identity. Research in this area began with examining identity at the individual level which “can be characterized as individual’s theory of oneself” (Puusa & Tolvanen, 2006, p. 29), or “a classification of self that identifies the individual as recognizably different from others” (Albert & Whetten, 1985, p. 267).

Erikson is generally credited with being the first to focus scientific attention on the meaning of identity, by describing eight phases of ego or psychosocial identity development throughout the human life cycle (Erikson, 1968). Within the human life cycle, the fifth phase of ego development occurs during adolescence at which time the ultimate focus is on developing and establishing identity. Erikson’s identity theory referred mainly to an internal process thus it is suggestive of individual or personal identity (Deaux, 2000).

While researchers in developmental, personality, and social psychology (e.g., Erikson, 1968) have attempted to define and describe personal identity, sociological studies on identity are “more focused on the place that an individual holds in the structure of society – the groups to which he or she belongs and the roles that he or she plays in the system” (Deaux, 2000, p.222).

This sociological approach suggests that an individual can have multiple identities and that identities are shared with those who have the same defining attributes (Deaux).

Deaux (2000) stated that multiple identities, can include personal, ethnic, gender, occupational, religious, and political identity, but this was not to suggest that a person has multiple personalities. Identities that are more important to an individual will usually dominate thought and action, suggesting a hierarchy of identities. The situation or circumstances in which an individual finds himself or herself also plays a role in which identity will dominate (Deaux). For example, when a teacher walks into a classroom the teacher identity (his or her occupational identity) is expected to dominate (Deaux).

#### *Organizational and Professional Identity*

Several decades after individual identity was first studied, Albert and Whetten (1985) extended their research to organizational identity at the University of Illinois. Organizational identity consists of three major dimensions: (a) attributes of an organization that make it central, (b) attributes of an organization that make it distinctive from other organizations, and (c) enduring or continuing attributes of an organization that link the present with the past (Albert & Whetten; Whetten, 2006). Essentially, organizational identity consists of central and enduring attributes of an organization that make it unique, yet members feel are fundamental.

Organizational identity is the “essence of an organization” (Stimpert, Gustafson, & Sarason, 1998, p.87), therefore it is the major way in which an organization defines and describes itself to others. Organizational identity contributes to the development of the organizations’ image. Attractive images can have significant and positive impacts in competitive advantages and recruitment (Stimpert et al.).



Organizational identity and professional identity are equivalent concepts, however, I have decided to use the term professional identity in my study because the field of clinical laboratory science is a profession. Historically, there are three classical professions of clergy, law, and medicine (Roos, 2000). Today, professions include a range of occupations varying from high to lower levels of prestige. At the high end of the continuum are the classic professions of clergy, law, medicine, and university teaching. Toward the middle of the continuum are newer professions such as accounting, architecture, dentistry, and engineering. At the lower end of the continuum are allied health practitioners (such as clinical laboratory practitioners), librarians, public school teachers, and social workers. Professions at the higher end of the continuum have higher incomes, exercise more job autonomy, and receive more respect from the public than those on the lower end (Roos). Another interesting difference is that males predominate at the higher end of the continuum whereas females dominate occupations at the lower end.

Professions appear to have the same key features which contribute to their status as a profession. The first feature is that “professional practice is based on specialized knowledge” (Volti, 2008, p. 98). Second, individuals prepare to become competent practitioners through post secondary training. Third, society views the work of the professional to be of great value. Fourth, the roles and skills of professionals allow them to have considerable power over the lives of others. Fifth, professionals are also held to high ethical standards within their own organization. Last, professionals have higher degrees of independence and self-governance than those in occupations (Volti). Clinical laboratory science possess the features discussed above, hence it is classified as a profession.

To summarize, a clinical laboratory practitioner has a personal identity and a professional identity. From a practical standpoint, one cannot distinguish between personal and professional

identity. As Worchel and Coutant (2004) proposed, “the identities of the two entities [personal identity and group identity] are intertwined like the tight embrace of new lovers” (p. 198).

Research also indicated that personal identity and organizational or professional identity “are interrelated” (Puusa & Tolvanen, 2006, p.30). In 1998, Öhlén and Segesten published a study demonstrating how personal identity and professional identity are interrelated in nursing. Professional identity in a broad sense is “a term used to describe both the collective identity of a profession and an individual’s own sense of the professional role” (Feen-Calligan, 2005, p. 122) and it is described as “having the feeling of being a person who can practice nursing with skill and responsibility” (Öhlén & Segesten, 1998, p. 721). Professional identity is an integral part of a nurses’ personal identity and it is required for the development of professional identity (Olthuis, Leget & Dekkers, 2007). Öhlén and Segesten concluded that professional identity is connected with the personal identity of a nurse and it is not possible to separate the two however they present themselves independently depending on the context.

The purpose of this qualitative study will be to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). Narrative inquiry is selected as my qualitative research design because it is often used to better understand identity since “narratives provide us with access to people’s identity and personality” (Lieblich et al. 1998, p. 7). This concept is known as narrative identity theory and McAdams (2008b) explained narrative identities as:

Stories we construct to make sense of our lives are fundamentally about our struggle to reconcile who we imagine we were, are, and might be in our heads and bodies with who

we were, are, and might be in the social contexts of family, community, the workplace, ethnicity, religion, gender, social class, and culture writ large. (p. 243)

These narratives describe our identities hence they can be collected and analyzed to better understand identity (McAdams, 2008a).

I will collect and analyze narratives from individual clinical laboratory practitioners who will portray features of both their personal and professional identities. I will analyze these narratives for reoccurring patterns or themes (commonalities amongst individual clinical laboratory practitioners) that may form a collective professional identity. In essence, I will study the personal and professional identities of clinical laboratory practitioners through their narratives which may allow for a greater understanding of the professional identity of clinical laboratory science.

### Theoretical Perspectives

Creswell (2009) defined theory as “an interrelated set of constructs (or variables) formed into propositions, or hypotheses, that specify the relationship among variables” (p. 51). In quantitative studies researchers use a deductive process to verify a theory, whereas in qualitative studies researchers use an “inductive process of building from the data to broad themes to a generalized model or theory” (Creswell, p. 63). This qualitative study is an inductive process and will use theoretical frameworks to help explain the essence of the study. Theoretical frameworks are described as the researcher’s conceptual perspective, or the “lens through which [the researcher] view[s] the world” (Merriam, 1998, p.45).

While pertinent literature does not offer theories specific for professional identity, some theories relating to components of professional identity have been presented. First, career theories, such as career construction theory, have been used to describe the developmental

process of professional identity (Fitzpatrick, 2004). Second, role theory has been used to understand more about the process of establishing professional identity (Gregg, 2000; Miller, 2001). Third, social theories, e.g., socialization network theory, have been used to explain the development of professional identity (Sweitzer, 2009). Fourth, personal identity theories have been used to describe the foundations of identity that contribution to professional identity (Cook, Gilmer, & Bess, 2003). Last, communities of practice and legitimate peripheral participation models are often used in describing the development of identity (Davis, 2005; Gosnell, 2003). Due to the lack of professional identity theories in the literature I have decided to examine further Biddle's role theory, Erikson's identity theory and McAdam's narrative identity theory.

### *Role Theory*

The study of roles was evident in several disciplines by the late 1920s. Role can be defined as "those behaviors characteristic of one or more persons in a context" (Biddle, 1979, p. 58). The studying of roles became known as role theory and this field encompasses many theories and concepts about how one will perform in a given role, such as studying roles as units of cultures, understanding roles as part of social sanctions, the function of role in the development of self, and studying specific role concepts of role conflict and role playing (Biddle, 1979; Biddle, 1986).

Biddle (1979) defined role theory as, "a science concerned with the study of behaviors that are characteristic of persons within contexts and with various processes that presumably produced, explain, or are affected by those behaviors" (p. 4). Role theories often focus on the "mechanisms by which individuals are socialized to assume congruous societal roles" (Jackson, 1998, p.50). Hence, role theory will "concern itself with a triad of concepts: patterned and characteristic social behaviors, parts or identity that are assumed by social participants, and

scripts or expectations for behavior that are understood by all and adhered to by performers” (Jackson, p.50).

The first concept in the triad, social behaviors, was originally termed social positions by Biddle (1979). Social positions (also known as statuses) is “an identity that designates a commonly recognized set of persons” (Biddle, p. 5) such as teachers, physicians, grandmothers, or athletes. Each social position demonstrates a characteristic role, such as teachers lecturing in a classroom, thus it is often assumed that role is referring to social positions (Biddle).

According to Biddle (1979) most theorists have agreed to certain propositions of role theory:

1. Role theorists assert that “some” behaviors are patterned and are characteristic of persons within contexts (i.e., form *roles*).
2. Roles are often associated with sets of persons who share a common identity (i.e., who constitute *social positions*).
3. Persons are often aware of roles, and to some extent roles are governed by the fact of their awareness (i.e., by *expectations*).
4. Roles persist, in part, because of their consequences (*functions*) and because they are often imbedded within larger social systems.
5. Persons must be taught roles (i.e., must be *socialized*) and may find either joy or sorry in the performances thereof. (p. 8)

Research in role theory has flourished since Thomas and Biddle first claimed that it was a new field of study in 1966. Although role theory has a substantive literature base, delving into it can be difficult for a novice. The difficulty begins with the theatrical vocabulary that was loosely applied in the early days, when proponents often did not agree on the terms to use. Second, there

are numerous definitions of key terms related to role theory, including contradictory definitions for role itself. Furthermore, role concepts have been described from researchers representing numerous theoretical perspectives.

Biddle (1986) attempted to address the diversity in role theory research by examining it from five theoretical perspectives or models: (a) functional role theory, (b) symbolic interactionist role theory, (c) structural role theory, (d) organizational role theory, and (e) cognitive role theory. Functional role theory began in the 1930's and focuses on how society sets the norms or expectations of a role in a social system (Biddle). From a functional perspective roles are considered shared social norms and actors in the system have been taught these norms. This theory was most popular from the 1950s to the 1970s but is rarely found in role research today (Biddle).

Symbolic interactionist role theory also began in the 1930's and focuses on "role as a line of action that is pursued by the individual within a given context" (Biddle, 2001, p. 2417). Roles are to reflect preexisting norms, beliefs and attitudes of the actor, and the situation. A few of the areas studied include roles in interaction, internal dynamics of roles, and role conflict.

Structural role theory began in the 1970's and uses mathematic models to study socially structured role relationships. The focus is on social positions and concepts, such as social networks, exchange relationships, and role sets. Researchers in this perspective, commonly those of sociology and anthropology, focus more on the social environment than the individual and portray their arguments in mathematical models (Biddle, 1986). Similarly to functional role theory, this perspective is not often found in new literature.

Organizational role theory, began in the 1950's, is currently a popular perspective in role research and focuses on role development in formal organizations. Roles in organizations are

associated with social positions as norms varying among individuals. Commonly researchers focus on role conflict research including resolution and role transition (Biddle, 1986).

The final perspective is cognitive role theory which is also a popular perspective in role research. This perspective focuses “on relationships between role expectations and behavior” (Biddle, 1986, p. 74). Expectations are an awareness of role behavior, where a person behaves in accordance with the held expectations. Research based on this perspective is often associated with role expectations, impact of group norms, role playing, and role taking (Biddle, 2001).

The latest trends in role theory research include using role theory and concepts to study “social relations within a specific institution or for portraying the lives of those who share an occupational identity” (Biddle, 2001, p. 2418). These studies often look at the role and identity of a certain occupation, which has predominately been in the field of education, such as school principals and teachers (Biddle).

### *Identity Theory*

As Kroger (2007) explained, “identity is a complex entity” (p. 4) that has been studied for years and one name that often appears regarding our understanding of identity is Erik Erikson. Erikson’s work has been greatly influenced by his life experiences. He was born in 1902 in Germany and at age 25, while running a small school in Vienna, he met Anna Freud, daughter of Sigmund Freud. Anna was psychoanalyzing children and she introduced Erikson to this field consequently spurring his interest in psychoanalysis (Stevens, 2008). In 1933, as Nazis were threatening Austria, Erikson left Europe for the United States where he continued his work as an analyst but he also became a researcher and academic. Like Freud, Erikson was interested in the ego, “that part of personality concerned with directing action, coping with the external world and

integrating competing urges within the self” (Stevens, p. 3). However, unlike Freud, Erikson was interested in studying the healthy ego through the course of life.

Erikson is well known for his eight phases of ego or psychosocial identity development throughout the human life cycle. Each phase consists of a “unique developmental task that confronts individuals with a crisis that must be faced” (Santrock, 2003, p.41) and results in a new direction of ego quality. The first phase is *basic trust versus mistrust* from which emerges the ego strength of *hope*. This phase focuses on an infant’s complete dependence on those who care for it. Erikson said that if a person has basic trust, then they have some degree of hope about their future and the world (Erikson, 1968; Erikson & Erikson 1997; Santrock).

Erikson’s second phase is *autonomy versus shame and doubt* leading to *will* which occurs between 1 to 3 years old. During this period infants become willful and develop independence or autonomy as they learn to trust their parents. However, if the infant’s newfound independence hits a limit, or if the infant is too restrained or punished, it could lead to the development of shame and doubt (Erikson & Erikson, 1997).

Erikson’s third phase of development is *initiative versus guilt* leading to *purpose* which occurs during preschool years. During this stage the child encounters a wider world in which he or she is walking and talking. They develop responsibilities for their toys and bodies which increases their initiative and purpose. Erikson and Erikson (1997) stressed, however: “initiative is brave and valiant, but when it misfires, a strong sense of deflation follows” (p. 108) leading to a sense of inadequacy or guilt.

The fourth phase is *industry versus inferiority* leading to *competence* and occurs during elementary school years. At this time the world is much wider and children realize they are in competition and are being evaluated on their competence. They learn new and exciting skills and,



if encouraged, he or she can develop a sense of competence. If not encouraged the child could develop a sense of inferiority.

The fifth developmental phase is *identity versus role confusion* leading to *fidelity* which occurs during adolescence. As Erikson (1968) explained, during this phase adolescents:

Are sometimes morbidly, often curiously, preoccupied with what they appear to be in the eyes of others as compared with what they feel they are, and with the question of how to connect the roles and skills cultivated earlier with the ideal prototypes of the day. (p. 128)

At this time developing and establishing identity is the ultimate focus. Adolescents will play roles, trying out parts to find a direction in occupation, relationships, politics, and so forth.

During this stage, the adolescent develops ego fidelity or the ability to sustain loyalties in spite of confusion and contradictions.

The sixth phase is *intimacy versus isolation* leading toward *love* occurring during early adulthood. Only when identity formation is truly developing can one enter intimate, “true and mutual psychosocial” (Erikson, 1968, p. 135) relationships with others. If the young adult is able to develop one or more intimate relationships then intimacy and love is reached. If not, the result is a sense of isolation and deprivation.

The seventh phase is *generativity versus stagnation* leading to *care* which occurs during middle adulthood. Stevens (2008) simply described generativity as, “children are dependent on us so we are on them” (p.53) for adults want to be needed. This includes guiding and teaching the younger generation and, if not achieved, an individual is left with a sense of stagnation or boredom. The ego quality that emerges from this stage is care; the giving without an expectation of return due to love or necessity.

The final Erikson phase is *ego integrity versus despair* leading to *wisdom* occurring during late adulthood. Erikson did not define integrity and instead provided a few attributes of this stage that include the acceptance of one's life cycle, an acceptance of those who have become significant, and a peace with the past (Erikson, 1968). Lack of integrity is despair or gloom over unfulfilled dreams or potentials often portrayed as disgust with life or other people.

Erikson's ego developmental phases also reflected his thoughts on the evolution of identity, a major theme in his work. Erikson recognized that ego and identity are integrally linked (Welchman, 2000). Erikson (1968) suggested that the development of identity occurs through three processes including introjection, identification, and identity formation. Introjection occurs as an infant and is basically the bond that develops between infant and parents leading to inner representations of them (Erikson; Stevens, 2008). This develops as the child grows older through identifications with those significant in his life (e.g., grandparents). The key process is identity formation, which occurs during adolescence (fifth phase of ego development). During identity formation the adolescent assimilates childhood identification with societal influences to help develop his or her own identity. In addition, a strong influence of identity formation is the exploration of self which also occurs during adolescence.

During adolescence many factors may hinder identity development. One is the inability to settle on an occupational identity (Stevens, 2008). Another is negative identity, or "the loss of a sense of identity is often expressed in a scornful and snobbish hostility toward the role offered as proper and desirable in one's family or immediate community" (Erikson, 1968, p. 172-173). A third obstacle is identity confusion which if severe may lead to a period of psychosocial moratorium. Erikson explained this as "a delay of adult commitments" (p. 157).

### *Narrative Identity Theory*

There are five major approaches to studying identity. First, is identity in historical terms, or examining identity from a historical point of view. Second, is structural stage approaches which “focuses primarily on changing internal structures of ego development from which one interprets and gives meaning to one’s life experiences” (Kroger, 2007, p. 15). Third, is sociocultural approaches which “focuses on the role that society plays in providing (or not providing) individual identity alternatives” (Kroger, p. 19). Fourth, is psychosocial approaches (Erikson is a primary example), which focuses on the role of society and how one’s own psychic dynamics and biology influence the development of personal identity. Last, are narrative approaches to identity that suggest “language is a text out of which identities are constructed” (Kroger, p. 22).

Narrative inquiry can be used in the other approaches but it is also considered its own approach to studying identity. Narrative approaches have become more popular over the last few decades, as they emphasize a greater understanding of the whole person (Kroger, 2007). In addition, this approach allows for researchers to focus on a smaller number of subjects to examine their understanding of experiences.

Several decades ago personality psychologists viewed life stories as having little scientific value and they were typically viewed as entertainment (McAdams, 2008b). However, this changed during the late 1970s and early 1980s, as theories on narrative identity emerged. As Singer (2004) explained:

In a quiet but consistent way, a new discipline of personality psychology – narrative identity research – has emerged. Its organizing concern is how individual employ

narratives to develop and sustain a sense of personal unity and purpose from diverse experiences across the lifespan. (p. 437)

This new discipline has emerged from the interweaving of several disciplines such as clinical psychology, sociology, anthropology, psychoanalysis, narrative therapy, and social psychology (Singer, 2004). Even though there are many researchers from numerous disciplines studying narrative identity the majority tend to agree on a few common principles including: (a) narratives are central to identity formation, (b) recognizing the role of cognitive processes (memory) in formation of narratives, (c) lifespan developmental approach of the formation of a life story, and (d) recognition of the role of sociocultural factors, such as gender, race, religion, in the development of life stories (Singer).

One of the first narrative identity researchers was McAdams (2008b), who defined narrative identity as “an individual’s internalized, evolving, and integrative story of the self” (p. 242). McAdams (2008b) explained narrative identity as:

Stories we construct to make sense of our lives are fundamentally about our struggle to reconcile who we imagine we were, are, and might be in our heads and bodies with who we were, are, and might be in the social contexts of family, community, the workplace, ethnicity, religion, gender, social class, and culture writ large. (p. 243)

McAdams (1988) claimed that “identity is a life story” (p. 18) and has proposed a life story model of identity. He defined this as “an internalized and evolving narrative of the self that provides a life with some degree of coherence and purpose” (McAdams, 2008a, p. 21) and that a life story is able to provide individuals with purpose and unity. A life story can explain our actions, guide our behaviors, inform our decisions and share our experiences. In addition, a life story allows one to answer, “Who am I?” and “How do I fit into an adult world?”

McAdams (1988) explained further that he believe individuals begin constructing their identity during adolescence therefore agreeing with Erikson's (1968) fifth phase of ego development. However, in contrast to Erikson, he believed that identity continues to develop, through revisions, throughout adulthood, and suggested that, "once narrative identity enters the developmental scene, it remains a project to be worked on for much of the rest of the life course" (McAdams, 2008b, p. 252).

