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EFFECTIVENESS OF PROBLEM-BASED LEARNING STRATEGIES WITHIN POLICE TRAINING ACADEMIES AND CORRELATES WITH LICENSING EXAM OUTCOMES

by

Cecil R. Queen

A dissertation submitted to the Graduate College
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
Educational Leadership, Research and Technology
Western Michigan University
April 2016

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Cecil R. Queen, Ph.D.

Western Michigan University, 2016

The training and education of police officers has recently come into question by many facets of the American general public and the mass media as well. Empirical research into the effects of police academy teaching methods is minimal. This study sought to assess the perceived effectiveness of problem-based learning (PBL) teaching strategies within police training academies in Michigan and sought to measure the effects of PBL strategies on the MCOLES Police Officer Licensing Examination mean scores in Michigan. A quantitative approach was utilized to compare the Michigan Police Officer Licensing Examination mean test scores between academies that formally adopted Problem-Based Learning (PBL) teaching strategies and police academies that have not formally adopted PBL (NPBL) teaching methods. Examination mean scores from official state records for a 16 year period (1999-2014) were statistically analyzed. The PBL trained police officers were found to have statistically significant higher scores overall on the licensing examination.

In addition, the perceptions of 231 Michigan police officers on their academy experiences were collected using an electronic survey to study the effects of PBL and NPBL teaching methods. The officers opined on their levels of agreement regarding seven areas of their academy education: the level of the PBL instruction provided, their

acquired problem-solving skills, their acquired critical thinking abilities, their acquired communication skills, their level of satisfaction of their academy classroom experiences, their beliefs that the education prepared them adequately to perform the requisite job tasks of a police officer in Michigan, and their overall satisfaction with their academy. The officers from the PBL police academy provided statistically significant higher levels of agreement than the NPBL academy officers in all seven areas.

Comments on three open-ended questions were evaluated to discover common themes. The officers provided their observations on the areas that were most and least valuable during their academy training, along with recommendations for change. The police officers identified the key factors of their academy training to be the actual learning methodologies employed, their individual classes, and practical scenario exercises. Recommendations for academy directors, instructors, and curriculum development specialists are provided.

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DEDICATION

This dissertation is dedicated to wife, Cynthia, for her unconditional love toward me and devotion toward my education and success while placing her pursuit of her education on hold allowing mine to flourish. She believes that a college degree is vital and has also successfully pushed both of our children in that direction placing our family education finances toward their needs and away from her needs. For these reasons, I am completely in awe and aspire toward her future happiness. During our 38 years of marriage, Cynthia has been the wind beneath my wings always motivating me to reach higher. This document is truly evidence of her love and motivation.

I also dedicate this to my children, Cecil and Jillian, who have been neglected at times due to my focus on my studies, research, and writing. They have asked me many times about when I will be done. It is done now. Your love and support has been felt throughout the entire process. Thank you.

ACKNOWLEDGMENTS

I wish to acknowledge and praise the work and dedication of my dissertation committee chair, Dr. Louann Bierlein Palmer, toward my completion of this dissertation. She never gave up on me while the production of this document took many years longer than anticipated. Simultaneously, she was working with countless graduate students on their dissertations, yet she remained a friend focused on my success. Without her enthusiasm, guidance, and full support, I would have most likely ended up on the long list of doctoral students who never finish. She is a real teacher of teachers and I will never forget what I learned from her during this extended journey. I thank her immensely.

I also wish to thank Dr. Terry Nerbonne, who stayed with me throughout the entire time and kept pushing me to finish this "final book report." He has been a personal stimulus for growth during my career in higher education and has groomed me in a manner to be able to take his place when he retires. Terry is the ultimate educator and leader at Ferris State University. My deepest thanks to you.

My warmest appreciation is also conveyed to Dr. Regina Garza Mitchell for her support and assistance on my dissertation over the past year and a half. Your ideas and direction on this project have been extremely valuable along with your ability to be part of a team of educators focused on my success. Thank you very much for your support and dedication.

Cecil R. Queen

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CHAPTER I

INTRODUCTION

Americans turn on various electronic media and find reports that police officers somewhere have seemingly overreacted to some incident while working in their community, and then video recordings of their actions are presented for the consumption of the general public. Negative public reaction follows. After watching Rodney King being beaten by police in California, many people asked how could this happen? After seeing media reports that a Ferguson, Missouri police officer shot and killed an unarmed man, thousands of people protested in the streets of many U.S. cities believing that the officer's response was inappropriate. How are police officers trained and taught to respond in threatening situations? Shouldn't police be more sensitive? Many people have thoughts that our police officers are well trained, but what do they believe in the aftermath of these incidents? How are police officers taught and educated? Do they need to be trained better, especially when responding to community needs with higher levels of sophistication? What training is actually required to be a police officer? How close does the average citizen keep track of police training and who sets the training agenda? What teaching methods are utilized to educate and prepare police officers for solving community problems and becoming the critical thinkers on the street that are truly needed? Do citizens trust the decision makers' judgment in the educational requirements for the preparation of our police officers?

Over the past 20 years, many things have changed with how people conduct business and interact in the world. Technology has completely adjusted the way humans communicate, how we conduct our business transactions, and how we access data. Changes in teaching and training techniques must accompany these technology changes in order to prepare college students to survive in this developing work environment. College students must know how to ask questions, know the appropriate resources available to search out and discover answers to their questions, and then communicate with others in order to share their findings (Duch, Groh, & Allen, 2001). "The public and other stakeholders in higher education want improvements in students' abilities to communicate effectively, think critically, and solve problems. Improvement in these skills is necessary to raise the quality of the workforce and to prepare educated citizens for our democratic society" (Jones, 1996, p. 7). Bumbak (2011) contended that this is clearly the case regarding the preparation needs of law enforcement students where movement away from the traditional approach of lecture-based, informal, and on-the-job training is necessary. She argued that police recruits must be taught using instructors who are well versed in adult learning strategies where problem solving must be a critical focus. Police educators must refine their skills in order to develop the teaching platform skills necessary to leave a lasting impression with the technology savvy, college-educated modern police recruit.

Police reformer August Vollmer initiated the first known formal police training when he conducted training for U.S. Marshals in 1908 in Berkeley, California (Scaramella, Cox, & McCamey, 2011). Vollmer was the police chief of the Berkeley

Police Department, where he began university training for his police officers. One of his trainees, O.W. Wilson, later became a police chief in several large police agencies and continued his own pursuit of police training in an academy environment. Wilson advocated advanced training for police officers and the use of modern management techniques in the administration of police agencies. The thought was that police professionalism would help dissolve the taint of dishonesty associated with policing at the turn of the century, allowing an image of tough, incorruptible, well-trained police officers to prevail (Saville, n.d.; Scaramella et al., 2011). In order to follow that direction, police training academies were designed using a very legalistic and militaristic curriculum with an emphasis on strict adherence to rules, regulations, discipline, and obedience. For 50 years, police academies predominately used this model for police training and education in the U.S. and most western nations (Haberfield, 2002; Senna & Siegel, 2002; Scaramella et al., 2011).

Jones (2002) maintains that a college education is expected to provide students with general skills and abilities that will guide them toward success in the world where employers seek graduates with significant talent in problem solving, team work, ability to communicate, and in leadership as well as in particular technical skills that may apply. Police academy education securely fits into this level of expectations. Technical skills are important, but process expertise in problem solving and communication is most sought after and yet is often missing from the graduates' final resume (Jones, 2002). Charles (2000) agrees and reports that police recruits in Illinois, for example, are very successful in passing their State Board examinations to become licensed police officers,

but are weak in performing actual police related street tactics that are needed in stressful and traumatic situations. Experiential training with an andragogical foundation, adult teaching methods, is strongly recommended by Charles for the ultimate transfer of knowledge in police education institutions. Herein lies part of the problem: enhanced skills are needed for success in law enforcement field work, yet the education processes may not adequately address these needs. How can police educators cause this change to occur and what teaching methods will work best?

Problem-based learning (PBL) is one educational approach that can assist students in the development of the analytical, problem solving, and communication skills that are strongly needed to compete in today's work environment (Duch et al., 2001). Police recruits are no exception to this and must be able to thrive within a demanding, constantly evolving problem-oriented community policing environment. As argued by Bumbak (2011), newly appointed officers must be able to effectively communicate, adapt to and use new technology, analyze and help solve multifaceted community problems, as well as staying current with an ever-changing criminal justice system. Police officers must be a "social worker, therapist, urban soldier, surrogate parent, and role model" (Bumbak, 2011, p. 1); and they must "know how to command authority, manage criminal investigations, interact with the public, and discourse on topics from handguns to handlebars" (p. 1). It will be difficult, but with the proper instructional methodologies at the beginning of their law enforcement career, police officers can learn these skills in order to meet public and employment expectations.

Problem-based learning is one method of instruction that does not currently exist within most Michigan police academies, but has been recommended by government agencies to be employed during police training academies when practical (Michigan Commission on Law Enforcement Standards, 2002). In 2002, the Michigan Commission on Law Enforcement Standards (MCOLES), the state agency governing all police training for Michigan, began a quest toward developing a feasible teaching and training methodology for police academies. The MCOLES enacted an eight-year strategic plan with a push toward incorporating problem-based learning pedagogies into academy training initiatives within the 20 regional academies as soon as practical (MCOLES, 2002). The current state-mandated trend in Michigan is to provide police academies with hundreds of training objectives that must be taught, however the regulating agency does not dictate to the academies how they must deliver or teach those objectives (MCOLES, 2010). This allows academy administrators the ability to implement PBL teaching strategies if they choose. However, before PBL can become the preferred method of delivery for Michigan police academy directors, more evidence is needed that examines and provides evidence about the role of PBL within police training and education.

Statement of the Problem and Research Questions

Currently, with the exception of one study (Vander Kooi, 2006), the literature appears to be devoid of any research comparing the effectiveness of traditional authoritarian-based instructional methods with the perceived effectiveness of problem-based learning (PBL) in a police academy setting. However, numerous empirical studies have been conducted and reported within other disciplines, finding problem-based

learning initiatives to be somewhat successful (Albanese & Mitchell, 1993; Barrows, 1996; Bligh, 1999; Farrell, Albanese, & Pomrehn, 1999; Maxwell, Bellismo, & Mergendoller, 2001; Tomey, 2003; Vernon & Blake, 1993). For example, Albanese and Mitchell (1993) conducted a meta-analysis review of the PBL research reported between 1972 and 1992 in order to determine the effectiveness of PBL medical educational outcomes. They found PBL strategies to be "more nurturing and enjoyable" (p. 52) with students performing generally better in clinical examinations. However, students were found to be weaker than traditionally taught students in areas requiring rote knowledge such as basic sciences examinations and their scores on the National Board of Medical Examiners (NBME) tests. They also found gaps in students' cognitive knowledge development that could affect practical testing outcomes.

In a similar manner, Vernon and Blake (1993) conducted five separate meta-analyses on 35 PBL studies from 1970-1992 that compared traditional educational methods in medicine. They also found that student performance in clinical situations and student evaluations of PBL curriculum were superior to traditional methods. In this research, PBL and traditional methods did not differ significantly on tests involving factual knowledge and examinations related to clinical knowledge, but traditionally taught students were found to score higher on NBME tests. However, differences between programs may have caused the performance increase, potentially limiting the generality of their NBME findings. They found that students tend to accept increased accountability for their learning as they seek answers to classroom problems by showing increased self-direction and self-motivation because the PBL is more stimulating and

enjoyable. As a result, they concluded that "the results generally support the superiority of the PBL approach over more traditional methods" (p. 550).

In contrast, there have also been numerous reports indicating that PBL is not exactly the educational panacea that others claim it to be (Berkson, 1993; Colliver, 2000; Fenwick & Parsons, 1998; Lieux, 2001). Even Vernon and Blake (1993) cited several disadvantages to PBL discovered in their meta-analysis: knowledge disconnections, potential poor use of class time, and the corroboration of poor information. Fenwick and Parsons (1998) found that a "problem-based approach to professional education is ontologically narrow and epistemologically inconsistent with the lived nature of professional practice" (p. 54). They recommended that the rush toward adding PBL curricula in higher education should be slowed until the evidence is clear and consistent.

Currently, only one empirical study could be located that specifically addresses student perceptions of PBL curriculum within police academies. VanderKooi (2006) in his dissertation investigated police academy student perceptions surrounding whether or not they believed that the teaching method used in their academy improved their problem-solving and critical thinking skills, how they enjoyed the learning experience, and if they believed the teaching methodology prepared them to function as a police officer in Michigan. He found that students taught using the problem-based learning methodology perceived that their problem-solving and critical thinking skills were improved slightly more than students who had attended police academies taught using the traditional lecture method. Students taught using the problem-based method also expressed higher levels of satisfaction for most academy training modules. This study

also discovered no statistical significant difference when comparing the academy students' preferred learning style and teaching methods utilized within their police academy. While this research focused on student perceptions of PBL in the police academy setting, the field still lacks empirical evidence showing that PBL actually provides police academies with the tools to create a significantly better learning environment.