McAdams (1988) has also proposed that a person's identity or life story is divided into four major components: nuclear episodes, imagoes, ideological setting and generativity script. Nuclear episodes are special incidents or significant experiences. As McAdams explained: "as we construct our identities through narrative, we confer upon certain experiences in our lives a salience or centrality which denotes that they are very, very special. These incidents may be highly negative or positive" (p. 133) and they identify turning points. Nuclear episodes can be classified into distinct categories of episodes of continuity, or episodes of change. McAdams explained episodes of continuity as connecting "the present with the past via an implicit narrative line which suggests that the past nuclear episode serves as an explanation for or a foreshadowing of some aspect of one's present life situation" (p. 142). Episodes of change or transformation are turning points in life stories that often mark the end or beginning of a chapter in our life story.

Imagoes are "idealized and personified image of self which play the role of *characters* in the life story" (McAdams, 1988, p. 210). They are parts that we give ourselves in our life play, such as caregiver, lover, income earner, homemaker, or helper. Essentially, imagoes are personifications of the narrator, to personify aspects that motivate the narrator such as power, achievement, or intimacy (McAdams, 2001).

Ideological setting is “a philosophical terrain of belief and value upon which the story’s characters work, love, and play, and the plot unfolds” (McAdams, 1988, p. 215). Ideology becomes the backdrop for identity or life story and it is usually established during adolescence. Examples of ideological issues faced during adolescence include question pertaining to religion and ethics. Individuals can have transformations of ideological settings, or a change in beliefs, which often lead to profound transformations in identity.

A generativity script is “an *action* outline for the future which specifies what an individual plans to *do* in order to leave a legacy of self to the next generation” (McAdams, 1988, p. 276). Generativity was originally proposed by Erikson (1968) and is the focus of his seventh ego development phase. Erikson distinguished generativity from identity, whereas McAdams claimed generativity is part of identity because it “extends the life story into an anticipated future” (p. 276).

Other components of McAdams life story model include thematic lines and narrative complexity. Thematic lines are recurrent clusters of content and the two dominant thematic lines in identity are intimacy and power (McAdams, 1988). Narrative complexity refers to the structure of the story, which can be either simple (few characters, minimal subplots) or complex (many characters and subplots). Figure 1 depicts a graphical representation of the six life story components which ultimately leads to the identity of the narrator.

McAdams (2001) concluded that from his life story model adolescents and young adults solidify their basic values and develop their ideological setting for their life story. In early to middle adulthood individuals expand and refine their main characters or imagoes. In middle adulthood individuals begin to focus on creating their generativity scripts. Nuclear episodes

occur throughout adolescence and adulthood; some are episodes of continuity while others are episodes of change.

Pertinent literature contains examples of studies in which researchers have investigated many aspects of narrative identity. Bauer and McAdams (2004) used adult stories of life transitions in careers and religions to better understand personal growth. Oke (2008) studied narratives collected from women who had survived domestic violence in order to understand better the narrative identity that evolved through trauma. McLean (2008) examined narrative identity of two groups of participants by comparing their self-defining memories.

For my study three theoretical frameworks were considered including Biddle's role theory, Erikson's identity theory, and McAdams narrative identity theory. For my study role theory perspectives of Biddle's were considered as a possible theoretical framework but were not selected for two reasons. First, role theory today faces many criticisms which include: (a) roles are based on behaviors and norms that reflect conservative standards from the 1960's and 1970s, (b) role theory promotes social conformity by implying proper conservative behaviors, (c) role theory does not allow for the complexity of humans in extreme circumstances, and (d) the theory is more consistent to traditional gender roles in relation to employment (Jackson, 1998).

Second, my study seeks to understand better the role of a clinical laboratory practitioner in healthcare and society but from the perceptions of individual practitioners. I do not feel that any of the five role theory approaches addresses an individual's unique thoughts and beliefs of their role based on experiences. Instead, these theories typically address social factors, norms, behaviors, and expectations, none of which is my primary focus. After careful consideration I do not feel that role theory is an ideal theoretical framework for my research purposes.

Erikson's identity theory was considered as a possible theoretical framework but it was not selected for two reasons. First, Erikson's theory strongly suggests that identity formation occurs during adolescence and is not revised in later stages of life. I have found a theory that disputes this suggestion. Since the participants in my study will be adults of varying ages I would prefer a theory that suggests identity is developed throughout adulthood. Second, Erikson's theory is based on a psychosocial approach that emphasizes the influence of society on personal identity, however this is not a primary objective of my research. This theory did not appear to be an ideal theoretical framework for my research study.

On the other hand, McAdams narrative identity theory seems the most appropriate for studying professional identity of clinical laboratory practitioners because the purpose of this qualitative study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity by using the qualitative strategy of the narrative research or narrative inquiry. Creswell (2009) defined narrative research as "a form of inquiry in which the researcher studies the lives of individuals and asks one or more individuals to provide stories about their lives" (p. 13). Narrative research was selected because it is often used to learn about identity, as Lieblich et al. (1998) explained:

One of the clearest channels for learning about the inner world is through verbal accounts and stories presented by individual narrators about their lives and their experienced reality. In other words, narratives provide us with access to people's identity and personality. (p. 7)

Thus, narrative research corresponded best to my research purpose and questions.

While performing a literature review on narrative research I discovered a new subdiscipline of personality psychology known as narrative identity research (Singer, 2004).



McAdams' (1988) life story theory suggested that a researcher can gain a better understanding of one's identity, or aspects of one's identity, by studying their narratives. In my study, I collected and analyzed narratives from clinical laboratory practitioners, to gain insights into their identity. Specifically, these narratives portrayed features of clinical laboratory practitioners' personal and professional identities as one cannot distinguish between personal and professional identity (Worchel & Coutant, 2004). McAdams' narrative identity theory was a logical and practical theoretical framework for understanding the personal and professional identity of clinical laboratory practitioners through narrative inquiry.

In addition, similar studies have been done using this narrative identity theory. Certain examples were found in occupational folklore, such as Santino's (1983) study on the occupational identity of African American Pullman porters obtained through narratives collected from informal and formal discussions and Long's (1992) study on the occupational and individual identity obtained from occupational narratives of retired railroad workers. Another study, more similar to mine, is Galindo's (2007) study on the construction of occupational identity of Chicana teachers obtained from narratives of personal experience. Galindo examined personal narratives to better understand how their occupational or professional identity was shaped. This is similar to my study in which I hope to obtain clinical laboratory practitioners occupational experiences to better understand the professional identity of clinical laboratory science.

### Summary

Clinical laboratory science is an established field in the healthcare system that has seen tremendous growth in the last few decades leading to new and multiple career paths for clinical laboratory practitioners. The majority of clinical laboratory practitioners select the traditional

path of serving in hospital laboratories performing complex testing on blood and body fluids to assist in the diagnosis, prognosis and treatment of patients. The outlook for the profession is positive with growth expected as technology advances leading to the development of new laboratory tests and new devices/procedures that will prolong life, nevertheless the profession suffers from a chronic shortage of personnel.

Individual or personal identity has been studied for centuries yet recently researchers have also studied professional identity, the attributes and essence of a profession. Personal and professional identities are interconnected and as such they influence each other. The professional identity of medical doctors, nurses, and educators has been studied extensively, yet studies on the clinical laboratory science profession are scarce. This study proposed to better understand the current professional and personal identities of clinical laboratory practitioners currently working in hospital laboratories.

The literature on various theories relating to professional identity was explored in order to select the theoretical framework upon which to base this study. I examined Biddle's role theory, Erikson's identity theory and McAdam's narrative identity theory. I selected McAdam's narrative identity theory as the basis of my theoretical framework. McAdams narrative identity theory was primarily selected because it suggested that identity can be shared through narratives and supported identity development throughout adulthood. Overall, this literature review provided vital knowledge on the profession of clinical laboratory science, identity, and theoretical perspectives relating to professional identity.

CHAPTER 3  
METHODOLOGY  
Introduction

The purpose of this qualitative study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). The study collected the perceptions (thoughts, feelings, opinions) and experiences of clinical laboratory practitioners in order to explore their identity narratives, their definitions and descriptions of their profession, and their perceived role in healthcare. This study proposed that analysis of these narratives would provide clinical laboratory science educators, others in healthcare, and the larger public a better understanding of the contributions clinical laboratory practitioners make to the healthcare system. A better understanding of these contributions could change the practice and policy of current recruitment into the clinical laboratory science profession and retention of those in the profession.

This chapter describing the research methodologies begins with presenting the initial research questions guiding the research study. Following the questions is a discussion of: (a) the nature of narrative research, (b) validation team, (c) participant selection, (d) role of the researcher, (e) data collection methods, (f) data analysis procedures, and (g) validity and reliability.

Research Questions

5. What identity components are expressed by clinical laboratory practitioners?
6. How do clinical laboratory practitioners describe their profession?

7. What are clinical laboratory practitioners' perceptions of their role in healthcare?
8. What are clinical laboratory practitioners' perceptions of the major influences that have shaped the profession?

#### Design of Study and Nature of Narrative Research

The goal of this proposed research study was to gain new or better understandings on the professional identity of clinical laboratory practitioners. This goal was accomplished using a qualitative research design to construct knowledge about professional identity from interviews with individual clinical laboratory practitioners.

Creswell (2009) described three types of research designs including qualitative, quantitative and mixed methods. Qualitative research is a “means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” while quantitative is “a means for testing objective theories by examining the relationship among variables (Creswell, p. 4). Mixed methods are a combination of both qualitative and quantitative research approaches. When selecting a research design Patton (2002) suggested reflecting on the purpose of the inquiry and the types of answers you seek. Patton used the following example, if you want to know how much a person weighs then you receive a numerical answer but if you want to understand what their weight means to them then you must learn about their experiences by asking open-ended questions.

Qualitative methods make it possible to study issues in depth and detail (Patton, 2002). Data collection often occurs through open-ended questions with responses that “permit one to understand the world as seen by the respondents” (Patton, p. 21). Results include a wealth of detailed information about a small number of people therefore leading to an increase in the depth of understanding of these select individuals. Since this study sought to gain a better

understanding of the thoughts, feelings, opinions, beliefs, and experiences of clinical laboratory practitioners in relation to their personal and professional identity a qualitative research design, specifically narrative inquiry, was preferred allowing for collection of descriptive and in-depth data (Patton).

*What is a Narrative?*

To begin understanding narrative research or inquiry one must ask, what is a narrative? As Reissman (1993) stated “there is considerable disagreement about the precise definition of narrative” (p. 17). Reissman (2002) discussed the broad and varied meaning of the term “narrative” ranging from Aristotle, who believed stories were sequenced with a beginning, middle, and an end, to stories that are held together by themes or time (thematic sequencing and chronological sequencing). Researchers have found it difficult to define narrative in simple terms mainly because of the overabundance of forms and styles of narratives, such as folktales, myths, fairy tales, speeches, advertisements, historical texts, religious texts, diaries, illness narratives, health records, and photographs (Bingley, Thomas, Brown, Reeve & Payne, 2008; Brockmeier & Harre, 1997; Reissman, 2008).

Often the definitions given to narrative are linked to the specific discipline of focus when studying or using narratives. An appropriate definition of narrative related to the broad field of social sciences has been offered by Hinchman and Hinchman (1997):

Narratives (stories) in the human sciences should be defined provisionally as discourses with a clear sequential order that connect events in a meaningful way for a definite audience, and thus offer insights about the world and/or people’s experiences of it. (p. xvi)

Polkinghorne (1988) defined discourse as, “an integration of sentences that produces a global meaning that is more than that contained in the sentences viewed independently” (p. 31). Within

the field of social sciences it is common to find that specific disciplines customize the definition or concept of narrative depending upon their research purposes. For example, in anthropology and social history, an entire life history is often sought and collected from documents, interviews, and observations, whereas in psychology and sociology a narrative “encompasses long sections of talk – extended accounts of lives in context that develop over the course of single or multiple research interviews or therapeutic conversations” (Reissman, 2008, p. 6).

For this study, I used a definition of narrative similar to the one commonly used in sociology. Narratives encompassed long sections of talk (more than a few lines) about life accounts or experiences that develop over the interview (Reissman, 2008). Ideally the narrative of focus had a structured sequence, such as a beginning, middle, and/or ending although structure was not always present.

In addition, for this study the term “narrative” was synonymous with story. Stories should have three key features “first, that they are *chronological* (they are representations of sequences of events), second, that they are *meaningful*, and third, they are inherently *social* in that they are produced for a specific audience” (Elliott, 2005, p. 4). As humans, we expect stories to educate, entertain, inspire, persuade, and to provide us with a multitude of other emotions (McAdams, 2006).

### *Narrative Research*

What is narrative research? Lieblich et al. (1998) simply defined narrative research as “...any study that uses or analyzes narrative materials” (p. 2). Narrative research is “well suited for the study of lives and narrativized experiences and meanings” (Hoshmand, 2005, p.183). This type of research involves inquiry directed at narratives of human experience or inquiry that produces data in narrative form (Hoshmand). Examples of inquiries that yield narrative data

include interviews that solicit stories or oral histories, or written autobiographies and biographies (Hoshmand).

Narrative research is often done through narrative inquiry. Bleakley (2005) defined narrative inquiry as “a form of qualitative research that takes story as either its raw data or its product” (p. 534). In narrative literature the terms “narrative research” and “narrative inquiry” are often used synonymously, therefore for this study they are equivalent. Literature on narrative research can be classified into three domains based on their contributions including: (a) studies in which the narrative is used as a means for studying research questions, (b) studies that investigate the narrative itself as their research object (such as its structure of the story or plot development), and (c) studies focusing on the philosophy and methodology of narrative research (Lieblich et al., 1998).

The origins of narrative research in the social sciences can be traced back to sociology and anthropology in which researchers collected life histories in the early and middle twentieth century (Reissman, 2008). However, interest in narrative research in the social sciences flourished in the early 1980s with the social constructionist and postmodern movements in psychology that challenged positivism and realism (Gergen, 1985; Hoshmand, 2000; Reissman). This interest is evident in works such as Daniel Bertaux’s (1981) *Biography and Society* in which he stressed the importance of stories in sociology and Elliot Mishler’s (1986) *Research Interviewing: Context and Narrative* which focused on qualitative interviewing but also stressed the importance of narratives collected during an interview.

During the next decade the use of narratives in research expanded greatly and has now been used in many disciplines to learn more about the culture, historical experiences, identity, and lifestyle of the narrator (Lieblich et al., 1998). In particular, there has been an increase in

studies of sociology of health focusing on the perspectives of patients with certain diseases including their experiences living with that disease (Elliott, 2005). Other disciplines/fields that have seen an increase in the use of narratives include criminology, sociology of the family and relationships, and sociology of education (Elliott; Reissman, 2008). Reissman and Speedy (2007) described the growth of narrative studies in social sciences as:

Beginning in the late 1960s and continuing at a hectic pace, the idea of narrative has penetrated almost every discipline and profession. No longer the sole province of literary scholarship, narrative study is now cross-disciplinary, not fitting within the boundaries of any scholarly field. (p. 426)

Commonly, researchers use narrative inquiry because they have an interest in people's lived experiences, process and change over time, self or representations of self, or empowering research participants. This interest can lead to many types of research questions that narrative inquires might explore. For example, researchers in psychology may use narratives to understand personality development, human experiences, or the formation of identity. In sociology researchers may use the narrative approach in order to better understand "relationships and roles in a community" or "to explain an individual's understanding of social events" (Atkinson, 2007, p. 227). In the field of education, narratives have been used to understand teacher experiences in the classroom and teacher identity (Elbaz-Luwisch, 2007). In psychotherapy professions (social work, counseling, and psychotherapy) narratives are often used as therapeutic storytelling or to assess therapeutic processes (Reissman & Speedy, 2007). Additionally, in healthcare professions illness narratives are being used to understand better the lives of those with life limiting diseases (Bingley et al., 2008).



There are several benefits of using narrative research. First, humans are natural storytellers and as such it is easy to elicit stories. Second, gathering in-depth data is easily accomplished as narratives usually provide thick descriptions. Last, it is possible to gather in-depth meaning as participants usually reveal themselves in their stories (Savin-Baden & Van Niekerk, 2007).

Although there are several benefits, narrative research does have some limitations. First, narrative research and analysis is extremely slow and meticulous (Reissman, 1993). Second, it is not useful for studies of large numbers which is commonly seen with quantitative methods. Last, narrative research is “not suitable for investigators who seek an easy and unobstructed view of subjects’ lives” (Reissman, p. 69).

Narrative research was selected as my qualitative research design because it is often used to learn and understand more about identity, which corresponded to my research purpose and questions. As Lieblich et al. (1998) explained:

One of the clearest channels for learning about the inner world is through verbal accounts and stories presented by individual narrators about their lives and their experienced reality. In other words, narratives provide us with access to people’s identity and personality. (p. 7)

The focus on studying identity through narratives began in the 1980’s when “personality psychologists began to turn their attention to people’s lives, they found notions such as ‘story’ and ‘narrative’ to be especially useful in conveying the coherence and meaning of lives” (McAdams, 2001, p. 100). This concept of using a narrative to better understand personality and identity has expanded into a new subdiscipline of personality psychology known as narrative identity research (Singer, 2004).

This new subdiscipline focuses on “how individuals employ narratives to develop and sustain a sense of personal unity and purpose from diverse experiences across the lifespan” (Singer, 2004, p. 437). There are many researchers now studying narrative identity but the majority tend to agree on a few common principles including: (a) narratives are central to identity formation, (b) recognizing the role of cognitive processes (memory) in formation of narratives, (c) lifespan developmental approach of the formation of a life story, and (d) recognition that sociocultural factors, such as gender, race, religion, play a role in the development of life stories (Singer).

Fundamentally, the purpose of my research study and the focus of my research questions were to better understand the professional identity of clinical laboratory practitioners through narrative inquiry. If narratives are central to identity formation then narratives can be collected from clinical laboratory practitioners and analyzed to understand better their professional identity.

#### *Organization of the Study*

The continuity of this research study is demonstrated in Table 3.1. This table presents the association between the purpose of the study, research questions, theoretical framework, and interview questions. The table is a visual representation of how the interview questions developed from the research questions which originated from the purpose of the study. Additionally, within the research and interview questions are the components of a life story as proposed in McAdams (1988) narrative identity theory.

#### Validation Team

Before beginning this qualitative study approval was sought from the University of Georgia Human Subjects Office. Once IRB approval was granted the next phase was

Table 3.1

*Research Continuity*

Theoretical framework	Purpose	Research questions	Interview questions
Nuclear episodes, imagoes, ideological setting, generativity script, thematic lines, narrative complexity	How CLPs view themselves.	1. What identities are expressed by CLPs? 3. What are CLPs' perceptions of their role in healthcare?	Describe your career to date as a CLP. Describe the role of CLP as a member of the healthcare team. Tell me about any experiences or stories in which you as a CLP made a difference in the life of a patient.
Nuclear episodes, imagoes, ideological setting, generativity script, narrative complexity	How CLPs view their profession.	2. How do CLPs describe their profession? 4. What are CLPs' perceptions of the major influences that have shaped the profession?	Tell me about the changes you have seen in the profession since you began your career. Tell me how you describe your profession to others. Tell me about any experiences or stories in which you as a CLP made a difference in the life of a patient.

*Note.* CLP = clinical laboratory practitioner.

establishment of a validation team. A small number of experts in the field of clinical laboratory science were selected to serve on a validation team. The purpose of this validation team was to:

1. Advise on the construction of questions for the demographic questionnaire and interview protocol.
2. Advise on the order or sequences of the questions on the demographic questionnaire and interview protocol.
3. Assist in the development of probing questions for the interview process.

After the modifications were made, based on recommendations from the validation team, participants were then selected.

#### Participation Selection

The criteria for selection of participants were: (a) either clinical laboratory scientist or clinical laboratory technician, (b) currently working in a hospital laboratory, (c) certified by one of the nationally recognized certifying agencies (e.g., American Society for Clinical Pathology or National Credentialing Agency for Laboratory Personnel), and (d) have at least one year of experience (participants need at least one year of experience in order to begin development of a professional identity). Questions pertaining to the eligibility of meeting these criteria were included in a personal history demographic questionnaire given to participants which was then used to assist in selecting participants to interview. In addition, the demographic questionnaire provided participants an opportunity to share a clinical laboratory related story. This narrative response was useful in judging the storytelling skills of the participant which aided in the selection of interview participants.