Despite the lack of empirical evidence, the Michigan Commission on Law Enforcement Standards (MCOLES) embarked on an eight-year strategic plan in 2002 to change the training methods currently in use at Michigan's 20 police academies. The commission selected the adult learning strategy involving problem-based learning methods as the primary focus of their paradigm change (MCOLES, 2002). Yet, the commission in their most recent strategic plan did not even mention teaching methodologies within their goals for the future of police training in Michigan (MCOLES, 2013). While many explanations are feasible, one reason for the planning change might have been the lack of significant empirical evidence existing to support this initiative for police training academies. Another interpretation might evolve around the appointment of a new executive director in 2007, where the focus was directed toward funding issues and away from teaching methodologies and content delivery.

While there certainly is substantial research dating back three decades describing PBL and its effectiveness as a teaching strategy for several other professions, I have been unsuccessful in uncovering more than one empirical research study that specifically studied PBL and its effect on police recruits. Empirical research is therefore needed to

provide some evidence to aid police executives, trainers, and scholars in their quest for the best-trained police recruit. Such needed research must provide data on how officers learn new tasks or jobs, as well as provide empirical support for selecting the best method to train new police recruits by comparing problem-based learning techniques with traditional authoritarian-based instruction methods.

Therefore, my research consists of several research questions related to an analysis of the Michigan Commission on Law Enforcement Standards' licensing examination mean scores from 1999-2014. My study also compared the perceptions of Michigan police officers who graduated from an academy that had formally adopted the use of PBL, with the perceptions of practicing Michigan police officers who graduated from police academies not having formally adopted PBL where they are using a more traditional lecture-based pedagogy.

It should be noted that all Michigan police academies had been encouraged and provided with the opportunity to have formally adopted the use of PBL as their primary mode of instruction. The past executive director of MCOLES held a conference for the International Association of Directors of Law Enforcement Standards and Training (IADLEST) in Lansing, Michigan on December 5-6, 2006 where he invited all Michigan academy directors to participate. PBL was the primary topic for presentations with the focus directed toward providing Michigan academy directors with an in-depth understanding of PBL and how it could potentially enhance their educational environments. Only one academy, Ferris State University's Law Enforcement Academy, chose to adopt PBL as its foundation of instruction. This does not mean that other

academies may not be using some aspects of PBL within their instruction, but based upon my regular interactions with all of the training directors across the state, it appears that the more traditional lecture-based methods still prevail. For the purposes of my study, I refer to graduates from the institution that formally adopted the PBL approach as the treatment group (PBL), and all other graduates from the other institutions that had not formally adopted PBL strategies as the control group (NPBL). The groups hereafter are identified as PBL and NPBL.

Four primary questions are studied within this dissertation as listed below.

1. What difference, if any, exists between two groups of academy students taught at the same police academy, where one group of academy students was taught using a mostly traditional lecture-based (NPBL) methodology during the years 1999-2005, and a second group was instructed using a Problem-based Learning (PBL) methodology during the years 2006-2014, in reference to:

    (a) their MCOLES overall police officer licensing examination mean scores; and

    (b) their MCOLES police officer licensing examination's six functional area mean scores?

2. What difference, if any, exists between the students at this same police academy, and students at all other Michigan police academies which had not formally adopted PBL (NPBL) methodology during the years 2006-2014, in reference to:

    (a) their overall MCOLES police officer licensing examination mean scores; and

(b) their MCOLES police officer licensing examination's six functional area mean scores?

3. What difference, if any, exists between the perceptions of practicing police officers who had graduated from police academies that had formally adopted a PBL teaching model, and practicing police officers who graduated from police academies which had not formally adopted PBL (NPBL) teaching model, in reference to:

   (a) the level of PBL instruction provided;

   (b) their acquired problem solving skills;

   (c) their acquired critical thinking skills;

   (d) their developed communication abilities;

   (e) their satisfaction with their academy classroom experiences;

   (f) their beliefs that the training prepared them adequately to perform as a police officer; and

   (g) their overall satisfaction with their academy experiences?

4. To what extent did differences exist between the PBL academies and the NPBL academies in reference to their academy's instruction style, their acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with their academy classroom experiences, their belief that the training prepared them adequately to perform as a police officer, and their overall satisfaction with their academy experiences?

Theoretical Framework

If the profession of law enforcement is to continue to advance, new methods of accommodating change must be developed and implemented. One example of a recent philosophy being pursued by many police agencies throughout the United States today is community oriented policing (COP) which causes a change in fundamental methods of delivery of police services (Cox, McCamey, & Scararmella, 2014). COP constitutes a paradigm shift in which police practitioners switch from a reactive to a proactive approach and in which social order maintenance is a primary concern for crime deterrence and prevention (Cox et al., 2014; Sykes, 1992). As Sykes (1992) aptly indicated, for community policing to work, police and citizens develop an "intimate, cooperative, and nonauthoritarian relationship" where "a fundamental or revolutionary change in the police role, function, and organization" would be necessary (p. 165).

COP is a changed philosophy of policing as well as an updated style of operation. Police officers and administrators are expected to look at service delivery from a customer perspective with their problem-solving decisions using data collected and its analysis. Officers must form trusting partnerships with citizens where they work as a team to solve the community's problems. These partnerships are based on equality and not on the authority of the police. Within this philosophy, administrators empower their police officers and give them ownership of specific patrol areas within their jurisdictions. They are expected to manage these areas as facilitators with the community leadership and then mobilize the resources needed to remedy the concerns and issues (Swanson, Territo, & Taylor, 2001).

Among the goals of COP is a significant increase in personal contact between the officers and the citizens within the community. The citizens expect officers to assist them with their many problems and to do this, new recruits must learn to be able to successfully problem-solve and interact in demanding social environments. They must be able to explore, find, and obtain resources in order to solve these problems. These new demands ultimately will require police academy training to focus on teaching these skills, which will cause a shift in the traditional training curriculum that currently exists in Michigan. Some scholars and professionals believe that training related to the community policing mission should be driven away from mere mastery of police skills and military-style obedience and driven toward adult education related to empowerment and personal leadership of the officers (Trojanowicz & Bucqueroux, 1990). The current police academy curricula in Michigan are directed mainly toward teaching mastery of the many procedural and technical skills needed to perform general law enforcement duties.

For these changes to take place, increased training and education will be necessary as these agencies are changing their policing paradigm. Police leaders and trainers face the extraordinary task of designing and implementing the organizational adjustments in order to cause this new tenet to work. Police administrators will be forced to address numerous issues such as organizational restructuring, leadership style, employee empowerment, problem-solving abilities, and training. Two critical elements needed to facilitate this paradigm shift include the police academy curriculum and the nature of instructional techniques (Birzer, 2003).

Behavior modification techniques are at the forefront of traditional police instruction methods (Mahoney, 1996). Students are usually assessed on their ability to successfully negotiate a multiple-choice examination or on their ability to perform certain tasks based upon pre-determined guidelines. This linear approach to police education strongly reinforces an ordered, preplanned style of learning where the needs of the instructor are most often the key ingredient. Most police academies use a training style that parallels military instruction strategies in order to build an "urban soldier" resulting in recruits learning how to adapt to the stresses and the absolute expectations of police work (Bumbak, 2011, p. 10). Michigan police academies are no exception. Military marching, physical training, and verbal abuse are methods used to "teach" discipline and to correct inappropriate recruit responses during instruction. In addition, most instruction is carried out in a lecture format with little emphasis on recruit input or feedback. During daily classes, recruits are required to begin and end every sentence with "Sir" or "Ma'am" unless given permission by the drill instructor to do otherwise. They also stand and sit at the position of attention during classroom training (Mahoney, 1996; Saville, n.d.).

Upon reviewing the mandated police training objectives from the Michigan Commission on Law Enforcement Standards (MCOLES), police trainers are required to direct the majority of their instruction toward standard, technical subject matter such as firearms training, defensive tactics, criminal law, use of force, traffic enforcement, and accident investigation (MCOLES, 2010). While these are important skills for police officers, these duties actually only encompass approximately 10%-20% of the police

officers' daily duties (Birzer, 1999; Bureau of Justice Statistics, 1983). Birzer (1999) summarized it well indicating that "The paradox in the current state of police training is that the majority of training curricula are designed almost exclusively to teach officers what they will be doing a small percentage of their on-duty time" (p. 17).

When dealing with police recruits and their learning strategies, police academy instructors remain very traditional in their methods, often relying on a militaristic or strict authoritarian-based training environment. I have been a Michigan police trainer for 30 years and believe that this mental model is deeply embedded in the Michigan training academy curriculum and its educators. While the community expectations and environments have changed considerably during the past 30 years, police academy training methods have not. There are changing demands from the general public, yet police training methods are still very much archaic and outdated. The questions remain: How does police leadership begin to change the authoritative, bureaucratic training curriculum that has been used for many decades and how much influence does a state government have on this potential change?

As discussed by Senge (1990), mental models are difficult to change. Mental models are very powerful because they affect what we observe by shaping our perceptions. Right or wrong, these perceptions guide many of our actions. Some of the best ideas are disposed of without even being implemented. The images and folklore attached to many people's mental models help to determine how they view the world. Police trainers are no different. They may remember how they had to struggle through their police academy experiences with the militaristic teaching approaches being primary

components of the curriculum. Many of Michigan's academy training directors are retired police officers who attended the police academy in the 1960s and 1970s when authoritarian-based learning was the only method.

The MCOLES has shown interest in adult learning strategies, with Ferris State University's Law Enforcement Academy staff agreeing to become an experimental site for the implementation of problem-based learning initiatives in Michigan police academies. Ferris State University provides students with the opportunity to complete a Bachelor of Science degree while simultaneously becoming licensable as a Michigan police officer. The Michigan police academy training requirements are, therefore, embedded within the bachelor degree process. With the support of MCOLES, the Ferris State University's Law Enforcement Academy formally adopted the use of PBL as its instructional foundation in 2005. I am currently the academy training director and am a primary instructor as well as a curriculum change agent during the pedagogical changes which were eventually deployed in 2005. In addition, I am a certified Police Instructor in Problem-Based Learning Strategies and the Police Training Officer Development as approved by the Center for Advanced Public Safety Research, University of New Haven, and the Police Society for Problem Based Learning since July 2005 which was fully funded by a Department of Justice Regional Community Policing Training Institute grant. This access provides for a unique opportunity to study the effects of a PBL approach on police academy students over the last nine years and those students who have graduated into the ranks of Michigan law enforcement through a more traditional trajectory.

The police profession has been transforming toward a COP model for many years, becoming very dynamic in its partnership with its citizenry (Cox et al., 2014). While at the same time, law enforcement has neglected to change its training strategies for its neophyte officers in order to assist them to facilitate analytical and problem solving learning. Yet empirical research data has been lacking to help drive this change.

Methodology Overview

Based on the topic and specific content of this study, an ex post facto quasi-experimental quantitative approach was utilized. This research examined any correlations between different police academy adult learning strategies and police officer licensing examination results. A quantitative approach was deemed valid when comparing mean test scores between treatment groups (PBL) and control groups (NPBL) over a 16 year period (1999-2014) within the State of Michigan. Data was collected from official government records (licensing examination scores) for a sample population consisting of all police academy students (n = 12,331) who tested to be licensed as a Michigan police officer during the years of 1999-2014. Some of the 12,331 test takers (n = 631) were educated by one academy that formally adopted PBL as the foundation of its teaching strategies and methodologies. The remaining police academies have not formally adopted PBL (NPBL) teaching strategies as their primary focus toward education. The Michigan licensing examination was, and is, currently comprised of six functional areas allowing for additional comparative analysis between those specific functional areas.

This research also studied the effects of different police academy teaching methods (PBL or NPBL) on the subsequent perceptions of practicing police officers related to their academy instruction method, their problem-solving skills, their critical thinking abilities, their communication skills, their level of satisfaction of their academy classroom experiences, their beliefs that the education prepared them adequately to perform the requisite job tasks of a police officer in Michigan, and their overall academy satisfaction. Michigan police officers, who were taught in a police academy found using either PBL (n = 162) or those which have not formally adopted PBL (NPBL) methodologies (n = 2,345), were surveyed and compared. Further details on the research design are provided within Chapter III.

Significance of the Study

This study collected and analyzed empirical data to ascertain if PBL strategies might enhance the educational environment for future police officers. Currently, minimal data exists showing the true value of PBL in the police academy setting. This study provides decision-making information to assist police leaders in determining improved methods to deliver police academy training, as traditional, authoritarian, lecture-based teaching strategies may be limited in their ability to provide the ultimate preparation toward becoming a police officer (Birzer, 1999). In addition, data from this research can assist individual police academy instructors with empirical evidence as to whether they should consider using PBL strategies in their future academy courses.

Chapter Summary

For police officers to be able to work effectively within a community oriented policing culture, they must be allowed to learn like the adults that they are. Instructing them using teaching techniques that are authoritarian most likely will not enhance their ability to interact effectively in a public setting (Birzer, 1999). They must be self-motivated and directed toward group problem-solving discussions and debates, as community policing requires. This is not the current state of affairs within Michigan's police academy training curriculum (MCOLES, 2010); however, changes can occur. The training curriculum must change in both structure and content, as education is the proper instrument for teaching police officers to best relate in the community policing environment (Birzer, 1999).