As an educator in a clinical laboratory science (baccalaureate level) program I had access to many hospital affiliations that permitted the use of convenience sampling. The American

Hospital Association categorizes hospitals by bed size and the eight categories are: “6 to 24 beds; 25 to 49; 50 to 99; 100 to 199; 200 to 299; 300 to 399; 400 to 499; and 500 or more” (American Hospital Association, 2007, p. 202). I did not have hospital affiliates for each category therefore I combined the categories into: 6 to 299 beds; 300-499; and 500 or more. I selected one hospital from each of these categories as a source of participants, with the possibility of a total of 60-80 participants.

Permission for conducting research was obtained from clinical laboratory managers who were mailed a packet containing cover letters, demographic questionnaires, and a preaddressed return envelope with postage. The cover letter provided to those who participated in the personal history data collection promised confidentiality. Anonymity was not possible because individuals had to be identified in order to select participants for the interviewing process. The letter included a brief explanation of the study, the expectations and time commitment for the participant, and any possible benefits or risks involved. A copy of the cover letter for the demographic questionnaire is included in Appendix A.

Two weeks after the initial mailing a follow-up letter was sent to the laboratory manager and a third mail-out was sent if questionnaires had not been returned by the end of one month (Creswell, 2009). Once demographic questionnaires were completed and returned they were reviewed for 10 maximum variation cases, which were cases that exhibited a wide range of variation in experiences (Gall, Gall, & Borg, 2007). Maximum variation sampling was preferred because it allowed for documentation of the range of variation in the narratives and to determine whether common themes or patterns were present across this variation (Gall et al.). Initially, the maximum number of cases was set at 10 due to the massive amount of time necessary to

transcribe multiple interviews but could have been reduced or increased if necessary as the study progressed.

Prior to the interview, participants were given another consent form for the interview process. A copy of the research consent form is included in Appendix B. I interviewed participants for roughly 60 minutes following the interview protocol. A second interview was then conducted for the enhancement of stories, to focus the participant, or to clarify any data collected.

The sequential approach (demographic questionnaire leading to interviews) was appropriate because the demographic questionnaires were used to identify and purposefully select participants for a follow-up, in-depth interview. This approach was easy to implement as they were separate phases and only one type of data was collected at a time (Creswell & Plano Clark, 2007). Although, having two separate phases did increase the amount of time needed for this study.

Participants were clinical laboratory practitioners currently working in a hospital laboratory, as it is the most common setting for practitioners. They were purposefully selected, via demographic questionnaire, for maximum variation therefore promoting collection of varied narratives. From these various experiences I gained insights on the personal and professional identity of these participants.

#### Role of the Researcher

I selected participants from the hospitals I had access to as an educator in clinical laboratory science. As an educator I had minimal contact with these hospitals and did not interview acquaintances. Even though the participants were strangers I did develop a rapid rapport with them because of my background in clinical laboratory science. I have three years

experience as a clinical laboratory practitioner and seven years experience as an educator in clinical laboratory science.

As the investigator or researcher in this study I was the primary instrument for gathering and analyzing data. As a human instrument I was limited by my mistakes, opportunities missed, and interference of personal biases (Merriam, 1998). Therefore my observations and analyses were ultimately filtered through my values and perspectives (Merriam).

The primary biases that I brought to this study included my previous experiences as a clinical laboratory scientist and educator. While working in the hospital setting I saw firsthand the effects of the clinical laboratory profession shortage such as working longer hours while short staffed, employment of less than ideal candidates, high turnover rates, and low retention rates. I believed this shortage is exacerbated by a professional identity that is changing, inconsistent, underdeveloped or absent. In addition, my biases in education included current challenges of recruitment of students and lack of hospital affiliates willing to train students.

As a qualitative researcher I was aware that bias could not be eliminated and that my predispositions or biases might affect data analysis and interpretation of results (Rossman & Rallis, 2003). In this study I attempted to minimize my biases using two methods. First, I clarified my biases by reflecting on my predispositions thereby acknowledging my orientation in this study (Glesne, 2006; Patton, 2002).

My second strategy for countering researcher bias was using systematic data analysis strategies. I followed an outline of stages for the analysis process while constantly reflecting on the theoretical perspective guiding this study. In addition, I actively searched for conflicting patterns, alternative themes, and rival explanations while performing data analysis (Patton, 2002).

If I had not searched for these rival explanations then my mind-set would have been focused on supporting the initial explanation, without looking deeper within the data (Patton).

### Data Collection Methods

#### *Background Survey*

Healthcare providers that can order laboratory tests include physicians, physician assistants, and nurse practitioners. As such these providers and patients are greatly affected by the test results performed in the clinical laboratory. In order to provide the best service to both physicians and their patients only qualified and formally trained individuals should perform laboratory testing. Due to the current laboratory personnel shortage some laboratories have resorted to hiring individual not qualified and/or formally trained. These individuals greatly increase the chance of laboratory error resulting in great risk to the health and safety of patients.

Since healthcare providers are greatly impacted by the services of the clinical laboratory they should also be aware of the quality of this service. Healthcare providers may not be aware of the formal training required to accurately and efficiently perform laboratory testing and they may not be aware that laboratory testing is being performed by those lacking this vital training. A background survey of healthcare providers, physicians, physician assistants, and nurse practitioners, was conducted to determine their perceptions of the requirements (skills and training) of clinical laboratory practitioners.

Participants for the background survey consisted of a convenience sample or a group of participants that were “selected simply because they are available and easy to access” (Gall et al. 2007, p. 636). In survey research of healthcare providers, literature has established that physicians, as a group, have significantly low response rates (Delnevo, Abatemarco, & Steinberg, 2004; Thorpe, et al. 2009; VanGeest, Johnson, & Welch, 2007). To offset this possible



disadvantage, a convenience sample of healthcare providers was accessed by gaining the support of key individuals within large medical groups, composed of the target healthcare providers, who disseminated the surveys.

Initially, 300 healthcare providers were to be given packets containing an informational cover letter, brief background survey, and preaddressed return envelope with postage. (Additional background surveys would have been delivered if an ideal response rate of 33% was not obtained.) A copy of the cover letter for the background survey is included in Appendix C and the survey is included in Appendix D.

### *Perceptions of Healthcare Providers*

A total of 161 background surveys were hand-delivered to local medical offices. Distribution occurred in multiple waves during a two month period. Eighty-seven surveys were completed and returned, for a response rate of 54%. The table that follows presents the results obtained from the 87 completed surveys.

Table 3.2

### *Background Survey Results (N=87)*

Background survey question	Answer percentages (raw numbers) descending order
You are a licensed:	Medical Doctor = 63% (55)
	Physician Assistant = 20% (17)
	Nurse Practitioner = 17% (15)
What educational degree is required for performing clinical laboratory testing? (Check all that apply.)	Don't Know = 35% (33)
	Associate = 23% (22)
	Bachelor = 22% (21)
	High School = 14% (13)

Background survey question	Answer percentages (raw numbers) descending order
	Graduate = 6% (6)
<p>What education degree should be required for performing clinical laboratory testing? (Check all that apply.)</p>	<p>Bachelor = 51% (47)</p> <p>Associate = 24% (22)</p> <p>Don't Know = 12% (11)</p> <p>Graduate = 11% (10)</p> <p>High School = 2% (2)</p>
<p>Are clinical laboratory practitioners certified by a national certifying agency recognizing competence?</p>	<p>Don't Know = 46% (40)</p> <p>Yes = 37% (32)</p> <p>No = 17% (15)</p>
<p>Should clinical laboratory practitioners be certified by a national certifying agency recognizing competence?</p>	<p>Yes = 78% (68)</p> <p>Don't Know = 21% (18)</p> <p>No = 1% (1)</p>
<p>Are clinical laboratory practitioners required to have a professional license to practice in the state of Georgia?</p>	<p>Don't Know = 44% (38)</p> <p>Yes = 38% (33)</p> <p>No = 18% (16)</p>
<p>Should clinical laboratory practitioners be required to have a professional license to practice in the state of Georgia?</p>	<p>Yes = 74% (64)</p> <p>Don't Know = 18% (16)</p> <p>No = 8% (7)</p>
<p>Are there specialty certifications in clinical laboratory components (e.g., blood bank, hematology, microbiology)?</p>	<p>Yes = 48% (42)</p> <p>Don't Know = 44% (38)</p> <p>No = 8% (7)</p>
<p>Should there be specialty certifications in clinical</p>	<p>Yes = 74% (64)</p>

Background survey question	Answer percentages (raw numbers) descending order
laboratory components (e.g., blood bank, hematology, microbiology)?	Don't Know = 21% (18) No = 6% (5)

Based on the results, several findings became evident. First, healthcare providers are not certain of the educational degree required for practitioners performing clinical laboratory testing, but they believe that a bachelor's degree should be the primary degree required. This finding was revealing because the bachelor's degree is not the primary degree for entrance into the profession. Simpson (2010) found that in 2008 there were 2922 graduates from 227 accredited bachelor degree programs in clinical laboratory science and 2515 graduates from 208 accredited associate degree programs. For the last two decades the number of graduates from each type of program has been almost equal. However, in years prior, there were significantly more bachelor degree graduates (Simpson).

Second, healthcare providers do not know if clinical laboratory practitioners are certified by a national certifying agency recognizing competence, but they believe practitioners should be. Historically, there have been two certifying agencies for graduate practitioners, but in the fall of 2009 they merged to become the Board of Certification (National Credentialing Agency for Laboratory Personnel, & American Society for Clinical Pathology, 2009). However, only some states have adopted laboratory personnel licensure laws that enforce and ensure only certified practitioners perform clinical laboratory testing.

Specifically, healthcare providers that I surveyed in the State of Georgia are not certain if clinical laboratory practitioners are required to have a professional license to practice in this state, but they do believe practitioners should have a professional license. As discussed in Chapter 2, only 11 states have personnel licensure laws for clinical laboratory practitioners, and Georgia is

not one of those states. However, the state does have a facility licensure law known as the Georgia Clinical Laboratory Licensure Law of 1970 (Official Code of Georgia Annotated, 2009). This requires the laboratory facility to supervise certification of clinical laboratory practitioners, in contrast to states that have personnel licensure laws where a state body strictly regulates the certification and licensure of individual practitioners.

Finally, healthcare providers do believe specialty certifications in clinical laboratory exist and should exist. The first specialist certification was established in 1953 in immunohematology (formerly known as blood bank) (Kotlarz, 1999a). Practitioners can now obtain a specialty certification in other laboratory departments such as Clinical Chemistry, Hematology, and Microbiology (Karni, 2002).

Further analysis of the data collected from the background surveys was done to compare the responses of the three different groups of healthcare providers. Table 3.3 includes a comparison of the three provider groups.

Table 3.3

*Comparison of Healthcare Providers*

	MD (N=55)	PA (N=17)	NP (N=13)
	36% (20) Don't Know	41% (7) Bachelor	38% (5) Don't Know
	31% (17) Associate	35% (6) Don't Know	23% (3) High School
Degree is	20% (11) Bachelor	18% (3) Associate	23% (3) Bachelor
	15% (8) High School	18% (3) Graduate	15% (2) Associate
	2% (1) Graduate	12% (2) High School	15% (2) Graduate
Degree should be	51% (28) Bachelor	65% (11) Bachelor	54% (7) Bachelor
	29% (16) Associate	24% (4) Graduate	31% (4) Associate

	MD (N=55)	PA (N=17)	NP (N=13)
	16% (9) Don't Know	12% (2 Associate)	15% (2) Graduate
	7% (4) Graduate	6% (1) Don't Know	8% (1) High School
	2% (1) High School	0% (0) High School	0% (0) Don't Know
Are CLP's certified	40% (22) Don't Know	71% (12) Don't Know	54% (7) Yes
	36% (20) Yes	24% (4) Yes	38% (5) Don't Know
	24% (13) No	6% (1) No	8% (1) No
Should CLP's be certified	75% (41) Yes	76 % (13) Yes	100% (13) Yes
	25% (14) Don't Know	18% (3) Don't Know	0% (0) No
	0% (0) No	6% (1) No	0% (0) Don't Know
Are CLP's licensed	45% (25) Don't Know	47% (8) Yes	62 (8) Yes
	29% (16) Yes	47% (8) Don't Know	31 (4) Don't Know
	25% (14) No	6% (1) No	8 (1) No
Should CLP's be licensed	65% (36) Yes	88% (15) Yes	92 (12) Yes
	24% (13) Don' Know	6% (1) No	8 (1) Don't Know
	11% (6) No	6% (1) Don't Know	0 (0) No
Are specialty certifications	47% (26) Yes	59% (10) Don't Know	69% (9) Yes
	44% (24) Don't Know	29% (5) Yes	31% (4) Don't Know
	9% (5) No	12% (2) No	0% (0) No
Should be specialty certifications	75% (41) Yes	59% (10) Yes	85% (11) Yes
	22% (12) Don't Know	29% (5) Don't Know	8% (1) No
	4% (2) No	12% (2) No	8% (1) Don't Know

*Note:* CLP = clinical laboratory practitioner; MD = medical doctor; PA = physician assistant; NP = nurse practitioner.

Nurse practitioners achieve higher consensus on several answers in comparison to medical doctors and physician assistants. In particular, all nurse practitioners responded that clinical laboratory practitioners should be certified and most believed practitioners should be licensed.

### *Demographic Questionnaire*

A demographic questionnaire, was created and used to collect personal histories of clinical laboratory practitioners and allow for purposefully selecting participants with varied experiences. The questionnaire was developed and efforts to establish validity included evaluation by a validation team. The validation team was composed of experts in the field of clinical laboratory science and their purpose was to assist in the construction and order of the questions. A copy of the demographic questionnaire is included in Appendix E. Eighty demographic questionnaires were distributed amongst three hospitals in the Southeast. Thirty-four were returned and reviewed for variation of experiences and 8-10 interview participants were selected.

### *In-depth Interviews*

For this qualitative study, the primary type of data collection was in-depth interviews of participants. Seidman (2006) explained, the purpose of in-depth interviewing is "...an interest in understanding the lived experience of other people and the meaning they make of that experience" (p. 9). By asking open ended questions in an interview participants are more likely to share their thoughts, feelings, and experiences. Follow up questions will uncover deeper meanings and more illustrative examples (Rossman & Rallis, 2003).

This qualitative study utilized the general interview guide approach. Patton (2002) stated that “there are three basic approaches to collecting qualitative data through open-ended interviews” (p. 342) and these approaches include informal conversational interviews, standardized open-ended interviews, and the general interview guide approach. An informal conversational interview consists of spontaneous generation of questions in the natural flow of conversation, whereas standardized open-ended interview questions are carefully prepared ahead of time and each participant is asked the same question in a certain sequence. The general interview guide approach sits in the middle of the other two approaches and includes the use of an outline of questions ensuring that all pertinent topics are covered.

The general interview guide approach has several advantages over the other two approaches, hence its selection for this study. First, it allows participants’ perspectives on the experience to “unfold as the participant views it and not as the researcher views it” (Rossman & Rallis, 2003, p. 182). Second, this approach allows one to ask probing or follow-up questions which is not possible with standardized open-ended interviews. Finally, personal interaction is kept to a minimum unlike the dialogic interviews in which the possibility of influencing your participant is increased as the relationship grows.

The general interview guide approach described by Patton (2002) is similar to semi-structured interview. Merriam (1988) described a semi-structured interview as those “guided by a list of questions or issues to be explored, but neither the exact wording or the order of the questions is determined ahead of time” (p. 74). Merriam described two other types of interviews including highly structured interviews (similar to Patton’s standardized open-ended interviews) and unstructured interviews (similar to Patton’s informal conversational interviews).

The goal of these interviews was to solicit narratives. Therefore I also used suggestions provided by narrative researchers for encouraging storytelling during in-depth interviews. First, Elliott (2005) suggested using open ended questions framed in everyday language that are also broad enough to allow respondents to provide detailed stories. Reissman (2002) suggested that certain types of open ended questions are better than others at eliciting narratives. She gave the following example, “compare ‘When did X happen?’ which asks for a discrete piece of information, with ‘Tell me what happened,’ which asks for more extended account of some past time” (p. 246). In addition, she advised only having 5 to 7 broad primary questions on your interview guide complemented with probing questions (Reissman). A copy of the interview guide is included in Appendix F.

#### *Interview Process*

Once participants were selected, using the criteria above, they were interviewed during two different sessions. Interviewing a participant more than once is optimal because it provided an opportunity to reflect upon the first interview and to “build upon and explore the participants’ responses” (Seidman, 2006, p. 15) in the second interview, thereby providing richer and thicker descriptions. Additionally, more than one interview allowed for clarification of previous data thereby allowing triangulation of preliminary findings. Rossman and Rallis (2003) defined triangulation as “multiple sources of data, multiple points in time or a variety of methods are used to build the picture that you are investigating” (p. 69).

During the first interview session an interview guide (Appendix D) or list of open-ended questions was used to ensure that all topics were explored. As the interview progressed, follow-up questions were asked for elaboration and clarification. Listening carefully, being sensitive to the feelings of participants, and knowing the type of data being sought assisted in determining



when to ask follow up questions (Patton, 2002). The second interview session allowed for enrichment of stories, to focus the participant, and to clarify any data collected.

The first interviews averaged one hour and transpired in early January, 2010, while the second interviews averaged 30 minutes and transpired in early February, 2010. During both interview sessions data was collected face-to-face in the participant's workplace setting. Interviews were audio recorded and transcripts extracted from audio tapes. Audio tapes from the first interview sessions were transcribed before the second session, which allowed for review of data in order to determine clarification or follow-up questions. After transcription of the second set of interview sessions, both transcriptions were compiled into one long document and sent to corresponding interview participants via email for member checking.

In-depth interviewing had several advantages as a method of qualitative data collection (Creswell, 2009). First, this method allowed the researcher to control the line of questioning used during the interview. Second, interviews allowed participants the opportunity to provide historical information in detail. Finally, more than one interview allowed triangulation of preliminary findings (Creswell).

Although qualitative interviewing had several advantages some limitations remain. The presence of the researcher might have influenced or biased the responses of the participant. In addition, participants were not equally communicative and response depth and length varied (Creswell, 2009).

The purpose of this qualitative study was to use narratives or stories to understand the perceptions of clinical laboratory practitioners and how they view their own professional identity. In-depth interviewing was the ideal data collection method for this study because as Seidman (2006) explained, the purpose of in-depth interviewing is "...an interest in understanding the

lived experience of other people and the meaning they make of that experience” (p. 9). By asking open ended questions during the interview participants were more likely to share their thoughts, feelings, and experiences. Follow up questions uncovered deeper meanings and more illustrative examples (Rossman & Rallis, 2003).

### Data Analysis Procedures

Data analysis of this study consisted of narrative analysis. Reissman (2008) defined narrative analysis as “a family of methods for interpreting texts that have in common a storied form” (p. 11). Narrative analysis is one form of qualitative data analysis that it is often used in the broader field of narrative inquiry or research. Narrative analysis can be used to interpret oral, written, or visual texts and can be collected from individuals, groups or organizations (Reissman).

#### *Types of Narrative Data Analysis*

There are no set procedures or guidelines for narrative analysis but several narrative researchers have published approaches for analyzing narratives. Narrative analysts may use one of four common approaches to narrative analysis including thematic, structural, dialogic/performance, and visual. In narrative thematic analysis, one of the most common methods of narrative analysis, content within the text is the primary focus. With this method the researcher identifies “common thematic elements across research participants and the events they report” (Reissman, 2008, p.74). Typically this method can be represented by a typology of narratives that is organized by themes or constructed to present an emerging theory (Reissman, 2004). Narrative thematic analysis has a few key features that distinguish it from other methods including using known theory or theories to guide the research study while searching for an emerging theory and keeping the story intact instead of dissecting it into sections.

In structural analysis the focus is on the way a story is told or put together (Holloway & Freshwater, 2007). Using this approach a researcher focuses on both the content and the form (or structure) of the story (how the storyteller shapes the story and conveys it). Labov and Waletzky's (1967), socio-linguists, developed a structural model for analysis that describes six elements found within narratives. These six elements are: (a) abstract or summary, (b) orientation or details of the setting, (c) actions, (d) evaluation, (e) resolution, and (f) coda which is a return to the present (Elliott, 2005; Labov & Waletzky's).