In Chapter I, I have discussed the emerging changes toward PBL pedagogy in Michigan police academies and how this is occurring. The review of the literature will provide a historical perspective of policing strategies and their related traditional police education methodologies. Additionally, a review of learning theory and an examination of problem-based learning strategies and the empirical evidence of its effectiveness in higher education curricula will be presented.

It is vitally important that police training curricula and instructional methods evolve to support any new policing initiatives that exist. Police officers must adopt the new strategies to be effective in discovering and becoming part of the multifaceted cultures in which they work daily. Police training has not kept pace with the ever-increasing demands of the community and their expectations and change is required.

PBL has the potential to be a great addition to the current education curriculum in police academies as indicated by some of the literature. Great education and preparation will help the officers build outstanding skills that will allow them to develop positive relationships with the public that are their police partners of the future. This research may shed some needed light on the value of this educational methodology.

CHAPTER II

REVIEW OF RELATED LITERATURE

Chapter II presents a review of the related literature that is focused on policing strategies, police training practices, learning theories, and problem-based learning methodologies. The following section provides a historical perspective of American policing strategies with considerable concentration on the current philosophy of community oriented policing.

Policing Strategies

People of all social orders need members within their society to serve as intermediaries to assist in the resolution of disputes among its members. An adequate definition relating to the role of police officers may be just that – an arbitrator of social disputes. Scaramella et al. (2011) maintained that all modern societies are in dire need of social arbitrators or police officers to bring those who have violated the rights of others before other appointed specialists (judges, prosecutors) to determine appropriate sanctions for their detrimental behaviors. In America, the desire to defend an individual's rights and the need for social order are high priorities. Citizens expect the police to function within certain guidelines while providing fair and equal treatment for all and respecting civil liberties simultaneously. Somehow the police must be provided with the authority to intervene into the affairs of average citizens in order to best keep the peace. Yet, early settlers to America came here to avoid just that – government sanctioned

intrusions into their personal lives. When the police intervene in the private daily activities of citizens, it would be expected that citizens would develop hostility and some suspicion toward the police (Scaramella et al., 2011). So, historically, what have been the strategies for American peacekeepers to provide that special equilibrium?

Historical Overview

To best understand the variations of current American policing strategies, a review of the origins of policing and the traditions that led to the contemporary police operations is pertinent. The origins of policing date back to the medieval times where the Greeks, the Romans, the Spartans, several Middle East Empires, and the Chinese employed numerous forms of policing to maintain order and enforce their laws (Scaramella et al., 2011).

Most of us take for granted that if we need help and call for the police, they will respond quickly and investigate our criminal case as a paid servant of the community. This clearly was not the case at the onset of policing in the U.S. where the roots of law enforcement were based on the criminal justice system in England (Bohm & Haley, 2010; Walker & Katz, 2011). The English colonists left England with their cultural heritage which firmly supported a criminal justice system that included the English common law, court systems with certain forms of punishment, and a strong sense of individual rights. They sought limited police authority, local control of the police, and a decentralized, fragmented system of law enforcement (Walker & Katz, 2011).

Sir Robert Peel is credited with founding the London Metropolitan Police Department in 1829 which was the first formally structured police agency in England.

Peel is also considered by most as the father of modern policing for his efforts in this endeavor (Bohm & Haley, 2010; Scaramella et al., 2011; Travis & Langworthy, 2008; Walker & Katz, 2011). Peel, who was the Home Secretary of Great Britain at the time, worked to eventually create a 1,000-member police department encompassing professional guidelines with a para-military structure to replace the haphazard policing system that had been in place for some years prior (Bohm & Haley, 2010). Peel authored legislation that was supported by Parliament titled the Metropolitan Police Act of 1829 (Travis & Langworthy, 2008). The bill incorporated 12 tenets better known as Peel's Principles of Policing:

1. The police must be stable, efficient, and organized along military lines;
2. The police must be under government control;
3. The absence of crime will best prove the efficiency of police;
4. The distribution of crime news is essential;
5. The deployment of police strength both by time and area is essential;
6. No quality is more indispensible to a policeman than a perfect command of temper; a quiet, determined manner has more effect than violent action;
7. Good appearance commands respect;
8. The securing and training of proper persons is at the root of efficiency;
9. Public security demands that every police officer be given a number;
10. Police headquarters should be centrally located and easily accessible to the people;
11. Policemen should be hired on a probationary basis; and

12. Police records are necessary to the correct distribution of police strength (Bohm & Haley, 2012).

American law enforcement relied on Peel's basic policing principles as the underpinning of their efforts when constructing their first organized police departments. Beginning with Philadelphia in 1833, Boston in 1838, and then New York City in 1844, many other cities initiated police agencies thus spreading formal policing practices throughout America (Scaramella et al., 2011; Travis & Langworthy, 2008).

Today, according to Bohm and Haley (2010), there are nearly 18,000 public police agencies in the United States serving at the federal, state, and local levels of government. Most of these agencies serve local interests due to a long standing desire of Americans for local control of law enforcement in order to block any governmental notion toward a strong and controlling national police force. When comparing the U.S. with other democratic nations throughout the world, the U.S. "has remarkably more police agencies that operate under far more restrictions on their authority" (Bohm & Haley, 2010, p. 146).

Many authors and theorists divide the history of American policing into three divergent eras: the political era, the reform era, and the community problem-solving era (Burns, 2013; Gaines & Miller, 2009; Haberfield, 2002; Kelling & Moore, 1988; Roberg, Nowak, & Cordner, 2005; Travis & Langworthy, 2008; Vodde, 2009; Worrell & Schmalleger, 2013). The literature establishes these prominent and distinct eras of policing as beginning with the political era in 1840, leading next into the reform era in approximately 1930, and progressing into the community problem-solving era in about

1980 which continues today (Burns, 2013; Gaines & Miller, 2009; Kelling & Moore, 1988; Travis & Langworthy, 2008).

The political era of policing featured police having close relationships with their communities with politics influencing the majority of their police policies and practices. With a minimum technology being available, officers walked beats and had mostly face-to-face interactions with the public. Their close connection to the voting citizenry made the police a primary focus of politicians who sought their support and their ability to spread the word among the public on who would "help" them the most. Politicians would further reward citizens who worked hard for them by appointing them into positions in law enforcement creating a patronage or spoils system (Burns, 2013; Kelling & Moore, 1988). Some strengths of this era evolved around citizens believing that the police solved and prevented crimes and that the police activity aided community immigrants with locating work and planting family roots (Kelling & Moore, 1988). Some weaknesses that led to the eventual downfall of the political era were that the police simultaneously had intimate relationships with the community and politicians, had a decentralized police department organizational structure in place and the general inability of administrators to closely supervise officers in the field resulted in a recipe for disaster and bribe related corruption. The political era was further impacted by the years of Prohibition (1920-1933) allowing organized criminal enterprises to flourish along with numerous riots and significant social disorder in cities such as New York, Boston, and Philadelphia leading to additional officers misusing and abusing the authority (Burns, 2013; Kelling & Moore, 1988).