In dialogic/performance analysis the focus is on the “dialogic process between teller and listener” (Reissman, 2004, p. 707). Thematic and structural analysis is present but the focus is more on the co-construction of the story and the performance of the story (moving an audience through gesture and language). This is a broad interpretative method that looks at themes, form, speech, contexts (culture and society), and narrative style and language (Reissman, 2008).

Visual narrative analysis is a broad area encompassing words and images. Reissman (2008) provided five studies, or models, that successfully used a combination of images (photography, collage, painting and video diary) and words. A key feature of visuals analysis is that it incorporates images into narrative analysis alongside written or spoken text.

Lieblich et al. (1998) proposed a different approach to narrative analysis which is a model based on two dimensions, categorical versus holistic and content versus form. Using a categorical perspective, the story is dissected and the sections are categorized, whereas in the holistic approach the story is taken as a whole and interpreted. The categorical approach is ideal for studying a problem or phenomenon while the holistic approach is ideal for studying the person as a whole. Using a content perspective one concentrates on the explicit content of an

event while the form approach concentrates on the structure of the story, sequencing of actions, style of the narrative, and so forth.

The two dimensions intersect and result in four modes that can be used as approaches to analyzing a narrative. The four modes include holistic-content, holistic-form, categorical-content, and categorical-form. The holistic-content approach will use the entire life story of an individual while focusing on the content presented in the story, whereas in holistic-form one focuses on the plot or structures within the story. The categorical-content (also known as content analysis) focuses on sections of the story that are categorized into groups based on the content presented, whereas categorical-form focuses on style or linguistic characteristics of sections of the story. The specific mode of analysis selected depends upon the research questions, data collected, and sample size (Lieblich et al., 1998).

I used narrative thematic analysis in this research study for two primary reasons. First, my research objective was to look for themes or patterns within the narratives, hence the focus was on content within the text for which thematic analysis is most appropriate. Second, narrative thematic analysis is a straightforward and systematic approach to analyzing data and as a novice qualitative researcher this manner was appealing (Reissman, 2008).

#### *Narrative Thematic Analysis Process*

To appropriately address the research questions of this study a narrative thematic analysis approach was taken to provide thick descriptive data about the professional identity of the clinical laboratory science profession. In narrative thematic analysis, common themes amongst participants were identified and then narratives were organized and presented by prevailing themes (Reissman, 2004; 2008). During the analysis process, the story was kept intact and analyzed as a whole instead of dissecting it into lines or sections (Reissman, 2004). Analysis

consisted of five stages: (a) organization and preparation of the data, (b) obtaining a general sense of the information, (c) the coding process, (d) categories or themes, and (e) interpretation of the data (Creswell, 2009).

The organization and preparation of the data stage began with transcribing audio tapes immediately or shortly thereafter the interview. While transcribing the tapes from the first sessions of interviews, rudimentary themes were generated and noted in the transcript margins. More themes became apparent during the transcription of the second round of interviews and accordingly noted.

Another phase of organizing the data consisted of compiling the two transcripts into one document for each participant. During this phase, non-narrative lines, such as casual conversation, were deleted. In addition, participants were assigned fictitious names and any participant identifiers (e.g., names, locations) were replaced or removed.

Reading through transcriptions provided an opportunity to familiarize myself with the data and obtain a general sense of the information. Transcriptions were read after the first interview sessions in order to prepare follow-up questions for the second interview. After the transcriptions were completed, they were re-read and any patterns, connections, or themes that became apparent were noted.

The coding process was the next stage in which the data was coded manually. Glesne (2006) defined coding as “a progressive process of sorting and defining and defining and sorting those scraps of collected data ...that are applicable to your research purpose” (p. 152). The coding process consisted of re-reading the transcripts and identifying recurring words, ideas, or patterns generated from the data. Once these recurring words or ideas were identified they became a code (Patton, 2002).

I re-read the narratives and highlighted, within each narrative, prominent ideas and any recurring words or messages. Then I developed a corresponding code for that passage and placed it in the margin. After completion of coding the first transcript, a master code list was constructed. As I highlighted the next transcript, codes were pulled from the master list if applicable or a new code was created and added to the master list. I continued using this coding method for the remaining transcripts. The transcripts were re-read one more time with a purpose of ensuring all narratives were coded appropriately and to see if any new codes became apparent.

My initial master code list contained 54 codes that were reduced slightly due to duplication and overlapping. Codes were placed into a logical category or “a word or phrase describing some segment of your data that is explicit” (Rossman & Rallis, 2003, p. 283). Categories should reflect the themes that have become apparent and represent the major findings of the study (Creswell, 2009). For this study, 40 codes were grouped into six major categories or themes including: (a) changes within the profession, (b) entry pathways into clinical laboratory science profession, (c) lack of awareness (of the profession), (d) being misunderstood by fellow healthcare professionals, (e) retention issues, and (f) role and value of clinical laboratory practitioners. In addition, a few codes were categorized into one minor category, imagoes, which relates to a theoretical element that will be discussed later in this chapter.

The last stage of narrative thematic analysis was interpretation of the data. Interpretation of the data is simply making meaning from the data (Creswell, 2009). In my opinion, this process was not necessarily a separate stage as it begins to occur as coding and categorizing progress. Interpretation consisted of studying the categories and their corresponding codes to determine if there were any overarching themes or theories that provided insight on the professional identity

of clinical laboratory practitioners. The six major themes listed above are the overarching themes that were generated from the narratives and resulted in a better understanding of the professional identity of clinical laboratory practitioners.

### *Procedural Example*

Table 3.4 is an example of the stages of narrative thematic analysis performed on Karen's transcripts. As the interviewer, I gave myself the designation of "X" thus these are the questions I asked or comments made during the interview. I have bolded the lines within the narrative which were originally highlighted and led to code development. The corresponding code is found in the middle column. In the last column is the category or theme that corresponded to the assigned code.

Table 3.4

### *Data Analysis of Karen's Narratives*

Transcript passage	Initial code(s)	Corresponding category/theme
X: Tell me about an incident or experience that made you proud to be a clinical laboratory practitioner.		
KAREN: My brother-in-law, this is a personal example, my brother-in-law was just recently diagnosed with Good-Pasteur's syndrome. Before they diagnosed him, he was very sick, and they were running a lot of tests, and my sister called me a lot. This is what they are running and what does it mean, what are they looking for. <b>It made me feel like she</b>	1) Experiences of	1), 2) Role and

Transcript passage	Initial code(s)	Corresponding category/theme
<p><b>was recognizing what I do</b> and letting me help her through this really difficult process, I think in a personal way, <b>it made me feel proud that she looked to me as the source of knowledge to help her understand what was being done and what was going on.</b> So that is probably the most immediate one I can think of. And here again, I'm sure there are others but I just can't think of them right now.</p>	<p>perceived recognition or respect 2) Proud to be practitioner</p>	<p>value of clinical laboratory practitioners</p>
<p>X: Tell me about an incident or experience in which you were disappointed with being a clinical laboratory practitioner.</p>		
<p>KAREN: Oh like the time the doctor said you are just a med tech. It was when I was in client services and I wish I could remember the specifics of what she had called for or called about but I'm trying to explain it to her and she wouldn't listen and finally she just blurted out, <b>"what do you know you're just a med tech"</b>. <b>You are calling about lab tests this is what I do.</b> <b>That would be like me questioning her and I was just so stunned I couldn't say anything. But it made</b></p>	<p>3) Negative experience with physician 4) Misunderstood</p>	<p>3), 4), 5) Being misunderstood by fellow healthcare team</p>



Transcript passage	Initial code(s)	Corresponding category/theme
<b>me feel really diminished that she didn't have</b>	5) No respect	members

**anymore respect for the profession or for me.** Who else who were you going to call with this question. You didn't know it or you wouldn't have had to ask. But that definitely was a humbling moment.

X: And how long ago was that?

KAREN: Would have had to of been 9 or 10 years ago.

X: So it was over a test result?

KAREN: Yeah, because she was either calling to add something or asking about the test. I just remembered going...it just took my breath away. Having a bad day are we?

X: Based on your experiences with other healthcare professionals, do they share the same views as you on the role of clinical laboratory practitioners?

KAREN: I think for the most part, bear in mind that

Transcript passage	Initial code(s)	Corresponding category/theme
<p>any relationship that I would have had would have to be at a smaller hospital. Here you never even deal with them except for like calling a result to a nurse. I think radiology feels like they are in the same boat as us.</p>		
<p><b>And I really hate to sound negative but I feel like nurses look down on the lab a lot and that is so pervasive it stuns me. It doesn't matter where you are, the size of the facility, it just stuns me how little respect they have. For one thing you're "the lab" which sort of depersonalizes you immediately.</b> And like I said I feel like respiratory, radiology and the lab sort of feel like the red headed step children so to speak. That a lot of time we're, well maybe we are the Rodney Dangerfield's. That nursing really, you know and good for you, you have to deal with patients all day. I cannot imagine how frustrating that must be and then you are getting it the other side from the doctors, but show us some respect for what we know and what we do.</p>	6) No respect	6) Being misunderstood by fellow healthcare team members
<p>X: I'm sure incidents have caused you to think like that. Can you share one or two?</p>		

Transcript passage	Initial code(s)	Corresponding category/theme
<p>KAREN: One that immediately come to mind, here again, working at a small hospital. I was on evening shift, I received some specimens and the hospital was small enough, I was the only tech there. A tech and a phlebotomist on evening shift. And I ran the specimen that they had sent me and they explained to me that the doctor had had to draw it from the, gosh I'm drawing a blank, anyway the arterial vein in the neck. <b>And I was getting these results that made absolutely made no sense. So I walk around to ER and I tell the ER doc, I don't even want to report these results because they are just so out of whack, I don't even feel like the patient should be charged for this. Well the patient died. And we never did resolve, I said can we get a redraw, I got written up by the nurse in the ER, over the ER, because I refused to report the results. Even though I explained in detail, these results don't make sense, the specimen is contaminated or and she kept saying the doctor drew it. Why should I result you know and I can't remember any of the specifics but they were just</b></p>	<p>7) Negative experience with a nurse 8) Misunderstood 9) No respect</p>	<p>7), 8), 9) Being misunderstood by fellow healthcare team members</p>

Transcript passage	Initial code(s)	Corresponding category/theme
<p>totally, all of them, the CBC, the chemistries, everything was just and yeah I got written up. And they didn't bother to explain why I wasn't reporting results, I said "I'll be glad to hand you the print-outs so you can look at them and see they don't make sense but I am not going to report these". <b>And that probably ties into the times when you think; maybe I should thought of another career.</b></p>	<p>10) Leave field because</p>	<p>10) Retention issues</p>

### *Narrative Identity Theory*

Narrative identity theory was the theoretical perspective selected to guide this study including narrative thematic data analysis. Therefore, during thematic analysis I attempted to find themes relating to the components of a life story as proposed by McAdams (1988). These components were compared amongst the individuals interviewed and major themes generated from this inductive process. Refer to Figure 1.1 for a relationship overview of the life story components.

The first component, nuclear episodes are key scenes or events that occur during the life story. Within this study I was seeking from clinical laboratory practitioners narratives of these episodes or vivid memories associated with their profession. Examples that might be generated include stories about how individuals selected this profession or any memorable experiences of making a difference in the life of a patient.

The second component, imagoes, are personifications of self or the main characters the narrator denotes upon him or herself during their life story. Examples of possible personifications include devoted mother, loving husband, homemaker, or teacher (McAdams, 2001). From the narratives clinical laboratory practitioners shared I determined their personifications, such as future retiree.

Ideological setting is the next component of a life story and is the basic values and beliefs (ideology) that ground life stories (McAdams, 2001). This backdrop for identity was found within the narratives told by clinical laboratory practitioners. By determining their beliefs and values I have a better understanding of how they influence or impact their personal and professional identity.

Generativity script is another major component within McAdams (1988) life story model. Generative script is the plans a narrator make for guiding the next generation or thinking about the legacy one is leaving behind for the future (McAdams, 2001). During analysis I searched for indications of a possible legacy within the profession or life in general.

Thematic lines, the fifth component, are recurring content clusters that center around intimacy (feeling close) and power (feeling strong) (McAdams, 1988). During analysis I looked for a strong motivation of power including emphasis on self-mastery, status, victory, or achievement. In contrast an individual with a strong motivation for intimacy emphasized friendship, love, or a desire to care for others (McAdams, 2001).

The final component, narrative complexity, is the structure and organization of life stories. Life stories differ in content and complexity, some are simple with few characters, minimal subplots, and few nuclear episodes while others are more complex with multiple characters and

subplots, and many nuclear episodes (McAdams, 1988). From the narratives collected I determined if the individual had a simple or more complex story relating to their profession.

### Validity

Creswell (2009) defined qualitative validity as the steps a researcher performs in order to check “for the accuracy of the findings by employing certain procedures” (p. 190). One validity strategy commonly used by qualitative researchers is member checking. Glesne (2006) defined member checking as “sharing interview transcripts, analytical thoughts, and/or drafts of the final report with research participants to make sure you are representing them and their ideas accurately” (p. 38). In order to validate the accuracy of findings in this research study member-checking was utilized to assure that participants feel their words were accurate. Participants were given a copy of their full transcription to ensure accuracy of the transcription.

Another validity strategy is triangulation, which is “the use of multiple data-collection methods, data sources, analysts, or theories as corroborative evidence for the validity of qualitative research findings” (Gall, et al. 2007, p. 657). Patton (2002) classified four types of triangulation including triangulation of methods, sources, analysts and theories. This research study utilized analyst triangulation or the use of multiple analysts to review findings (Patton). First, this study utilized member-checking which is a type of analyst triangulation in which the review of findings is performed by inquiry participants. Secondly, this study utilized an expert audit review process as an expert serving on my doctoral committee, Dr. John Schell, assessed the quality of analysis.

A third validity strategy is clarification of the bias the researcher brings to the research study. I discussed my bias in the *Role of the Researcher* section above in which I explained that my bias was shaped by my background as a clinical laboratory scientist. Discussing my bias

openly and honestly, including its influence on interpreting research findings, contributed to the validity of this study.

A final validity strategy is an audit trail which is explained as authentication of the findings of a study by following the trail or steps of the original researcher (Merriam, 1998). In order for this to happen, the researcher must discuss in detail the procedures or steps followed for data collection, data analysis and interpretation. I have discussed these processes in detail, documenting the steps taken, within the chapters of my doctoral dissertation, thereby creating an audit trail.

### Summary

Narrative research was selected as the design of this qualitative study because through narratives one can gain insight into the identity of the narrator which corresponds to the purpose of this study and research questions. This narrative study began by obtaining IRB approval for the use of human subjects. Then, a validation team was assembled and assisted in the creation of the data collection instruments used in this study.

This study was composed of three groups of subjects. First, a large pool of clinical laboratory practitioners completed demographic questionnaires. This allowed for selection of the second group of participants, a small pool of clinical laboratory practitioners who went through an interview process. These practitioners were individually interviewed during two sessions in order to collect narratives of their experiences related to clinical laboratory science. The last group of subjects consisted of a large pool of healthcare providers who completed background surveys sharing their perceptions of the requirements (skills and training) of those working in clinical laboratories.

Data collected from the demographic questionnaire and background survey were analyzed and statistics reported descriptively. Data collected from the interview process were analyzed thematically. Guiding this narrative thematic analysis was the theoretical perspective of narrative identity theory. While performing the analysis I searched for themes relating to the six components of a life story as proposed in McAdams (1988) narrative identity theory.



CHAPTER 4  
INTERVIEW PARTICIPANT DESCRIPTIONS

Introduction

A demographic questionnaire was used to assist in selecting participants to interview. I selected three hospital affiliates that met the pre-established hospital size criteria, one hospital for each of the following categories: 6 to 299 beds; 300-499; and 500 or more. Next, I contacted the clinical laboratory managers seeking authorization to conduct my research study within their clinical laboratory. Once authorization was obtained, each laboratory manager received 25 to 30 demographic questionnaires depending upon the total number of employed practitioners. Managers were instructed to distribute the questionnaires to clinical laboratory technicians (associate degree) and scientists (bachelor degree) currently employed in their laboratory. A total of 80 demographic questionnaires were delivered with 34 returned for a response rate of 43%. The table that follows offers an overview of the 34 demographic questionnaire participants.

Table 4.1

*Demographic Questionnaire Participants (N=34)*

Criteria	Gender		Years of Experience				Laboratory departments routinely staffed						Optimistic about future	
	M	F	<1	2-10	11-20	>20	H	C	I	M	O	G	Y	N
Raw Number	5	29	3	5	5	21	6	7	1	5	4	11	24	8
Percentage	15	85	9	15	15	62	18	21	3	15	12	32	74	24

*Note.* Two participants (6%) did not answer the optimism question. H = Hematology; C = Clinical Chemistry; I = Immunohematology; M = Microbiology; O = Other; G = Generalist (2 or more departments).

### *Interview Participants*

The returned 34 demographic questionnaires were reviewed for 8 to 10 maximum variation cases or cases that exhibited a wide range of variation in experiences (Gall, Gall, & Borg, 2007). As indicated in Table 4.1 the majority of participants was female and had 20 or more years of experience which made selection of participants for maximum variation difficult but attempts were made to obtain variation. The table that follows offers an overview of the 10 interview participants selected from data in their demographic questionnaires. (Fictitious names were assigned to all participants and used throughout this dissertation.)

Table 4.2

### *Interview Participant Demographics*

Name	Gender	Years of experience	Laboratory departments routinely staffed	Optimistic about future
Barbara	F	>20	Hematology	No
Carolyn	F	>20	Immunohematology	Yes
Colleen	F	11-20	Clinical Chemistry	Yes
Isabel	F	>20	Generalist	No
James	M	2-10	Clinical Chemistry	Yes
Karen	F	>20	Generalist	Yes
Megan	F	>20	Hematology	Yes
Murphy*	M	>20	Microbiology	Yes
Phoebe	F	11-20	Generalist	No

Name	Gender	Years of experience	Laboratory departments routinely staffed	Optimistic about future
Stephanie	F	2-10	Generalist	Yes

*Note.* \*Murphy was dropped from the study.

Of the 10 interview participants, two were selected from a hospital with 6 to 299 beds, four from a hospital with 300-499 beds, and four from a hospital with 500 plus beds. Participants were interviewed individually during two separate interview sessions. The objective of the first interview was completion of the interview guide while the second allowed for clarification and follow-up questions.

#### *Exclusion of Second Male Participant*

Murphy was selected and participated in both interview sessions however he was eventually dropped from the study. The majority of Murphy's clinical laboratory experiences were early in his career as this past decade he was employed outside of the profession and only recently re-entered as a part-time practitioner. Murphy often could not recall any experiences relating to the interview questions due to his extended time out of the profession. Murphy was allowed to continue in the interview process as I was hopeful he would remember more details about his clinical laboratory experiences between the first and the second interview however experiences remained sparse. During narrative data analysis it was discovered that Murphy's narratives were not germane to the purpose or questions of this research study therefore his data was purged.

The remainder of this chapter will describe the nine clinical laboratory practitioners that participated in the interview process. The information presented was gathered from the demographic questionnaire each participant completed and transcripts from their interviews.

### Barbara

Barbara has been in the clinical laboratory profession for more than 40 years. She learned about the clinical laboratory profession from a high school assignment in which she had to write a report on an unfamiliar profession. Barbara went to the library to research different professions and selected clinical laboratory science because it was so unknown yet sounded interesting. Later that same year Barbara went to a nearby university and met with the advisor for the clinical laboratory science program at which time she decided it was the career for her.

Barbara is a certified clinical laboratory scientist who has spent the majority of her career working in hematology departments. She has been employed in nine different clinical laboratories in several states throughout her career. Eight of these laboratories have been located within hospitals while one was a reference laboratory. In the past Barbara was more optimistic about her future in the profession, but due to the increased workload and fewer practitioners to complete the work she is not as optimistic.

### Carolyn

Carolyn has been in the clinical laboratory profession for more than 20 years. She was introduced to the profession by two fellow church members who were students in a clinical laboratory technician program. One of these women assisted Carolyn in obtaining a job as a phlebotomist which gave her a closer look at the laboratory and further sparked her interest.

Carolyn went to college and eventually entered into a newly created medical technology program, she was in their second graduating class. She is a certified clinical laboratory scientist who has spent the majority of her career working in immunohematology (blood bank) departments. Carolyn has lived in several Eastern and Southern states and as such has been employed in nine hospital laboratories.

### Colleen

Colleen has been in the clinical laboratory profession for almost 20 years. She learned about the profession while volunteering as a candy striper at a nearby hospital in which she was often asked to deliver samples to the clinical laboratory. During her visits to the laboratory she became fascinated with the analyzers and equipment found only within the laboratory.

Colleen went to a technical college and graduated as a clinical laboratory technician. She has worked in five or six different laboratories, within three states, all of which have been hospital laboratories except for one reference laboratory. Throughout her career she has worked in hematology and clinical chemistry but has consistently been employed in clinical chemistry for the past six years. She is optimistic about her future in her chosen profession. In 2008, Colleen completed an on-line articulation program becoming a clinical laboratory scientist as she realized her growth opportunities were limited as a technician.

### Isabel

Isabel is a clinical laboratory scientist who has been in the profession for more than 20 years. Isabel selected the clinical laboratory profession by a process of elimination as she desired a career in the medical profession but did not desire patient contact or exposure to radiation. After investigating the different health professions that offered limited patient contact she selected clinical laboratory science.

Currently, Isabel is employed in her fourth hospital laboratory as a generalist working in the departments of hematology, clinical chemistry, and immunohematology. These laboratories have been located within the same state but in varying cities. At her previous hospital she was the second shift supervisor for several years but has not been in a supervisor or administrative

role for more than a decade. Isabel is not optimistic about the profession in general because of the lower salaries, at least lower in comparison to other allied health professionals.

#### James

James is a clinical laboratory scientist who has been in the profession for two years. While in college James had a microbiology professor who noticed his abilities in the laboratory thus his professor recommended a career a clinical laboratory science. James graduated with a bachelor's degree in biology but after being uncertain as to what to do next he contemplated the advice given to him by his professor and decided to go back to school for second bachelor's degree in clinical laboratory science.

James began his career working as a generalist and less than two years later he moved to a much larger hospital laboratory, in another state, working in the clinical chemistry department. Most often James is found in special chemistry, a sub-department of clinical chemistry that offers more manual and specialized testing. James is optimistic about his future but feels underpaid in comparison to other healthcare professionals who have similar degrees.

#### Karen

Karen began her career over 20 years ago as a clinical laboratory technician. Karen went to a nearby technical college and was advised that clinical laboratory science might be a good fit for her based on her current interests. After graduating from the technical college, she worked at a small community hospital in her hometown. She is currently employed in her fourth or fifth laboratory, all of them hospital settings except for a short time spent at a blood donor center laboratory. These laboratories have been located within the same state but in varying cities.

Karen has been employed at her current location for almost 20 years and it is a large enough lab that she has been able to work in numerous departments and areas. At some point

during these last two decades, a department manager encouraged Karen to go back to school to pursue a degree in clinical laboratory science, which she did. Karen is optimistic about her future in the profession as she hopes to retire in the near future

#### Megan

Megan began her clinical laboratory science career over 30 years ago. Megan pursued several majors during college but eventually dropped out and was hired as a phlebotomist at a nearby hospital. Her position as a phlebotomist exposed her to the clinical laboratory which she found fascinating and led to her becoming a clinical laboratory scientist.

Megan has worked in numerous laboratories (she was uncertain of exact number) in a few Southern states. Her laboratory experience is more diverse than most other participants, she has not only worked in several hospital and reference laboratories but has spent a few years employed in physician office laboratories. Several years ago Megan left the laboratory to pursue a career outside of healthcare for a short time but then she returned to the clinical laboratory. Currently, she works only in the hematology department and is optimistic about her future as she nears retirement.

#### Phoebe

Phoebe has been in the clinical laboratory profession for about 15 years and began her career as a clinical laboratory technician. Phoebe planned to go to technical college and knew she wanted to pursue a profession in healthcare but was uncertain as to which one. She browsed through the college catalogue looking for a healthcare profession that offered limited patient contact yet offered opportunities to solve problems. The description of the clinical laboratory technician program met her criteria so she selected to enroll in that program.

Phoebe has previously worked at two other hospital laboratories and one reference laboratory. Unlike the other interview participants all of Phoebe's positions have been located within the same large city. Phoebe started her career in the microbiology department but has spent the last decade being a generalist working in all departments.

Within the past decade Phoebe decided to go back to school, while working, to become a clinical laboratory scientist. Phoebe was persuaded to do this once she was awarded a fellowship that paid for her school expenses. Even with her new credentials Phoebe is not optimistic about her future as she feels her advancement opportunities in the clinical laboratory are limited.

#### Stephanie

Stephanie is a clinical laboratory scientist who has been in the profession for nine years, but only employed as a practitioner for three years. Stephanie started college as a marine science major but decided to expand her options. She found the description of the clinical laboratory science program in the college catalogue to be interesting and decided to take the introductory course at which time she decided it was a good career fit for her.

After being in the field for two years, Stephanie decided to pursue a doctoral degree in immunology. Six years later, after obtaining her doctorate, she returned to the profession which she describes as the perfect career for her. Prior to graduate school Stephanie worked in a large hospital laboratory in the immunohematology department. Since graduate school she has moved to a different state and works as a generalist on night shift. Currently, Stephanie is optimistic about her profession and feels certain she will continue to find it satisfying.

#### Summary

Eighty demographic questionnaires were sent to laboratory managers of three hospitals in the Southeast. From these 80 questionnaires, 34 were completed and returned at which time they



were reviewed for variation in gender, years of experience, departments routinely in and optimism about future within the profession. From these 34 questionnaires, 10 clinical laboratory practitioners were selected for the interview process with one being purged during data analysis due to extended absence from the profession.

Of the nine practitioners interviewed, all possessed certification, with more than one year of experience, had minimal supervisory duties if any, and are employed full-time. Eight females and one male were selected (a second male was excluded). Two participants had 2-10 years of experience, another two had 11-20 years, and the remaining five had 20 years or more years of experience. One participant currently works in the immunohematology department, two work in hematology departments, another two work in clinical chemistry departments, and the remaining four are generalists (indicating that they work in two or more departments). The majority of participants (six) were optimistic about their future in the clinical laboratory science profession while three were not.

An introduction of each interview participant was provided. Information found within the introductions included years of experience, entry pathway into the profession, summary of career to date, any absences from the profession, and any educational advancements. Within the interview participant demographics there are some commonalities yet it is the differences between practitioners that make their experiences unique.

## CHAPTER 5

### RESULTS AND DISCUSSION

#### Introduction

This chapter presents the results of this qualitative narrative research study. The six overarching themes, including supporting narratives, which were generated from this study, are presented. Followed by a discussion of how the results relate to the elements of narrative identity theory, the theoretical framework that guided this study.

The purpose of this study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). The study collected the perceptions (thoughts, feelings, opinions) and experiences of clinical laboratory practitioners in order to explore their identity narratives, their definitions and descriptions of their profession, and their perceived role in healthcare. This study proposed that analysis of these narratives would provide clinical laboratory science educators, others in healthcare, and the larger public a better understanding of the contributions clinical laboratory practitioners make to the healthcare system. A better understanding of these contributions could change the practice and policy of current recruitment into the clinical laboratory science profession and retention of those in the profession.

The study was guided by the following research questions:

9. What identity components are expressed by clinical laboratory practitioners?
10. How do clinical laboratory practitioners describe their profession?
11. What are clinical laboratory practitioners' perceptions of their role in healthcare?

12. What are clinical laboratory practitioners' perceptions of the major influences that have shaped the profession?

#### Generated Themes

The six overarching themes from this study include: (a) changes within the profession, (b) entry pathways into clinical laboratory science profession, (c) lack of awareness, (d) being misunderstood by fellow healthcare professionals, (e) retention issues, and (f) role and value of clinical laboratory practitioners. These themes will be presented in alphabetical order with a few selected narratives from interview participants, as it was not possible to include all the narratives collected.

#### *Relationship to Purpose and Research Questions*

The relationship between the emergent themes and the purpose and research questions are demonstrated in Table 5.1. This table, a continuation of Table 3.1, presents the association between the purpose of the study, research questions, theoretical framework, interview questions, and overarching themes. The table is a visual representation of how the overarching themes corresponded to the interview questions which were developed from the research questions that originated from the purpose of the study.

#### Changes Within the profession

All participants discussed various changes they had experienced since entering the profession. The majority of narratives focused on either increased safety regulations or advances in clinical laboratory science. Barbara, who has been in the profession for 40 plus years, discusses her experiences before strict safety regulations:

I remember mouth pipetting and getting picric acid in my mouth, it wasn't a specimen thankfully, but oh man it tasted so bad. I was splashing water in my mouth and then went

Table 5.1

*Relationship to Purpose and Research Questions*

Theoretical framework	Purpose	Research questions	Interview questions	Six overarching themes	Findings
Nuclear episodes; Imagoes; Ideological setting; Generativity script; Thematic lines; Narrative complexity	How CLPs view themselves.	1. What identities are expressed by CLPs? 3. What are CLPs' perceptions of their role in healthcare?	Describe your career to date as a CLP. Describe your role of CLP as a member of the healthcare team. Tell me about any experiences or stories in which you as a CLP made a difference in the life of a patient.	Entry pathways; Being misunderstood; Retention issues; Role and value	Misunderstood; Vital
Nuclear episodes; Imagoes; Ideological setting; Generativity script; Thematic lines; Narrative complexity	How CLPs view their profession.	2. How do CLPs describe their profession? 4. What are CLPs' perceptions of the major influences that have shaped the profession?	Tell me about the changes you have seen in the profession since you began your career. Tell me how you describe your profession to others. Tell me about any experiences or stories in which you as a CLP made a difference in the life of a patient.	Changes in profession; Lack of awareness; Role and value	Vital; Unknown

*Note.* CLP = clinical laboratory practitioner.

down and got milk from the cafeteria... I sometimes wonder how I'm still alive. We didn't have HIV back in the 70s, at least we didn't know we did, but we sure had hepatitis and other things. I'm thinking golly all those slides [peripheral blood smears], all those million of slides that I made, you take the top off the tube [of whole blood] with a piece of gauze and after awhile it got blood all over it, it was all over your fingers and no gloves. Just all the things we use to do and I'm thinking golly I was lucky.

Other increases in safety regulations, shared by participants, included the discontinuation of smoking, eating and drinking in the laboratory. Another shared safety trend was the transition to disposable laboratory supplies such as cuvettes, slide and test tubes instead of washing and re-using. Finally, there has been a dramatic increase in use of safety devices for phlebotomy, such as disposable equipment instead of the glass syringes that Megan recalled washing and reusing.

Another major change in the clinical laboratory has been the advancement of test methodologies, instrumentation, and computers. Colleen shares an example of the evolution of a diabetic monitoring test known as hemoglobin A1C:

Here is a good example of one, hemoglobin A1C. When I first on started chemistry day shift they [hemoglobin A1C tests] were ran in special chemistry, and it was a batch test so you did a batch every couple of days ... and special chemistry had to have their own tubes [of blood to perform the test]. Then we [routine chemistry] took it over on the DXE's [automated clinical chemistry analyzer] and we would have to have whole blood and then we would take 1mL of hemolyzing reagent and then add 10 $\mu$ L of sample ...we were doing them 24/7 but we put it as four hours of turnaround time, one hour if you want stat.... Now the hemoglobin A1C is performed on the Sysmex [automated hematology analyzer] after it does the CBC [complete blood cell count] it pipettes its

little point nothing sample and runs the test. And so ... that test alone has gone from two or three times a week to a two minute test. That is a big change.

Other advancement narratives included the introduction of automated specimen transport and processing systems, advances in instrumentation such as a decrease in their physical size and volume of specimen required, the development and implementation of laboratory information systems, and the increase in the number of diagnostic tests performed in clinical laboratories.

#### Entry Pathways into Clinical Laboratory Science Profession

Participants shared narratives explaining how they learned about and entered the clinical laboratory science profession. The majority of participants entered the profession because they found it interesting or fascinating such as Barbara:

Originally, like 40 years ago (laughter), actually 40 + years when I was senior in high school we had to do a report on a profession that we knew nothing about. I went to the library, and I worked at the library because I always liked to read, and I just started looking at the section that had professions and there was one on medical technology and I thought, what in the world is that? I got it, read it, did the report and thought it was very interesting. And later that same year those of us who wanted to had the opportunity to go to Smith University ... and were allowed to go talk to the advisor of several different professions but I went and spoke with a guy who was the advisor for medical technology because I really was interested.

Another popular motive for entering the profession was exposure to a clinical laboratory or clinical laboratory practitioner. For example, Colleen entered the profession due to exposure to a clinical laboratory setting:

I was a candy striper at Smith Regional Medical Center ... and I started at 14 and we were allowed to push people in wheelchairs and we would deliver samples. When I would go to pick up a sample sometimes they told me to come inside [the clinical laboratory] to get the sample and when I walked inside I saw the ... purple tops and the blue tops and the red tops [various tubes for drawing blood] and ... I asked what are these things for? Any spare time that I had I would go in the lab and just look, and I looked at the analyzers and I looked at all the cute little cups and I just feel in love. I was already working as a photo lab technician a couple of days at a mall and so I was already working with analyzers but they developed film so I was getting that background in machines and so medical lab technology was a step up.

Other motives for entering the clinical laboratory science profession included seeking a job in a medical profession, having a family member in a medical profession, a desire to help people and a desire to have limited patient contact. Some participants discussed only a single motive for entering the profession while for others it was a combination of motives such as Isabel:

I knew I always wanted to do something in the medical profession. My mother was a LPN and she always worked in nursing ... and I knew I always wanted to do something in the medical field. I knew I did not want to do anything where I had a lot of patient contact because I'm not really a big people person. I did not think I would deal well with sick people all the time.

#### Lack of Awareness

One of the first patterns (code) to emerge was a lack of awareness of the clinical laboratory science profession. Participants shared that frequently they have to describe their role as it is so unknown therefore all participants had well rehearsed descriptions. For example,

Colleen described the typical reaction she receives when informing someone of her profession and her response to that person:

Are you a nurse? We all get that. And I just tell them “When your blood is drawn I’m the person that runs your blood so if you have a PSA drawn I’m the one that runs the test that tells you what your PSA is or if you have blood drawn for a HCG I’m the one that tells you by how much you’re pregnant or are you pregnant.” That is how Joe Blow understands it. That if you have blood drawn, I run the test.

Another example demonstrating that the public is unaware of the profession was told by Carolyn, who related the following experience at her son’s middle school:

I have gone to my son’s middle school, well he is high school now, but I went to their career fair 2 years and talked about what we do and brought posters and played a little game ... I wear my uniform and say “We are going to play a game, can anybody guess what my profession is by what I’m wearing?” Every time, “a nurse” and a big one now that they say in middle school “you work in a vet’s office” because they wear a uniform.... I would give them clues, “okay this is your first clue, I’m not a nurse, I’m not a doctor ... I don’t work in a dentist office.” And then they even say the same things over again, you know how kids are. And I would say “if you go to the doctor’s office and get your blood drawn, who do you think runs the blood test?” “A nurse”, is what they would say. And I would say, “I’m not a nurse” so then you would have to go on and explain it....

I don’t think I have ever had anybody that said you were a lab tech.

After playing this game with students Carolyn would spend time educating the students on the role of clinical laboratory practitioners.



Several participants shared with me experiences in which the public automatically assume practitioners are the same as nurses (as Colleen shared above) or phlebotomists. Clinical laboratory practitioners are trained in phlebotomy but are not often asked to perform routine venipunctures (Linné & Ringsrud, 1999). I inquired as to why participants believed clinical laboratory practitioners were often mistaken for nurses and phlebotomists and most responded that it was due to a lack of visibility. A narrative by James captures the sentiments of his fellow participants:

I don't think anybody really sees one [medical technologist], the person they assume is a medical technologist is the person that comes in and draws their blood; they think that person is doing all the lab work.... If I tell somebody that I'm a medical technologist, they ask "You draw blood?" I think they are confused, everybody knows what a nurse is because people deal with nurses all the time.... I think it is confusion, like they [patients] just think one person does everything, like the phlebotomist that is the person they see as the laboratory so that is why they think that person is doing everything and they don't understand.... I think it is just lack of information.

#### Being Misunderstood by Fellow Healthcare Professionals

Many participants stated that fellow healthcare professionals do not understand the role of clinical laboratory practitioners. This lack of knowledge can lead to negative interactions between clinical laboratory practitioners and other healthcare professionals, most often physicians or nurses. Phoebe shares a narrative about a negative interaction with a physician:

I was in chemistry and I had a specimen on a baby that they [healthcare providers] wanted a slew of tests on but they only sent me one bullet [blood container used when collecting from babies] and it was only half full. Well as you know with babies they have

high crits [hematocrits] so you don't get very much serum off of one bullet. I did the absolute best that I could, I tried to run it, I got what results I could get off of it and I called and spoke with the floor and I explained to them "I don't have enough, could you send me two more bullets?" They sent me two, but they didn't fill them, and I still couldn't get all the tests that the doctor wanted and I called them back and apologized. I said "I was able to get X, Y, and Z tests done but I couldn't get these other ones done because I just don't have enough [sample], the analyzers require a certain amount." I explained to them that I did the absolute best that I could. Well the doctor physically came down to the lab, walked into chemistry and asked why he couldn't get those [tests] done, and I told him and apologized. He wasn't real happy and he of walked off and went to the door then he turned around to me and I said, "I'm sorry can I help you again?" He looked at me and said "well I guess we will just have to do a cardiac stick on the baby" and he was mad. And I'm sorry I can't help that, he was just being sarcastic and mean and just wanted to get his last dig in before he left the lab.... They just don't understand, you try to explain it and they don't want to hear it.

Karen shared another example of a negative interaction with a physician:

Oh, like the time the doctor said you are just a med tech. It was when I was in client services [a centralized area in which healthcare providers and patients call to inquire about laboratory testing and/or results] and I wish I could remember the specifics of what she had called for or called about but I'm trying to explain it to her and she wouldn't listen and finally she just blurted out, "What do you know you're just a med tech!" You are calling about laboratory tests, this is what I do. That would be like me questioning [you] and I was just so stunned I couldn't say anything. But it made me feel really

diminished that she didn't have anymore respect for the profession or for me. Who else who were you going to call with this question? You didn't know it or you wouldn't have had to ask but that definitely was a humbling moment.

Colleen, who routinely works in the clinical chemistry department, shared that many of her negative interactions with nurses are due to having either hemolyzed or contaminated specimens, which must be recollected. However, she is often asked to report the results even though they are inaccurate because the nursing staff does not understand how hemolysis or a contaminant will interfere with the testing. She went on to discuss her frustration:

I think they [nursing staff] don't quite understand the concept of it is an all or nothing thing, if your sample is a bad sample such as hemolyzed or contaminated, then not just the chloride is a good result, everything is bad. I have explained it to the nurses as if you have a cup of diet coke with ice in it and then someone poured urine in it. You just can't pull out the diet coke part of it if you've got urine in it. Do you really want to try drinking that? Well that is what you are getting from those results; you got bad stuff in there. And they are like, "oh, I get it now." But there are those [nurses] that say "Can't you just give it to us anyway, can you just tell me what it is?" They want accurate results but then they don't want to have to re-draw, they don't want to have the patient re-stuck or come back in.

Another pattern noted in this theme was that healthcare providers will falsely accuse the clinical laboratory of errors due to their own misunderstanding of clinical laboratory testing or the role of practitioners. For example Phoebe shared the following experience:

I just thought of another incident that happened recently where the ER had sent me a sample and I got some crazy chemistry results on it. I called down and questioning them,

“Could this be a mislabel? Is there another patient who has these clinical symptoms or do you feel like it is contaminated, does the patient have an IV?” Long story short, I spoke directly with the doctor and they sent me a recollect and of course the results were drastically different and I called him back to let him know and he said, “Well I know it is something you did down there.” I’m like “excuse me” and he said “I just tell them [patients] it is a lab error.” I said, “Well that is really not fair, I cannot reproduce these types of results unless X, Y and Z happened so I don’t really think that that’s fair to say that”... as I get older I get a little bit more bold. He said, “Well every time that I send you a potassium result and its low and I send you a recollect its fine, so I know it is something that you are doing with the analyzers or the results down there, I got my normal chemistry results so I’m just going to leave it at that.”