The enactment of the Pendleton Civil Service Act of 1883 was considered a significant blow to the Political Era as the federal law was aimed toward the eradication of the spoils system in existence at the time. The Pendleton Act, as it became known, created impartial criteria and assessment for the selection, hiring, and promotion of public employees while simultaneously making it unlawful to use political influence and conditions to discharge civil service employees. While no law will fully eliminate political influence, it was a critical first step in reducing that influence within hiring decisions in the federal government. The statute was federal in nature; however, it ultimately played a very important part over time in civil service hiring reforms in the state and local governments (Grant & Terry, 2012).

Due to the political chaos, change agents from outside of law enforcement were not strong enough to be affective; so joint efforts combining police administrators and urban social organizations were necessary to generate systemic reform. Amidst the smoke and corruption prior to the police reform era, law enforcement leaders began to surface in strong support for immediate reformations, with Berkeley, California Police Chief August Vollmer (1905-1932) leading the charge toward police professionalism, and later becoming known as the father of modern law enforcement in America (Burns, 2013; Charles, 2000; Gammage, 1963; Haberfield, 2002; Kelling & Moore, 1988; Scaramella et al., 2011; Worrell & Schmalleger, 2013). The reform agenda for policing was focused on teaching police officers to serve the public as professionals, to eradicate the influence of politics on policing, to hire qualified executives to lead police departments where they would implement modern management practices to policing, to

raise hiring standards for police recruits, and to create specialized units within police departments (Walker & Katz, 2011). Vollmer also sought the first college educated police officers where they introduced science into policing through enhanced record keeping, fingerprinting, and criminal investigation. Police academies were developed and became common educating police recruits on these topics and many others in preparation for their career aspirations (Scaramella et al., 2011). The automobile was eventually implemented in policing across the nation to provide swifter response times for calls for service creating a clear separation between police and their community members as the police were less and less walking and talking on their beats.

During the reform era, the U.S. became involved in several wars such as World War II and the Korean War making recruitment of well-qualified officers difficult. Just after the Korean War, public displays of civil disorder and riots were fairly common during the 1960s and 1970s which made police work less attractive to many. Also during this timeframe, crime rates doubled, the civil rights movement began, and anti-Vietnam War protests were turbulent placing the police at center stage. Advancing technology allowed news reporting to become televised rapidly providing a view of social disorder that led to fear due to the public perception that family, church, and the police were barely in control (Scaramella et al., 2011). During the many civil disorders, rioters were reacting to social problems and ultimately clashed with the police leading to very poor relations between the public and the police. The police were perceived to have lost their association with the citizens they were supposed to be serving (Gaines & Miller, 2009).

It became abundantly clear that the police needed to refocus their efforts toward re-establishing their public image and acceptance. Haberfeld (2002) reported that toward the end of reform era, new policing reforms were led by New York Police Commissioner Patrick Murphy where community cooperation and crime prevention strategies were implemented and enhanced through experimentation. This eventually provided the genesis for several very successful policing philosophies such as neighborhood foot patrol, COP (Community Oriented Policing), and COPPS (Community Oriented Policing and Problem-Solving).

Kelling and Moore (1988) argued that, while times were difficult during the 1960s and 1970s, all was not lost as policing amassed numerous victories. Foot patrol initiatives became very popular in many cities where citizens demanded that service. Flint, Michigan was one city with high crime rates where citizens voted on two different occasions to increase taxes in order to provide funding for foot patrols. One of the votes entailed a two-thirds majority (Trojanowicz, 1983). The demands for foot patrol were similar in numerous U.S. cities where research (Trojanowicz, 1983) found that police foot patrols contributed to positive aspects of urban city life such as reducing the fear of crime, escalating citizen approval of police, and increasing police attitudes towards citizens most likely due to their daily close interactions on order maintenance functions. The positive outcomes of police foot patrols and fear reduction efforts created new opportunities for the police to form partnerships with citizen groups to diminish public disorder concerns. They found that citizens wanted to be part of the solution and were

delighted to be asked for their assistance and authorization to go forward (Kelling & Moore, 1988).

During the 1970s, many law enforcement college degrees were developed and there was an increased awareness toward the need for good police education and training (Vodde, 2009; Walker & Katz, 2011). I, personally, experienced the policing reform era starting my police career in 1974 when a transition toward a new policing philosophy was slowly taking hold. I was also a college student where I participated in two-year and four-year college degree programs in policing and eventually a graduate degree in police administration where community policing and problem-solving strategies were key components of the curricula.

At the onset of the 1980s, the community policing/problem-solving era began to take hold throughout the U.S. where its focus was directed toward proactively developing firm connections with the public being served. Simultaneously, this change toward community policing involved a significant adjustment in thinking and strategy within law enforcement circles where decades of experimentation and research were finally intermeshed. The problem is that community policing can provide many different appearances to many different people depending upon who is looking, making community policing difficult to define at times (Burns, 2013; Roberg et al., 2005; Travis & Langworthy, 2008). In addition, these trends contradicted the primary policing tenets held during the reform era for a generation. Foot patrol results in intimate working relationships between citizens and the police where problem solving becomes the key ingredient toward success and positive resolutions (Kelling & Moore, 1988).

While foot patrols were part of policing during its birth centuries ago, these changes represented clear advances toward a new philosophy, not a new program, in police work that logically evolved from the previous 30 years of experimentation and research findings related to police-community relations (Roberg et al., 2005). According to Burns (2013), "The community policing approach does not simply focus on public relations at the expense of crime fighting. Instead, community policing is, in part, a combination of the strengths of police practices evident in both the Political and the Reform eras" (p. 28).

Walker and Katz (2011) theorize that problem solving is a significant element of community policing where the citizens and police collaborate to solve local problems. Instead of merely responding to incidents, police work with the community to determine the underlying causes of criminal activity and disorder in order to find the preeminent solutions. Their research found that 58% of local police agencies currently endorse their police officers to engage in problem solving projects and that 50% of the agencies have developed problem solving community partnerships using written agreements. Yet, specific problem solving training is left out of Michigan police academy curricula today (MCOLES, 2010).