Another example was given by James in which the lab supposedly lost a patient’s tube of blood:

Oh, when the lab lost the tube and what really happened is they [other healthcare professional] drew it and put it into the [pneumatic] tube to send it to us and never sent it. So it sat there for 4 hours and they hadn’t spun it down so when it got to us, it was hemolyzed or the values were way off. And we had to draw another sample and the patient was like “Why am I getting stuck again or why am I not going home?” The reply being “Oh, because the laboratory lost your tubes.”

Some participants delved further into the misunderstood topic by offering suggestions to help overcome this lack of knowledge. For example, Phoebe feels that other healthcare professionals should receive more education:

I think we are too tucked away, too behind the scenes and I also credit that to being partly because of how all of the other programs, nursing and radiology technicians and even

doctors...are educated. They are not educated in depth in what we do. They know that there is a lab and when they order something they are going to get their result but they don't realize what all goes into getting that result, they are not really educated in that way. They might breeze through the lab for a couple of days during their rotations or whatever but it is not anything like it should be. I think other programs could do a better job of explaining what we do and what our role is.

### Retention Issues

Within this theme of retention issues are two sub-themes, reasons for staying in the profession and reasons for leaving the profession. Practitioners provided several reasons for both, staying in and leaving the profession. I will begin with the reasons provided for staying in the profession. One of the more common motives compelling them to stay is opportunities to continually learn new techniques and new concepts. Stephanie, who left to pursue a doctoral degree but returned, shared her reasons for staying:

I love it ... it is a really good personality fit for me. I like organization and I like having rules and following those rules, I love that. I like having a procedure and following certain steps so if you see this then you do this. I like the absolute quality, like the black and white of positive and negative, that kind of thing. But I also have always really loved science and there is always so much to learn, a new technology or a new application of science, it is always growing and changing. You never get bored, there is always something new, there is always a new instrument in the lab or a new procedure for something, it just never gets old.

Others examples of learning opportunities, shared by participants, included routine educational sessions held by pathologists and continuing education offered by the hospital.

Another prominent reason shared by many, compelling them to stay in the profession, is a feeling that their role is valuable. For example, Megan did leave the profession for a few years but returned, and has stayed because:

My husband is a food salesman, retired food salesman and we just got married 2 years ago ... I can see the importance of his job, selling to schools and restaurants, but I think my job is more important. I don't want to tell him that but I think that healthcare is more important because of the fact that we are saving lives. I think we are and that keeps me in this field.

Some practitioners shared that knowing, on a daily basis, their role is valuable and that they make a difference in the life of a patient or family member is an internal reward that validates their career selection.

Other reasons for staying in the field included opportunities for advancement. For example, one reason Phoebe has stayed is that she is now evening/night shift coordinator. Another reason is the availability of positions, Barbara and Karen shared that they have never had difficulty in obtaining a position and Barbara is currently in her ninth position. As Colleen and Karen mentioned having opportunities to move around within the clinical laboratory is another reason. In addition, Isabel mentioned that positive interpersonal relationships with other practitioners have kept her in the profession.

There were numerous reasons as to why the clinical laboratory practitioners interviewed have considered leaving the profession or a position. Several practitioners have considered leaving because they were not being challenged or had limited advancement opportunities. Carolyn shared her reasons for leaving a position:

When we moved to a Southern state, I worked in a hospital in blood bank on day shift.... I only worked there for about 6 months, I didn't like it and it was not challenging. If you had an antibody you had to send it out to the reference lab, if it was a simple antibody you could probably work it up, we only had 2 panels. And I was the only tech in the blood bank of a 400-bed hospital. They had a sister hospital that did a lot of their reference work ... so in this case, it was a small lab but a big hospital, they didn't do babies or deliveries, another one of their sister hospitals primarily did pediatrics so we mostly had surgeries and traumas. Orthopedic surgery was our big thing so some bloods you used. We had a small cancer population at that hospital so I was bored because I couldn't work up any antibodies and that is what I had done where I use to work. I started looking for another job, so I found another job at another hospital in a neighboring city, it was a 400 bed hospital, but they did everything ... so this was more challenging for me.

Frustration from being misunderstood by other healthcare professionals is why Phoebe has considered leaving:

I think what frustrates me the most about the profession is that no one else understands what it is we do. The doctors don't understand what goes on down here, the nurses certainly don't understand and anything that goes wrong with a lab specimen is our fault. They don't understand that it happens on the draw, the collection end, and all the processes that can occur and this too is a very thankless job. And I think it's thankless only because people just don't understand what we do.

Another reason for leaving the field is family issues, for example, Carolyn's husband traveled a lot and she considered leaving to find a job with more flexibility and reasonable hours. In

addition, Barbara considered leaving when she was felt devalued through a demotion due to downsizing.

Participants shared a few negative aspects about the clinical laboratory that may influence others to leave the profession. Foremost is the lower salary of clinical laboratory practitioners in comparison to other healthcare professionals. Carolyn shared an interesting narrative about her husband's profession and salary:

I think that one thing is the salaries haven't increased with your experience and knowledge, not enough.... My husband graduated from a college after I did and he went to school after we got married. He is in IT and makes tons more money than I do and I've been working 27 years and he's only been working in IT since 1994, no he graduated in 96, he makes \$40,000 more a year than I do. How bad is that? And you would think a healthcare professional would be more important than somebody that works in IT.

Two participants shared stories of fellow practitioners who were fired due to inappropriate practices whose actions might influence younger practitioners, such as Barbara's experience:

There was a young man who was a medical technologist and I always wondered how he could get his differential and other things done so quickly, I can't even begin to get one done in that little amount of time. Then one day there was a question about a chemistry that he had performed, whether or not he had repeated it or something about the answer, so the supervisor didn't really involve me, but our supervisor got to investigating and pulling instrument print-outs and discovered that he never ran it in the first place. It had never been run and he had reported a result. He had made it up and reported it. And he was confronted and he did not deny it and was fired on the spot but it always made me



wonder how many of those differentials did he just make up. And it was unbelievable to me that anybody who had gone through a medical technology program would do that. According to participants, other reasons why practitioners might leave included hostility in the workplace, exhaustion due to being overworked, practitioners not working together as a team, and the demands of administrative duties.

### Role and Value of Clinical Laboratory Practitioners

Participants were extremely forthcoming with narratives demonstrating the role and value of clinical laboratory practitioners, the last theme. One pattern found within this theme was the belief practitioners have that they are making a difference in the life of a patient or family. For example, Carolyn shares an experience of a patient recognizing the difference practitioners made in her life:

When I worked at a big teaching hospital, we had a lady that came in, I know for a year, to have a plasma exchange. And, I even remember her blood type, AB positive, because we had to always order AB plasma everyday she that she came in. Everyday for awhile, then of course it would wean to like 2 days a week, 3 days a week, for a year. The lady came to the blood bank to meet everybody because she wanted to thank us for helping save her life. She said, "If it hadn't of been for you people thawing all that plasma and getting it ready for an apheresis nurse to give me the exchange I wouldn't be standing here today."

Stephanie shared an experience in which she hoped she made a difference to the family of an extremely ill child:

When I was at Smith Hospital there was a little boy that had graft versus host disease. We washed platelets for him every single night, for a year, every night I washed platelets for

that little kid. And we would write him birthday cards, and Valentine's cards, and whatever and we would attach them to his platelets and I don't know if he was ever even conscious enough to look at that. Actually his family, on his birthday, when we put a birthday card on his platelets, his family called the lab and said, "thank you" so that was nice, so they noticed but I don't know if he noticed. I was just heart broken when he died, I was just so sad, I never even saw the kid and I was so sad that he didn't make it.

Stephanie shared another experience in which she made a difference:

There is a doctor office nearby that does an after hours clinic and they send patients here to have their blood drawn at all hours of the night. We had this one man come in, he kind of shuffled in and he is breathing so hard, so hard, he just couldn't catch his breath. And we drew some lab work on him, his d-dimer was sky high, and we're like this man probably has a pulmonary embolism. So we called the doctor but not only did we call the critical result to the doctor, we went out to the parking lot and made the patient stay in the ER because it would have been ridiculous for him to go home, the doctor trying to catch up with him, getting him to come back to the hospital to go to CT. So, me and another girl made the patient stay because we knew what that lab value meant, that he should not leave the hospital. I was kind of proud of that night.

Barbara shared a personal experience in which she made a difference in her father's life:

My dad has to have a protime done because he is on Coumadin, he has a very bad heart. And he always comes here and I draw him when they are here [in this state]. This was several years ago I drew a lavender [blood tube] and I would do that periodically since it is my department and I would run it. Over that winter I kept noticing that his platelet count kept going down and his neutrophil to lymphocyte ratio kept getting out of skew.

So when they were due to go home for the summer, and they always got a physical when they got home, I told my mom to make sure to mention to their doctor that I had been doing this and that his platelet count was going down....She did and he [doctor] did some testing and I was right so he ordered a bone marrow and discovered that my dad has lymphoma. It is the non-Hodgkin's slow growing kind but I was proud that if it had not been for me he would not have been diagnosed as early as he was.

Another recurring pattern within this theme was the belief clinical laboratory practitioners have of being valuable. Karen shared her thoughts on the value of practitioners:

I use to enjoy if I had to call Quest Diagnostics, it was our referral lab for the hospital, and you were holding listening to the music. Every once in awhile they would break in and they would say "Do you realize that most physicians say they base their decisions for treatment and diagnosis 75% of the time based on lab results?" And, I thought that is a good thing to know. That makes you feel okay ... I think a lot of times the lab doesn't get the recognition that we are an important part of the puzzle. We are not all of it, but we are a big part and I think we are an invisible profession in a lot of ways.

A final recurring idea pertained to instances of perceived recognition or respect from fellow healthcare professionals. For example, Karen shares a narrative about her colleague receiving recognition:

This is such a great example of somebody ... not just churning out results. Small community hospital, she got some samples from a patient in the emergency room, and when she spun down the chemistry sample she noticed that the serum was really icteric. Well they had not ordered a liver profile but she went ahead and ran it. The ER doc called and he said, "I just don't understand what I am seeing?" And she said, "Well I noticed the

patient's serum was icteric and I ran a liver profile, would you like me to add that to the computer ... I think you probably want to look at these results." And, that doctor wrote a commendation for her. He said, "She helped me diagnose this patient, I might have missed what was going on if she hadn't noticed that serum and had done that additional testing." And, I thought that was such a great story because it was one of those times that the doctor didn't say "what are you doing running tests that weren't ordered". He said, "thank you, good catch, thank you for covering my butt".

Carolyn shared a more global experience of recognition:

There was a house fire and there were like 15 people involved and it was Christmas Eve and the ER at that time drew all their specimens.... They needed extra staff and ... asked if volunteers from the lab would come down and help them draw because they were overwhelmed.... Well it had been a while since I had drawn patients but I said, "I will go to help, I don't know if I could draw an infant anymore but give me some adults maybe teenagers." Several people from the lab went down to help them ... and it was rewarding to know that you could help even though it wasn't your job anymore to do it [drawing patients]. Also, the director of the ER had called down to the director of the laboratory thanking the lab that we had helped out when they really needed it.... It is nice to know that somebody else from another department was thanking your department for going the extra mile when they needed help.

#### How Results Relate to Elements of Theoretical Framework

Narrative identity theory was the theoretical perspective selected to guide this study including data analysis therefore while going through the thematic analysis process I attempted to find themes or patterns relating to the components of a life story as proposed by McAdams

(1988). The first component of a life story is nuclear episodes which are key scenes or events that occur during the life story. The key events collected during the interview process included events that led the participant into the profession and events that persuaded the participant to stay or leave the profession. Both event types are potential turning points in the life of the participants.

Events leading a participant into the profession relates to a theme that emerged, entry pathways into clinical laboratory science profession. For example, the key event that introduced Carolyn to clinical laboratory science was attaining a phlebotomist position within a hospital:

When I was in high school, in the church that I attended there were 2 girls, 3 years older than me, and they worked in a laboratory at the hospital in my home town. They got me interested in becoming a phlebotomist when I was in college because I would see them at church and I knew they were going to school for ... an MLT type program and so one of them got me a job at the hospital. She put in my name so I could interview to be a phlebotomist .... While I was a phlebotomist at the hospital I was working at, I got interested in becoming a medical technologist.

Another example would be the key scene between James and his microbiology professor which led him into the profession:

I had a professor in college when I was in microbiology and I helped him prepare media .... He always said “you got a knack for cooking” and [at the time] I worked in a restaurant .... He [microbiology professor] said “You really seem to enjoy working in the laboratory, my sister is a medical laboratory scientist or medical technologist and she worked in the laboratory for a few years.... He said it seemed like something that I might like to do and I always kept that in the back of my mind. I got a biology degree and I really didn’t know what to do with it ... I applied to a couple master’s programs but was

not really interested in doing that ... and I really needed to find something to do.... My wife was in another state and so she wanted me to be closer so I told her I was interested into looking into medical technology and she found a couple of schools in the area.

During the interviews, some participants shared key events or scenes that had persuaded them to consider leaving the profession while some events validated their career selection.

Stephanie provided an example of events that persuaded her to leave the profession to attend graduate school:

I worked for 2 years on evening shift as a blood bank technologist .... In blood bank you tended to talk to doctors a little more than you do in the other departments. I didn't feel very respected because I was just this 22 year old little blonde girl and doctors were like "I'm the doctor, I know what I'm talking about" but really I was the expert there and knew what [blood bank] products would be appropriate for their patient and not them. I was thinking how do I get more, not respect necessarily, but how do I make my opinion weigh more for the physicians. So I wanted to go to graduate school and the point was to eventually move up to lab director or something, so that I would be on a professional level with these physicians and they would respect what I had to say more.

Colleen provided an example of an experience, a brief time employed at a rehab hospital, which validated her career choice:

I was an on-call tech at the rehab hospital and as an on-call tech you would have to come in and draw a whole slew of tests ... and so you would come in when these people were first admitted.... Some of them were strokes, some were children and to see them when they first came in and then consistently see them on the weekends and when they were discharged and I got to tell them, I said "I'm really happy that you ... are better because I

remember when you came in and you were a mess.” You get to see how they progress and see how they are doing better.... I guess phlebotomists get to see that a lot, that they see them from the beginning when they were a mess and when they leave. To me that is definitely validation.

The second life story component, imagoes, are personifications of self or the main characters the narrator denotes upon him or herself during their life story. The most prevalent imago gathered from the interview data was that of valuable member of healthcare team.

Phoebe shared her thoughts on her role as a clinical laboratory practitioner:

We are vital. I say all the time, “What would a hospital do, what would the doctors do without a laboratory?” They would wait more than 2 to 3 days for their results and they couldn’t acutely treat anybody. What would they do without their lab results, they have to have those. We are the core of all of the clinical decisions that are made, because you cannot really make a clinical decision unless you have some kind of information to make them with. They [doctors] have to have laboratories and that is why I get so frustrated that we are treated the way that we are by them because we are vital but they don’t get it.

Beyond vital, participants described their role as core, important, integral, and valuable.

Other imagoes were found within the interview text although they were not the prominent idea or theme of that narrative. First, four participants mentioned teaching, either in a clinical laboratory technician program or training clinical laboratory students and new practitioners within the laboratory, thus these participants did have a teacher personification. Second, a few participants revealed that they were hard workers, such as Stephanie who discussed experiences in immunohematology when patients required massive quantities of blood products within a brief

period of time. Last, three participants view themselves as future retirees and briefly discussed how many years they had left until retirement.

Ideological setting is another component of a life story and McAdams (1988) defined it as “a backdrop of belief and value which situates the action of the life story” (p. 247). As I analyzed the data, I discovered basic values and beliefs that were found within the backdrop of the narratives. There were several beliefs shared by all or the majority of the practitioners. First, clinical laboratory practitioners believe that their role is valuable and significant. Stephanie shared her thoughts on the significance of her role:

I have a lot of confidence that I'm going to give out correct, accurate test results.... Then when those results come out, not everyone thinks beyond that point when the results go out, the doctor is going to treat that patient based on those results. He [the doctor] is going to give them [the patient] the right dosage of vancomycin and he is not going to take them to cath lab if their troponin is not 20 and stuff like that. I get comfort knowing that, at least, the results I put out the physician is going, hopefully, to base appropriate treatment for that patient.... I know that someone is getting appropriate care because I'm doing a good job.

A second belief is that the profession is invisible. Karen explains why she believes there is a lack of awareness of the clinical laboratory science profession:

I think it is because what we do is so behind the scenes. The nurses are so visible, they are front line patient care. For most people the lab is the person who comes and draws their blood and like I said we are so behind the scenes. Even more so than, at least the people in radiology do have contact with the patient, they are taking the x-rays or doing the studies or whatever. But, our patient contact is very limited and I think that lends



itself to us being not quite as high visibility.... We are like the little man behind the curtain in the Wizard of Oz, a lot of people don't know we are there but still try and do it without us.

Practitioners had various reasons for believing that the profession is unknown, many agree with Karen's explanation, but all agreed that they part of an invisible profession.

Another common belief is the belief of being misunderstood by fellow healthcare professionals. Six of nine participants specifically mentioned that fellow health professionals do not understand their role. Karen shares an experience that is a primary example of being misunderstood:

I was on evening shift, I received some specimens, and the hospital was small enough that I was the only tech there.... I ran the specimen that they [the ER] had sent me and they explained to me that the doctor had to draw it from ... [a blood vessel in] the neck ... and I was getting results that made absolutely no sense. I walked around to the ER and I tell the ER doctor, "I don't even want to report these results because they are just so out of whack, I don't even feel like the patient should be charged for this." Well the patient died and we never did resolve the issue. I got written up by the nurse in the ER because I refused to report the results. Even though I explained in detail, these results don't make sense the specimen is contaminated or something and she kept saying the doctor drew it.... They didn't bother to explain why I wasn't reporting results, I said "I'll be glad to hand you the print-outs so you can look at them and see they don't make sense but I am not going to report these." And, that probably ties into the times when you think maybe I should thought of another career.

A final common belief is that of an evolving profession or a profession that has undergone changes. Several practitioners, especially those who had been in the profession for more than 10 years discussed advances in safety regulations and technology. For example, Megan has experienced many of these changes:

When I started out I remember glass syringes ... and we did not wear gloves and we ate in the lab. I remember Ms. Smith ... she smoked in the lab, she had her own little seat and her ash tray right by her microscope. It was her seat, her corner, and she smoked right there while doing differentials.... We had a big old computer that was huge and computers have changed.... The volumes of blood that we need now ... it would take 1mL of serum to run what would take 10 $\mu$ L now.... There are tests now that weren't even thought of to do and the specialty tests that are done now in the hospitals that were sent out to Mayo clinic [reference laboratory] ... there has been a lot of changes.

Technology continues to advance therefore clinical laboratory practitioners will continue to experience changes throughout their career.

Generativity script is the fourth component and includes the plans a narrator makes for future generations or thinking about the legacy one is leaving behind for the future (McAdams, 1988; 2001). Interview participants did not provide data that related to generativity script other than a few participants mentioned approaching retirement but did not elaborate. The lack of data related to generativity script is due to the absence of direct interview questions about future plans or legacy one hopes to leave behind.

Thematic lines, the fifth component, are recurring content clusters that center around the motivations of intimacy (feeling close) and power (feeling strong) (McAdams, 1988). Intimacy motivation is the desire for experiences of close or warm interactions with others (McAdams;

1988). From the data, clinical laboratory practitioners have low motivations for intimacy at least within their work setting. As indicated in the overarching theme, entry pathways into the clinical laboratory science profession, one motive for entering the profession is limited patient contact, indicating a desire for limited intimacy with patients while at work. However, this does not indicate a desire for no intimacy as Isabel shared positive interpersonal relationships with her fellow practitioners is one reason she has stayed in the profession.