Community Policing Defined

Travis and Langworthy (2008) argued that community oriented policing or community policing is the current prevailing model of policing in the United States; while simultaneously, Walker and Katz (2011) contended that most American police agencies do not have a clear understanding of the fundamental concepts of surrounding

community policing. A national survey of police executives using a random, stratified sample of over 2300 police agencies found that the police chiefs and sheriffs overwhelmingly endorsed the implementation of community policing, yet 47% of those police executives were unclear as to a specific definition of community policing (Wycoff, 1995). Community policing has, therefore, come to have many different definitions due to its ability to be comprised of multiple "personalities" or policing strategies providing many different approaches to dealing with the community. Some examples of these community oriented policing strategies involve foot and bicycle patrols, neighborhood police substations, coordinating community meetings, and asking the community for their opinion on crime problems (Walker & Katz, 2011).

Ortmeier and Davis (2012) defined community policing as a strategy that is "based on the assumption that police and citizens of a specific community share the same values" (p. 32) resulting in community policing functioning differently in different communities based upon their mutual values. This definition makes it difficult to illustrate common conclusions about community policing. Cox et al. (2014) defined community policing as "a model of policing based on establishing partnerships among police and other citizens in an attempt to improve quality of life through crime prevention, information sharing, and mutual understanding" (p. 29). Another definition is provided by Vodde (2009) where he described community policing as a primary process of building meaningful and collaborative partnerships with the community while simultaneously distinguishing that "its implementation requires a steadfast commitment and dedication on the part of the police and community, recognizing that

multidimensional changes need to occur" (p. 15). It is important to note that, while this definition includes a focus on change for both the police and the community, it does not suggest specific changes or an exact process for determining who decides on which changes are most critical leaving much room for interpretation. Vodde (2009) did not maintain that community policing advocates a clear paradigm shift from a purely reactive approach toward a more specific proactive philosophy involving forestalling problems and ascertaining their solutions before they actually surface. This led Vodde to the conclusion that proper training of the police is imperative to allow for the acquisition of new skill sets necessary to adapt to the changes. This potentially provides an argument that PBL and its structure could assist with the development of these new skills. Lastly, Roberg et al. (2005) defined community policing as a "logical combination of more than 30 years of police effectiveness research and decades of experimentation with police-community relations programs" (p. 81). They pointed out that community policing was believed to be more of a change in philosophy and not just a change in policing programs.

At times, the ambiguous and obscure definition of community policing has incorporated almost anything that is considered new and inventive in policing resulting in a continued lack of clarity (Walker & Katz, 2011). Cox et al. (2014) argued that "policing is dynamic and constantly changing" (p. 30) leading to their findings that there are many different policing strategies being implemented today, such as areal policing, reassurance policing, intelligence-led policing, and terrorism-oriented policing. If police

administrators begin to mix these applications, additional confusion will certainly become a by-product.

Despite this uncertainty, there is some consensus relating to the basic components of community policing where it is defined as a paradigm shift toward a new policing philosophy incorporating citizen input, crime prevention, decentralized functions, citizen partnerships, and problem solving agendas (Roberg et al., 2005). Further, Roberg et al. (2005) argued that it would be simple to describe community policing using many different characteristics, however, it is more sensible to categorize the many facets by condensing them into three dimensions: the philosophical, the strategic, and the tactical. First, they posit that community policing supporters believe that this change in policing involves a paradigm shift toward a new philosophy that incorporates the key tenets of greater citizen input, a broader vision of the police function away from the previous narrower view as crime fighters only, and also providing high quality personalized service where officers and citizens actually know each other (Roberg et al., 2005). Second, Roberg et al. (2005) believed that an element of community policing must encompass strategic concepts where police agency priorities, policies, and resources are directed toward this new philosophy allowing increased face-to-face citizen interactions, geographic commitment, and a proactive crime prevention emphasis to become primary goals. Third, the tactical dimension of community policing turns the aforementioned ideas of change into tangible programs and practices resulting in positive community relations where strong partnerships are developed and problem solving initiatives where the causes of problems are explored and not just the symptoms. As cited by Burns

(2013), a fourth dimension was added by Cordner (2005) further defining community policing that was focused on adjusting police agency organizational structure and changing the agency's management style to fully incorporate the department's mission within their community policing philosophy. Walker and Katz (2011) agreed and claimed that community policing enhances the police responsibility to deal with the fear of crime, social disorder, conflict resolution, and the maintenance of public order.

Roberg et al. (2005) contend that community policing enthusiasts believe that problem-solving capabilities are at the foundation of this paradigm:

> This problem-solving approach should be characterized by several important features: (1) it should be the standard operating method of policing, not an occasional special project; (2) it should be practiced by personnel throughout the ranks, not just by specialists or managers; (3) it should be empirical, in the sense that decisions are made on the basis of information that is gathered systematically; (4) it should involve , whenever possible, collaboration between police and other agencies and institutions; and (5) it should incorporate, whenever possible, community input and participation, so that it is the community's problems that are addressed (not just the police department's) and so that the community shares in the responsibility for its own protection. (p. 89)

One problem-solving model universally used throughout community policing environments is known as the "SARA" model (Eck, 2010; Ortmeier & Davis, 2012; Roberg et al., 2005). The acronym SARA stands for: Scanning, Analyzing, Responding, and Assessing. Scanning refers to the process of identifying what problems are most

concerning to the police and the citizens and then prioritizing those problems in order to set goals and objectives for closer scrutiny. Analyzing means literally concentrating on the underlying events and circumstances that precede the problem, conducting the appropriate research and data collection, and then working to narrow the scope of the problems to develop a working supposition related to why to problems are occurring. Responding refers to all parties working together to cultivate innovative approaches for effective interventions, studying the activities of other communities facing similar concerns, developing an action plan or response with specific goals, and then implementing the action plan. Lastly, Assessment provides for an evaluation process to determine if the plan was actually implemented, if the data was collected, whether the goals and objectives were achieved, and then outline whether new initiatives are needed to enhance the overall plan (Eck, 2010; Ortmeier & Davis, 2012; Roberg et al., 2005).

Ortmeier and Davis (2012) contended that community policing will work differently depending upon the community needs and diversity that is present. Each police agency must then tailor their efforts toward the specific necessities of their social environment. Decentralization of police services is a primary consideration to allow front-line officers to have autonomy to conduct problem solving operations and then make pertinent decisions toward remedies and solutions. Street officers, community leaders, and citizens must form relationships in order to work as a team to properly identify the problems that need immediate attention and then assess whether the solutions were effective. Community policing must be an integral component within all facets of the police agency and not just within a couple divisions of the organization. They realize

that, while community policing strategies can take many different forms, it must always be comprised of cooperation and trust between the police and the citizens.