Power motivation is the desire for experiences of feeling strong or having an impact on the situation (McAdams, 1988). I believe that within the thematic line of power is a struggle between practitioners belief of having power to impact the situation yet they also believe their power is misunderstood by others. Specifically, within the overarching theme of role and value of clinical laboratory practitioners was the pattern that practitioners believe they do make a difference in the life of a patient or family member thus the belief of having an impact on the situation. However, practitioners believe that their power and value is misunderstood by fellow healthcare professionals. Colleen explains:

I think that the ones [other healthcare professionals] that maybe have some kind of inkling or understanding of what the lab does they value it, but if they have no clue then I think they don't understand it therefore they do not understand the value of it.

In essence, clinical laboratory practitioners believe that they have the power to make a difference yet this power is not recognized by other healthcare professionals because they don't understand the clinical laboratory science profession.

The final component, narrative complexity, is the structure and organization of life stories. Life stories can be organized simply around a few basic plots with few characters or they can be highly complex with multiple plots and characters. Identity development is related to the

complexity of the story and as such a more complex story leads to a more developed or complex identity (McAdams, 1988). For example, compare the most novice practitioner James to the more expert practitioner Barbara. Barbara's interviews lasted much longer than James because she had many more experiences to share and they were more complex therefore from her narratives I was able to learn a great deal more about her identity because it was more developed. Whereas, James has only a few simple experiences to share thus from his narratives I felt his identity was still being developed. This example demonstrates that identity does develop with story complexity.

### Summary

This chapter focused on the results and discussion of the narrative component of this study, the interviews with clinical laboratory practitioners. The overarching themes that were generated from the data were presented including several narrative excerpts that corresponded to each theme. Then, the relationships or connections between the overarching themes and the elements of narrative identity theory using the life story model were discussed.

## CHAPTER 6

### IMPLICATIONS FOR PRACTICE

This chapter is organized into six major sections beginning with a summary of the research study followed by an overview of the problem, purpose and research questions. The next section contains a discussion of how the results relate to the original problem and purpose of the study. The following section provides possible avenues in which to use the outcomes of this study to alleviate the clinical laboratory personnel shortage through increasing student recruitment and retention of practitioners. The fifth section provides recommendations for further research studies which developed from the findings of this study. The last section contains my reflections upon my first major research endeavor, including what I have learned and what I would do differently.

#### Summary of Research Study

This qualitative study used narrative research to better understand the personal and professional identity of clinical laboratory practitioners. Narrative research was selected because it is often used to learn and understand more about identity, which corresponded to my research purpose and questions. Narrative research allows researchers to focus on the content of the stories people tell in order to better understand their experiences (Rossman & Rallis, 2003). The theoretical framework selected for this study, McAdams (2008a) narrative identity theory, suggested that these experiences can be collected and used to understand the participant's identity.

Prior to beginning the study, approval was obtained from the University of Georgia Institutional Review Board to proceed with this doctoral research study in late fall of 2009. Next, a validation team composed of four experts in the field of clinical laboratory science consulted on the demographic questionnaire and interview guide. Then 80 demographic questionnaires were distributed to three laboratory managers in December of 2009.

Thirty-four demographic questionnaires were completed and returned from which 10 clinical laboratory practitioners were selected as interview participants. (One interview participant was eventually dropped from the study.) Attempts were made to sample a wide variety of participants so that a more comprehensive approach to understanding the professional identity of clinical laboratory practitioners could be obtained. The nine selected interview participants were introduced in Chapter 4. All participants were certified clinical laboratory practitioners, with more than one year of experience, had minimal supervisory duties, and were employed full-time.

Interview participants went through two interview sessions, the first occurring in early January, 2010, and the second three to four weeks later. Participants were interviewed individually in a private setting within the clinical laboratory and sessions were audio taped. The first interview sessions were transcribed before the second interview session to permit development of additional follow-up questions. Completed transcriptions were delivered to interview participants for member checking.

Data was analyzed using narrative thematic analysis which is a systematic approach of searching for themes and/or patterns within narratives (Reissman, 2008). Analysis occurred in five stages: (a) organization and preparation of the data, (b) obtaining a general sense of the information, (c) the coding process, (d) categories or themes, and (e) interpretation of the data

(Creswell, 2009). Analysis began in January, 2010, when the first interview sessions were transcribed, and was completed in March.

A minor, yet important, component of this research study included a background survey of healthcare providers. Healthcare providers that order and interpret clinical laboratory tests and their patients are greatly affected by clinical laboratory services. Due to personnel shortage some laboratories have resorted to hiring individuals that are not qualified and/or formally trained. It is uncertain whether healthcare providers are aware of this or of the formal training traditionally required (Mass, 2002). Thus, I conducted a brief survey of healthcare providers, physicians, physician assistants, and nurse practitioners, to determine their perceptions of the requirements (skills and training) of clinical laboratory practitioners.

Participants for the background survey consisted of a convenience sample of healthcare providers in local medical offices. Providers received a packet containing an informational cover letter, brief background survey, and preaddressed return envelope with postage. One hundred sixty-one background surveys were delivered to medical offices of which 87 surveys were returned for a response rate of 54%.

### Summary of Problem, Purpose & Research Questions

#### *Problem*

The clinical laboratory science profession is in a chronic shortage that is predicted to continue for various reasons such as upcoming retirement of a large portion of the current workforce, closure of numerous clinical laboratory science education programs, and poor retention of those currently in the profession. The literature includes substantial quantitative research on retention and personnel shortages. Multiple factors contributing to the shortage have been studied but identity (of any nature) has not been a primary factor.

From what I read in the professional literature on the clinical laboratory science profession I came to believe that there was a link or relationship between the personnel shortage and professional identity of clinical laboratory practitioners (Kotlarz, 2001; McClure, 2008). Limited literature exists on the possible linkage between the shortage and professional identity, perhaps because the topic is not sufficiently understood. Initially, I believed that the laboratory personnel shortage was exacerbated by a professional identity that is changing, inconsistent, underdeveloped or absent. These possibilities led me to design a study to determine if the professional identity of the clinical laboratory profession was changing, inconsistent, underdeveloped or absent. Prior to conducting the study, it seemed possible that my findings could indicate that the professional identity was a combination of these identities, none of the identities, or a new identity or identities could emerge. Another possible finding was that the personnel shortage was not exacerbated by professional identity.

### *Purpose*

The purpose of this study was to understand how clinical laboratory practitioners view themselves, their profession, and their professional identity, as represented through their narratives (experiences shared as stories). The study collected the perceptions (thoughts, feelings, opinions) and experiences of clinical laboratory practitioners in order to explore their identity narratives, their definitions and descriptions of their profession, and their perceived role in healthcare. This study proposed that analysis of these narratives would provide clinical laboratory science educators, others in healthcare, and the larger public, a better understanding of the contributions clinical laboratory practitioners make to the healthcare system. A better understanding of these contributions could change the practice and policy of current recruitment into the clinical laboratory science profession and retention of those in the profession.



### *Research Questions*

The study was guided by the following research questions:

13. What identity components are expressed by clinical laboratory practitioners?
14. How do clinical laboratory practitioners describe their profession?
15. What are clinical laboratory practitioners' perceptions of their role in healthcare?
16. What are clinical laboratory practitioners' perceptions of the major influences that have shaped the profession?

### How Results Address Problem and Purpose of Study

Initially, I believed that a link or relationship existed between the clinical laboratory personnel shortage and professional identity of clinical laboratory practitioners. More specifically, I believed the shortage was exacerbated by a professional identity that was changing, inconsistent, underdeveloped or absent. After completing this study I have found that the professional identity is not changing, inconsistent, or absent. Instead, three new identities or components of professional identity have emerged.

Initially, I believed that the professional identity of clinical laboratory practitioners was a changing identity indicating that practitioners believed their roles had changed since entering the profession. My results did not indicate that practitioners believe their roles have changed. Practitioners described their role as providing accurate clinical laboratory test results and all interviewed practitioners agreed that in essence their role has not changed. Yet several participants did indicate that their role has broadened, as new tests are being developed, and that their role may now be more important.

Another identity I proposed identity was that of an inconsistent identity indicating that practitioners had widely varied and possibly conflicting views of the profession. However,

results did not support this proposal. As indicated in the previous paragraph, all practitioners agreed on their role, which is to provide accurate clinical laboratory test results, and that their role is valuable or vital.

The next identity I proposed was an absent identity indicating that practitioners believed their professional identity was lacking or not yet established. Again, results did not indicate this to be the case. Practitioners did not indicate that their roles were lacking, and indeed many discussed that they believe their role is expanding and becoming more important, as new and better diagnostic tests are being developed.

The last identity I proposed was that of an underdeveloped identity in which practitioners had a nascent sense of their role but not certain they are fulfilling it. Data collected in the present study was unable to determine whether the identity of clinical laboratory practitioners is underdeveloped.

Data collected from this study did provide a better understanding of the professional identity of clinical laboratory practitioners, as three new components emerged that the profession is vital, it is misunderstood, and it is generally unknown. These components correspond to the three overarching themes that emerged including role and value of clinical laboratory practitioners, being misunderstood by fellow healthcare professionals, and lack of awareness.

The valuable and vital role clinical laboratory practitioners play in healthcare became evident from the narratives collected. For example, Megan discussed her role in liver transplants:

In hematology, we [practitioners] run the platelet counts and the hemoglobins to make sure they are not bleeding out. And in coagulation, we want to make sure that their [clotting] factors are sufficient and their hemostasis [blood clotting system] is sufficient

throughout the operation.... That patient is on a waiting list for this liver ... and that is a life saving operation and we play a part in that.

Another example of the importance of laboratory testing and those providing these services was shared by Stephanie:

We have a thing here called code NEURO and that is when we suspect a patient is having a stroke and we have to get those results to the physician within 45 minutes of the [blood] draw so they can give the proper anticoagulants or whatever the treatment is. If it is beyond that time period then whatever treatment they were going to give is going to be ineffective. So we [clinical laboratory practitioners] do have power to make a difference for somebody if we, I don't want to say if we chose to, but if you are on top of your game in hematology and you report the coagulation test results in that time period then you are making a difference.

Interview participants shared numerous narratives in which they believe they were making a difference in the life of a patient or family member by providing accurate and timely laboratory test results. Wolcott et al. (2008) described the value of laboratory medicine to healthcare as “laboratory testing has a major effect on clinical decisions, providing physicians, nurses, and other health care providers with information that aids in the prevention, diagnosis, treatment, and management of disease” (p. 2). Additional literature supporting the importance and value of laboratory testing and clinical laboratory practitioners can be found in Chapter 2.

Another component of the professional identity of clinical laboratory practitioners is that they believe their profession is misunderstood by fellow healthcare professionals. Karen shared an experience corroborating this component:

We had a physician on staff at the small community hospital that I worked at that whenever you heard his voice you just cringed because we did nothing right.... He didn't like that the [identification] panels were not being read out in microbiology as quickly as he thought they should. Never mind the fact that they have to sit a certain period of time before they can be read. He tried to coerce the microbiology tech into reading out a panel one time before it had been incubating long enough. He needed to know what that microorganism was and he needed it now.

This physician, regardless of his demeanor and personality, did not understand why he could not have the results by a certain time because he did not understand the testing being performed. A recent article suggests that medical students are not adequately educated or trained in laboratory medicine possibly explaining why participants had numerous narratives suggesting that their role and services are misunderstood by physicians (Smith et al., 2010).

The last identity component to emerge from this study is that the clinical laboratory science profession is generally unknown. Carolyn shared an experience demonstrating lack of awareness:

I was in CVS just last week and I had on my uniform, I had just got off work, and my badge. This older gentlemen, he was at the check-out and I was behind him, when he saw me he said, "Well hey there nurse are you having a good day?" I said, "Yes I am but I'm not a nurse." I had an opportunity to tell him what I did but of course he didn't half listen.... He was really nice but people just don't know and every opportunity I get I try to explain what I do.

A few authors, Beckering and Brunner (2003) and Epner (2007), have suggested that the profession is invisible and that this lack of awareness does contribute to the current personnel

shortage. Additional narratives suggesting that the profession is vital, misunderstood, and generally unknown can be found in Chapter 5.

Is the personnel shortage exacerbated by an identity that is vital, misunderstood or unknown? I believe that the shortage is exacerbated by an identity that is misunderstood and unknown. The data suggest that other healthcare professionals do not fully understand the role of practitioners often leading to negative experiences that could impact practitioner attrition rates. For example, Doig and Beck (2005) found that many clinical laboratory practitioners believe that more recognition and respect from other healthcare professionals would improve retention rates. In addition, the data suggests that the public is unaware of the profession which could severely hinder recruitment of potential students into the profession. For example, Epner (2008) conducted an extensive survey study of clinical laboratory science students and new practitioners and found that the majority of high school students are not aware of the clinical laboratory science profession.

Six overarching themes were generated from the data collected during the interview process. Various patterns (codes) became prevalent within each theme. Within the first theme (changes within the profession), two patterns emerged. First was the advancement in safety regulations such as wearing gloves and banning smoking in the laboratory. Second was the advancement in clinical laboratory science technology leading to newer tests and test methodologies, and more efficient analyzers.

The second overarching theme was entry pathways into the clinical laboratory science profession. The majority of participants entered the profession because they found it interesting. Other reasons for entering the profession included seeking a job in a healthcare profession,

family member was a healthcare professional, desire to help people, connection or exposure to a clinical laboratory or practitioner, and a desire for limited patient contact.

The next overarching theme was lack of awareness of the profession. The first pattern that emerged was that all practitioners shared consistently having to explain their profession to others as patients and the public are not familiar with clinical laboratory science. The other prevalent pattern was mistaken identity in that patients and the public often believed clinical laboratory practitioners were nurses or phlebotomists.

Being misunderstood by fellow healthcare professionals was the fourth overarching theme. Participants shared several experiences of negative interactions between themselves and other healthcare professionals due to a physician or nurse not fully understanding clinical laboratory testing or the role of practitioners. Another prominent pattern was the false accusations of laboratory errors again due to not fully understanding clinical laboratory testing or the role of practitioners.

The fifth overarching theme was retention issues in which there were two sub-themes, staying in the profession and leaving the profession. Reasons practitioners stayed in the profession included opportunities to continually learn, intrinsic rewards from serving in a valuable role, opportunities for advancement, plentiful job opportunities, and positive interpersonal relationships with other practitioners. Reasons for potentially leaving the profession included limited advancement opportunities, not being challenged, rigid hours and scheduling, lower salary in comparison to other healthcare professionals, inappropriate practices, hostility in the workplace, exhaustion due to being overworked, practitioners not working together as a team, and taxing administrative duties.

The last overarching theme was the role and value of clinical laboratory practitioners. The most prevalent pattern within this theme was the belief practitioners have that they are making a difference in the life of a patient or family member. A second pattern was the belief clinical laboratory practitioners have of being valuable. The final pattern was several narratives in which practitioners received recognition or respect from fellow healthcare professionals.

Presented in Chapter 5 is Table 5.4 which demonstrates the relationship between these six overarching themes and the purpose and research questions of this study. Additionally, examples of narratives from interview participants for each of the overarching themes were presented in Chapter 5.

#### Contributions to the Literature

The theoretical framework supporting this research study was McAdam's (1988) narrative identity theory. McAdam's theory proposed a life story model of identity in which development of an identity begins during adolescence but then continues throughout a lifetime. By studying an individual's life story it can lead to a better understanding of their identity.

The life story model has six components: nuclear episodes, imagoes, ideological setting, generativity script, thematic lines, and narrative complexity (McAdams, 1988). Using this theory McAdams has studied different populations of people at varying ages to learn more about their identity from their life stories. His life story questionnaires and interviews encompass a global look at the development of identity inquiring about all aspects of a person's life such as childhood, religious beliefs, role models, and key experiences (McAdams).

For this research study, I took the life story model and applied it to professional identity therefore focusing the attention on an occupation or profession instead of the global overview McAdams (1988) often sought. My interviews focused on collecting narratives involving

experiences within the career setting. During data analysis I attempted to find themes relating to the six components of a life story as proposed by McAdams and I was able to use these components to learn more about the professional identity of clinical laboratory practitioners. After obtaining the results of this study, I do believe McAdams narrative identity theory can be used to focus on one aspect of an individual's life such as their occupation or profession.

After reflecting upon this study, I would like to propose a modified version of McAdams's (1988) life story model of narrative identity that I believe would be better suited for studying occupational or professional identity. Figure 6.1 presents the modified version of the life story model as it applies to an occupation or profession. The major differences between the modified and original version of McAdams is the specification of components for the career setting and the relative decrease in the importance of generativity script.

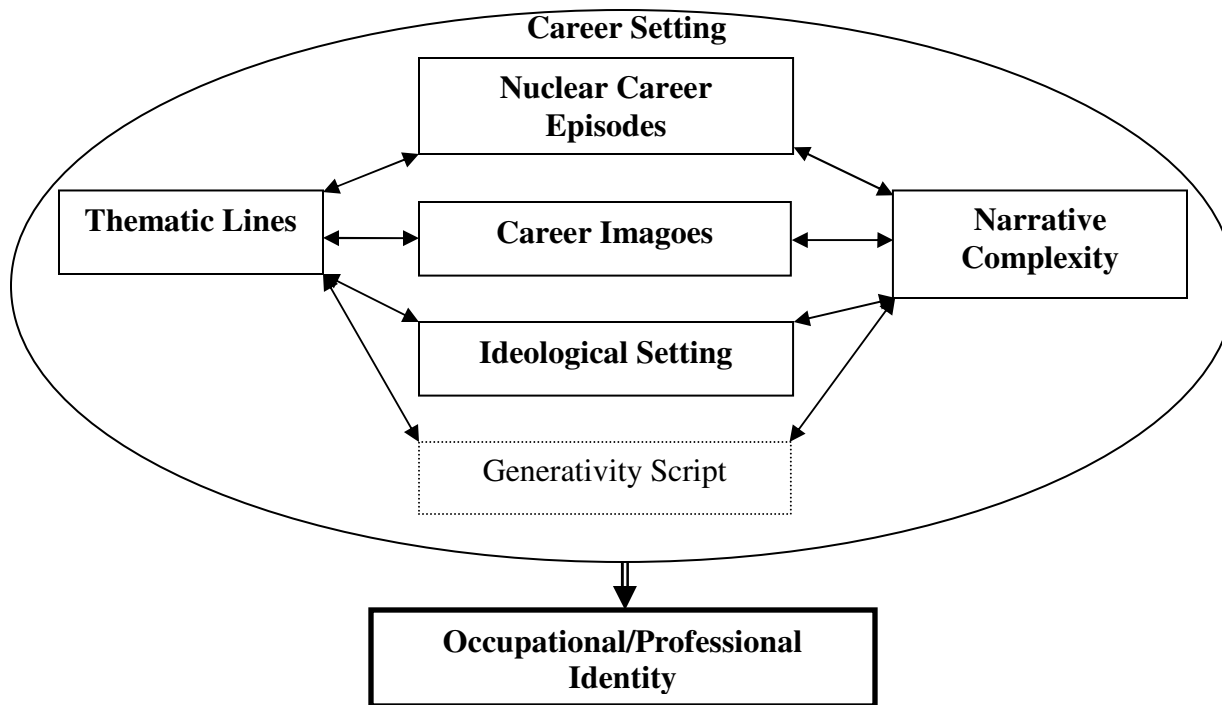


Figure 6.1. Modified life story model as applied to an occupation or profession.



The concept of generativity script as described by McAdams (1988) is complex. McAdams described generativity as a two-step process, first one must create a product such as a child, business, or book and then this product must be given up and offered to a community. Does everyone create a product during their career and then give it up? I do not believe this component, when looking at occupational or professional identity, is as important as the other components because some individuals may not create an occupational product. As McAdams claimed products can also come from areas outside of an individual's occupation such as family life, community involvement, or hobbies. For this reason, I presented generativity script in Figure 6.1 as a less significant component therefore efforts devoted to this component are at the discretion of the researcher. The importance of generativity script may depend on what the researcher is hoping to find, for example it might be best to interview those recently retired from the occupation or profession, or it may depend on the occupation or profession itself.

#### Possible Implications for Alleviating Shortage

The outcomes of this study could potentially be used to help alleviate the clinical laboratory personnel shortage via two approaches. First, results could be used to increase recruitment into clinical laboratory science educational programs. Second, results could be used to increase retention of currently employed clinical laboratory practitioners.

In order to increase recruitment, narratives collected during this study can be shared with primary and secondary school students and career advisors at all educational levels. First, narratives illustrating the role and value of clinical laboratory practitioners can be shared to describe the profession and its significance. Then common reasons for entering the clinical laboratory profession, collected from the entry pathways into the profession theme, can be presented to promote the profession to students with similar interests. Finally, narratives

describing the pros and cons of the profession, pulled from the retention issues theme, should be shared so that a comprehensive picture of the profession is presented.

There are numerous approaches to sharing these narratives with students and career advisors. Simply the narratives can be placed in printed documents such as informational brochures, one page flyers, posters, or small booklets given to educational institutions. During career days and fairs, the printed documents could be available but also the narratives could be placed in a PowerPoint presentation or possibly a short video. In addition, narratives can be posted to websites that promote awareness of the profession. Such websites may include clinical laboratory science professional societies and educational programs. In order to reach an even larger audience, articles containing sample narratives may be published in printed or on-line newspapers and/or magazines.

Legislators may not be able to assist directly with increasing recruitment yet they could indirectly enhance recruitment by providing funds to open clinical laboratory science educational programs, increasing funds to established programs, and providing funds to establish scholarships. One of the primary factors contributing to the chronic shortage is the drastic decrease of clinical laboratory science education programs since the 1970s. Narratives from this study illustrating the role and value of clinical laboratory practitioners can be shared with legislators in order to promote the profession and its value to healthcare. Again, narratives can be shared with legislators using the same printed documents as mentioned above. One opportunity to deliver these documents occurs during the ASCLS Legislative Day, an annual event in which practitioners visit their legislators to discuss pertinent laboratory topics.

In order to increase retention, narratives such as those collected during this study can be shared with clinical laboratory science students, clinical laboratory practitioners, and hospital

administrators. Clinical laboratory science students should be aware of the professional identity of the profession before entering the workplace. Awareness will allow students to better understand the realities of working in a clinical laboratory setting. In order to make students more aware narratives illustrating that the profession is misunderstood by fellow healthcare professionals should be presented. In addition, narratives illustrating the value of practitioners, and the impact they have in the lives of patients, should be shared. Presenting the negatives and positives of the profession might encourage students to choose another career or further commit to the clinical laboratory science profession. Ideally, presentation of these narratives would occur during an introductory clinical laboratory science course.

The study revealed that practitioners leave the field for numerous reasons. Within this study several participants mentioned the everyday drawbacks of working in a clinical laboratory, such as lack of recognition and respect, yet they have stayed because of the intrinsic rewards. These rewards include knowing that they serve a vital role in healthcare thus reminding overworked and stressed out practitioners of their value may make a difference in their decision to stay or leave the profession. Ideally, narratives could be shared either in the format of printed documents or video during staff meetings, educational sessions, or meal breaks.

Another motive for leaving or considering leaving the field, as indicated in this study and Beck and Doig's (2005) study on retention, is lower salaries in comparison to other healthcare professionals. By sharing narratives with hospital administrators that illustrate the role and value of practitioners, thus educating them on the depth of knowledge required to perform clinical testing and the importance of those test results, administrators might increase salaries. Additionally, sharing narratives related to retention issues may educate administrators on the reasons as to why practitioners decide to stay or leave which would hopefully result in changes

or improvements within the laboratory that would promote staying. An ideal situation for sharing these narratives with administrators, either in print or video, would be during National Medical Laboratory Professionals Week at which time the laboratory typically receives more attention.

#### Future Research

While conducting this study, a number of future research studies began to emerge. My study focused primarily on interviewing nine clinical laboratory practitioners to better understand their professional identity. However, it was restricted by the number of participants interviewed, all within one state. In addition, the other component of my study included surveying 87 healthcare providers about their perceptions of the qualifications and training of clinical laboratory practitioners. Again, this component was restricted by the number of providers located within one city.

After reflecting on my entire study and recognizing its limitations, several new research possibilities emerged.

a. Conduct a similar narrative research study that includes video taping within the interview process. The outcomes of this research study was to increase recruitment and retention in the clinical laboratory profession. Narratives collected are limited to mainly printed documents. Videotaping has the potential of “providing a rich source of data” (Elderkin-Thompson & Waitzkin, 1999, p. 251) that can be more effective than printed documents. The audio and video of clinical laboratory practitioners sharing their experiences would be a more powerful recruitment and retention tool than printed text.

b. Expand a similar narrative research study to include interview participants in several states. Results would indicate if clinical laboratory practitioners have congruent or varying

narratives, hence identity, thus providing a more comprehensive view of the professional identity of clinical laboratory practitioners around the country.

c. Expand the background survey of healthcare providers to a state-wide or nation-wide scale. A quantitative study of this nature could produce generalizable findings of the perceptions held by healthcare providers regarding the qualifications of clinical laboratory practitioners. In addition, such a study could produce findings indicating that some states or regions are more educated than others on these qualifications. The results of this study could impact the education of healthcare providers and clinical laboratory practitioners and/or be used in personnel licensure efforts.

d. Conduct the background survey of healthcare providers in states that have recently lost one or more clinical laboratory science or technician programs. In addition to the current questions, insert questions regarding the number of associate and bachelor degree programs within that state. Recently an increasing number of established programs have closed due to state budget reductions resulting from the economic turndown (Enrado, 2009). The results of this study could influence further program closures within that state and/or surrounding states.

e. Further research regarding the perceptions of healthcare providers in the latter part of their educational training. Inquire as to whether students in their last year of medical school, nurse practitioner program and/or physician assistant program have received any type of training, formal or informal, in clinical laboratory science. Investigate when the training was received, the methods used, the trainers, and duration of the training. The results of this study could reveal generalizable information about the education healthcare providers receive on the clinical laboratory and its practitioners.

f. Further research on the perceptions of the public. A survey inquiring about the public's knowledge of the qualifications of, role of, and value of clinical laboratory practitioners could be conducted. The results of this study could reveal generalizable information about the public's knowledge of the clinical laboratory science profession and practitioners.

### Reflections

As a novice researcher this doctoral research study has provided me with an invaluable learning opportunity. Each step of the study, from data collection to analysis, has been a learning process in which I have made mistakes yet learned from these. I would like to share a few reflections of what I have learned or what I would do differently if I could.

Let me begin with a reflection on increasing the response rate of the healthcare provider background surveys. Physicians typically have a low response rate and I did encounter medical offices that refused to take my surveys indicating that their providers would not have time to complete my brief survey. However, I discovered that having a key individual within the office to disseminate the surveys is helpful but what is best is to find an individual that is also influential. I was able to enlist the aid of an individual who was extremely influential, due to her position within the office, in persuading providers to complete the surveys. The response rate from this large medical office, in which 37 providers completed the survey, was 93%.

Next, I would like to discuss the primary oversight discovered on the demographic questionnaire. The first participant I interviewed, James, began his first interview by sharing that he had been out of the profession for a decade. I quickly discovered that the criteria related to years of experience on the demographic questionnaire should have somehow been designated as recent or consistent. James's extended period out of the laboratory resulted in minimal

experiences being recalled, and none germane to the study. Hence his data was omitted. I will remember this oversight for any future surveys that I conduct.

Overall, the interview process went relatively well. For future studies, I will not select large medical centers as logistics become much more difficult. The largest hospital I selected has over 900 beds and, in comparison to the other two hospitals selected, the logistics of getting the questionnaires disseminated and returned, scheduling the interviews, and arranging a location for the interviews was extremely challenging. If I could repeat this study, I would select a hospital with fewer beds, yet keeping to pre-established category of 500 or more beds.

I quickly realized interviewing is similar to riding a bicycle, you get better with practice. I became less nervous and more comfortable with the questions on the interview guide as I went through the interview process. I was able to set up the interview area more efficiently with each session. I learned to use a scripted introduction (overview of research, review of consent form, outlining the interview process) in order to keep the information consistent between participants. In addition, I learned to share some of my own narratives in the beginning of the interview in order to refresh memories and provide examples. I am now a more confident interviewer and believe that I will continue to improve my interview skills during future qualitative research activities.

Data analysis was a more tedious and difficult process than I envisioned it would be. Deleting non-narrative lines such as demographic questions and casual conversation was helpful so that I was left with only narratives. However, I did experience some difficulty differentiating narratives from non-narrative text. I established my definition of narrative to include long sections of talk about life accounts or experiences ideally with a structured sequence (beginning, middle or end) although structure may not be always present. Even though I provided this strict

definition, I found that when analyzing the transcripts it was still sometimes difficult to determine stories from long answers that did not have a focus on life events or a sequence. I am hopeful that this task will become easier with practice and as I advance my knowledge in narrative research.

### Concluding Remarks

This study developed from a global problem of a chronic clinical laboratory personnel shortage. I believed there was a link or relationship between the personnel shortage and professional identity of clinical laboratory practitioners, specifically that the shortage was exacerbated by the current professional identity. Therefore I proposed a study to investigate the personal and professional identity of clinical laboratory practitioners through narrative qualitative research.

Data collected from this study did provide a better understanding of the professional identity of clinical laboratory practitioners. Six overarching themes emerged from the data including: (a) changes within the profession, (b) entry pathways into clinical laboratory science profession, (c) lack of awareness, (d) being misunderstood by fellow healthcare professionals, (e) retention issues, and (f) role and value of clinical laboratory practitioners. The three components of the professional identity of clinical laboratory practitioners that also emerged from the data indicate that the profession is vital, misunderstood, and generally unknown. With this data, I now believe that the shortage is exacerbated by a professional identity that is misunderstood and unknown.

Analysis of these narratives has provided a better understanding of the contributions clinical laboratory practitioners make to the healthcare system. A better understanding of these contributions will hopefully lead to a change in the practice and policy of current recruitment



into the clinical laboratory science profession and retention of those in the profession, thereby alleviating the current shortage. Examples of the changes that could be seen in the practice and policy of recruitment and retention were provided within this chapter.

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APPENDIX A

COVER LETTER FOR DEMOGRAPHIC QUESTIONNAIRE



## Cover Letter for Demographic Questionnaire

Date

Dear Clinical Laboratory Practitioner:

I am a graduate student, under the direction of Dr. John Schell, in the Department of Workforce Education at The University of Georgia. I invite you to participate in a research study entitled “Understanding the Personal and Professional Identity of Clinical Laboratory Practitioners Through Narrative”. The purpose of this study is to understand how clinical laboratory practitioners view themselves and their profession, professional identity, as represented through their narratives (experiences shared as stories).

Your participation will involve completing a brief demographic questionnaire that should take about 15 minutes to complete. Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. The results of your participation will be kept confidential, only Dr. Schell and I will have access to your information. The results of the research study may be published but your name will not be used. In fact, the published results will be presented in summary form only. Your identity will not be associated with your responses in any published format.

From these demographic questionnaires I will select a few individuals to continue into the next phase of this research study which consists of an interview process. If you are selected, I will meet with you, explain the details, and ask you to sign a research consent form. For this reason, all participants completing the demographic questionnaire are asked to provide their contact information. As stated above, this information is for research purposes only and will be kept confidential.

The findings from this study will provide a better understanding of the professional identity of clinical laboratory science. In addition, the findings may provide a better understanding of the current personnel shortage and possible strategies for alleviating it. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me (912) 344-3189 or Dr. Schell at (706) 542-1682 or send an e-mail to [butina1@uga.edu](mailto:butina1@uga.edu). Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address [irb@uga.edu](mailto:irb@uga.edu).

By completing and returning this instrument in the envelope provided, you are agreeing to participate in the above described research project. Thank you for your consideration! Please keep this letter for your records.

Sincerely,

Michelle Butina

APPENDIX B  
RESEARCH CONSENT FORM

### Research Consent Form

I, \_\_\_\_\_, agree to participate in a research study titled "UNDERSTANDING THE PERSONAL AND PROFESSIONAL IDENTITY OF CLINICAL LABORATORY PRACTITIONERS THROUGH NARRATIVE" conducted by Michelle Butina from the Department of Workforce Education at the University of Georgia (706-542-1682) under the direction of Dr. John Schell, Department of Workforce Education, University of Georgia (706-542-4206). I understand that my participation is voluntary. I can refuse to participate or stop taking part at anytime without giving any reason, and without penalty or loss of benefits to which I am otherwise entitled. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

The purpose of this research study is to understand how clinical laboratory practitioners view themselves and their profession, professional identity, as represented through their narratives (experiences shared as stories).

If I volunteer to take part in this study, I will be asked to do the following things:

1. Participate in an interview regarding my personal and professional identity. The interview will be audio taped and last about one hour, at a convenient location to both the interviewer and interviewee.
2. Participate in a follow-up interview which will be conducted in the same manner 2-4 weeks later.
3. Review transcripts of the interviews for accuracy which will take 30-60 minutes

I will not benefit directly from this research. However participation in this study could lead to information that will help leaders in the field of clinical laboratory science address current problems facing the profession. No discomforts, stress, or risks are expected.

No individually identifiable information about me, or provided by me during the research, will be shared with others without my written permission unless it is required by law. My identity will be disguised by a coded name during the research process and in all final research products including publications. The code key will be destroyed 3 years after completion of the project for research purposes. I also understand that audiotapes will be destroyed once the study is completed while transcripts will be kept for 3 years after completion of the project for research purposes.

The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by telephone at (912) 344-3189.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

\_\_\_\_\_  
Michelle Butina  
(912) 344-3189  
butina1@uga.edu

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Please sign both copies, keep one and return one to the researcher.**

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

APPENDIX C

COVER LETTER FOR BACKGROUND SURVEY

## Cover Letter for Background Survey

*December 18, 2009*

Dear Healthcare Provider:

I am a graduate student, under the direction of Dr. John Schell, in the Department of Workforce Education at The University of Georgia. (I am also an Assistant Professor in the Medical Technology Department at Armstrong Atlantic State University.) I invite you to participate in a research study entitled “Understanding the Personal and Professional Identity of Clinical Laboratory Practitioners Through Narrative”. The purpose of this study is to understand how clinical laboratory practitioners view themselves and their profession, professional identity, as represented through their narratives (experiences shared as stories).

Your participation will involve completing a brief survey that should only take about 5-10 minutes to complete. Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. The results of your participation will be anonymous and your identity will not be associated with your responses in any published format.

The findings from this survey will provide information on the perceptions other healthcare professional have about the requirements of clinical laboratory practitioners. The findings from this project may provide a better understanding of the current challenges facing the clinical laboratory science profession and possibly a few solutions. There are no known risks or discomforts associated with this research.

If you have any questions about this research project, please feel free to call me (912) 344-3189 or Dr. Schell at (706) 542-1682 or send an e-mail to [butina1@uga.edu](mailto:butina1@uga.edu). Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address [irb@uga.edu](mailto:irb@uga.edu).

By completing and returning this questionnaire in the envelope provided, you are agreeing to participate in the above described research project.

Thank you for your consideration! Please keep this letter for your records.

Sincerely,

Michelle Butina

APPENDIX D  
BACKGROUND SURVEY

Purpose: To determine stakeholder perceptions with regards to qualifications of clinical laboratory practitioners (CLP). A CLP is defined as anyone who analyzes blood and body fluid specimens to aid in diagnosis, monitoring and treatment of patients in a clinical laboratory setting (e.g., hospital laboratory, reference laboratory, physician office laboratory).

Instructions: Please indicate your answer by check mark or shading in the circle.

1. You are a licensed:	<b>MD</b> <input type="radio"/>	<b>PA</b> <input type="radio"/>	<b>NP</b> <input type="radio"/>		
2. What educational degree <u>is</u> required for performing clinical laboratory testing? (Check all that apply.)	<b>HS</b> <input type="radio"/>	<b>Associate</b> <input type="radio"/>	<b>Bachelor</b> <input type="radio"/>	<b>Graduate</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>
3. What educational degree <u>should</u> be required for performing clinical laboratory testing? (Check all that apply.)	<b>HS</b> <input type="radio"/>	<b>Associate</b> <input type="radio"/>	<b>Bachelor</b> <input type="radio"/>	<b>Graduate</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>
4. <u>Are</u> CLPs certified by a national certifying agency recognizing competence?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		
5. <u>Should</u> CLPs be certified by a national certifying agency recognizing competence?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		
6. <u>Are</u> CLPs required to have a professional license to practice in the state of Georgia?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		
7. <u>Should</u> CLPs be required to have a professional license to practice in the state of Georgia?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		
8. <u>Are</u> there specialty certifications in clinical laboratory components (e.g., blood bank, hematology, microbiology)?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		
9. <u>Should</u> there be specialty certifications in clinical laboratory components (e.g., blood bank, hematology, microbiology)?	<b>Yes</b> <input type="radio"/>	<b>No</b> <input type="radio"/>	<b>Don't know</b> <input type="radio"/>		

Note: MD = medical doctor, PA = physician assistant, NP = nurse practitioner, HS = high school

APPENDIX E  
DEMOGRAPHIC QUESTIONNAIRE



**QUESTIONNAIRE FOR CLINICAL LABORATORY PRACTITIONERS****I. Please fill out the following contact information:**

Name: \_\_\_\_\_

Hospital: \_\_\_\_\_

Daytime Telephone Number: \_\_\_\_\_

Email: \_\_\_\_\_

**II. Please circle best selection or complete:**

1. Gender:      M      F

2. Certification (e.g., ASCP, NCA):      Yes      No

3. Years of experience as a clinical laboratory practitioner (serving as an MLT/CLT or MT/CLS) in the United States:

&lt;1 year

2-10 years

11-20 years

20+ years

4. In your current position, please check the laboratory departments you routinely work in:

 Hematology Clinical Chemistry Immunohematology (Blood Bank) Microbiology Other: \_\_\_\_\_

5. Are you in a supervisory position spending greater than 50% of your time on supervisory duties:

Yes      No

6. How optimistic are you about your future in this profession:

7. Please share your favorite job related story (please use the back side of this form if necessary):

APPENDIX F  
INTERVIEW GUIDE

## Interview Guide

1. How did you learn about the clinical laboratory profession? Why did you choose the practice of clinical laboratory science as a career?

2. Describe your career to date as a clinical laboratory practitioner.

- Tell me about any experiences or incidents that validated your career choice.
  - What made this incident so memorable?
- Tell me about any experiences that made you question your career choice.
  - What made this incident so memorable?
- How do you feel about your career to date?
  - Is this career choice fulfilling to you? And why or why not?
    - Can you share with me an experience supporting this?
  - What in your career has influenced you to stay in clinical laboratory science?
    - Can you share with me an experience relating to this?

3. Tell me about the changes you have seen in the profession since you began your career

- How has this change affected the profession?
  - Tell me about an experience or incident that corroborates this.

4. Tell me how you describe your profession to others – for instance tell me what you told your parents about clinical laboratory science when you selected it as a major in college or what you first told a friend or neighbor about your career.

- What response did you get?
  - Did the response surprise you?
    - And if so, describe why and how did it make you feel.

5. Describe the role of clinical laboratory practitioners as members of the healthcare team
  - Has the role changed since you began your career?
    - And if so, tell me how.
      - Can you share an experience or incident that corroborates this?
      - Why do you believe it has changed?
  - Tell me about an incident or experience that made you proud to be a clinical laboratory practitioner.
  - Tell me about an incident or experience in which you were disappointed with being a clinical laboratory practitioner.
  - Based on your experiences with other healthcare professionals, do they share the same views as you on the role of clinical laboratory practitioners?
    - Can you share an incident that corroborates this?
  - Based on your experiences with other healthcare professionals, do they value the role of clinical laboratory practitioners in healthcare?
    - Tell me about an experience that supports your response.
6. Tell me about any encounters or situations which illustrate how you as a clinical laboratory practitioner or one of your colleagues made a difference in the life of a patient.
7. Are there any additional experiences, encounters or incidents that you would like to share with me that you feel reflect professional identity?