Criminal justice researchers and theorists also assert that the general implementation of community policing changes the foundational structure of American policing resulting in the commonly agreed tenets of community partnerships, organizational changes, and problem solving initiatives (Burns, 2013; Ortmeier & Davis, 2012; Travis & Langworthy, 2008; Walker & Katz, 2011). While there are numerous definitions and dimensions describing community policing, I provide one working definition for the purposes of this research: "Community policing is a philosophy that promotes organizational strategies that support the systematic use of partnerships and problem-solving techniques, to proactively address the immediate conditions that give rise to public safety issues such as crime, social disorder, and fear of crime" (Office of Community Policing Services, 2012, p. 1).

Community policing over time has faced much criticism and resistance from within its own ranks. Ortmeier and Davis (2012) found that line officers, supervisors, and administrators believe this new policing philosophy has begun to destroy many of the current police practices, such as random patrol and reactive initiatives, that have taken decades to build and develop. The upper level police supervisors and commanders are not convinced that their line officers are ready for this strategic change as community policing has a tendency to make officers appear to be social workers with a "soft" approach toward crime control. Performance evaluations for police officers are still primarily focused upon traditional quantitative values and statistics such as the number of

field interviews conducted and arrests made (Ortmeier & Davis, 2012). Performance assessments correlating with community policing guidelines must be evaluating completely different data to be fair with the officers as their daily functions will be changed considerably. Ortmeier and Davis (2012) also pointed out that the majority of people contacted by the police are not criminals and are truly law abiding citizens, even when working and living in high crime areas, leading community police officers toward the difficult task of recognizing those responsible community members and not lumping them together with the chronic and dangerous criminal offenders.

Another concern for community policing is connected to the potential of a shift in local political and financial police power. If community policing works as prescribed, the police officers in the field will become very closely associated with the citizens within their communities while working to solve crimes and other problems. This close partnership might result in other government officials and agencies begrudging the perceived power of police departments and their ability secure financial support outside of normal budgeting constraints (Miller & Hess, 1998). "Police chiefs nationwide have found themselves in conflict with mayors and city councils as individual police officers lobby for needed resources" (Miller & Hess, 1998, p. 23).

Worrell and Schmalleger (2013) suggested that many police supervisors and officers alike continue to only accept traditional methods of policing where they associate with only those images as a result. The usual goals and objectives of community policing do not correlate with the traditional measurements of successful law enforcement, such as arrest, traffic enforcement, and other old-school crime fighter statistics. This failure to

connect to the newer community policing criteria results in officers finding community policing initiatives to be the softer side of policing leaving the traditional subculture of policing as the predominate view and one that is most sought after. As a result, community policing can at times discourage an entire police department bringing its efficacy into question. Worrell and Schmalleger (2013) maintained further that significant numbers of citizens fail to find the value in allowing police officers closer to their personal lives as true trusting relationships do not exist; thus, providing a breach between police and some community groups that will never be bridged.

In order for police officers on the street to interact well within the scope of the community policing strategy, officers must receive training and education that is quite different from the traditional methods employed by police training academies and in-service police training seminars. Ortmeier and Davis (2012) argued that while officers are highly trained in various tactical procedures, self-defense techniques, and criminal law, to operate properly within the confines of community policing, officers must also be very proficient in areas related to community knowledge, leadership, communications, problem solving, critical thinking, and decision making to name a few.

Based upon the most recently updated training objectives for 2013, police academies in Michigan are not mandated to instruct recruits on the various aspects of community policing (MCOLES, 2010). This lack of education most likely adds to the confusion for new police officers entering the field to have a firm understanding of operational objectives and protocol for a department functioning under a community policing foundation. Thurman and Zhao (2004) concurred that community policing is

seldom taught in American police academies likely due to several reasons. One reason, they argue, is that the instruction curriculum for most academies is full with no room for new topics unrelated to traditional and tactical endeavors. Most academy training is directed toward officer safety concerns due the inherent dangers and "adverse conditions" related to police field operations (p. 173). Another reason might be related to instructors' unfamiliarity with the challenging concepts of community policing and their personal comfort with the more traditional areas of instruction (Thurman & Zhao, 2004). They postulated that teaching technical skills such as firearms, driving, and even self-defense tactics is found by academy instructors to be easier than teaching the more intangible philosophical subjects related to community policing strategies such as problem solving and the best ways to develop strong community relationships (Thurman & Zhao, 2004).

Police Training

Today, the everyday business of police officers and police departments is constantly changing and becoming very challenging. While police officers wear their hat with a badge attached, they also must wear many different hats throughout their complex work day. They must be mediators, counsellors, clergy, domestic violence consultants, medics, psychiatrists, firearms marksmen, self-defense experts, para-lawyers, animal control specialists, problem solvers, critical thinkers, and professional interpersonal communicators - all in one day's work shift. While performing these activities, police officers also have been given the authority to remove civil liberties from certain individuals by placing them under arrest for criminal activities and have been given the authority to use lethal force when necessary under extreme circumstances to quell violent

behaviors (Cox et al., 2014). These needs, as well as many others, make hiring the correct people and then educating police officers a top priority. “Although the quality of police personnel has always been important, with the increased complexity of the police role and the movement toward community policing, the quality of personnel has perhaps become the key element in effective police operation” (Roberg et al., 2005, p. 179).

From a brief historical perspective, it is prudent to describe the origins of American policing leading toward the need for formal police training. As I previously discussed, policing in America can be divided into three distinct eras: political, reform, and community (Burns, 2013; Gaines & Miller, 2009; Haberfield, 2002; Kelling & Moore, 1988; Roberg et al., 2005; Travis & Langworthy, 2008; Vodde, 2009; Worrell & Schmalleger, 2013).

During the Political Era of policing, police officers were appointed by politicians where they served those same politicians and had to pay bribes for promotions (Haberfield, 2002). Corruption was prevalent where the police took payoffs to ignore various crimes related to vice and developed relationships with known criminals allowing them the opportunity to regulate crime, not control it (Worrall & Schmalleger, 2013). When city politicians were elected, many jobs including police officers were rewarded for loyalty, and those police officers worked to ensure that their employer remained in power. These political considerations led to a strong patronage system in most cities as police had much control over the local polling locations (Haberfield, 2002). To obtain employment as a police officer, one only needed to be a citizen and be an adult as no education or training was mandated. Cincinnati Police Department in the 1880’s required

two qualifications for obtaining a police job: high moral character and foot speed (Bohn & Haley, 2010). The high moral character standard was obviously a step in the right direction for the previous 80-90 years of political influence and control.

The Reform Era, beginning in approximately 1930, led toward the professionalization of law enforcement where removing the police from politics and vice versa were the main focus of the reformers such as Reverend Charles Parkhurst, New York City Police Commissioner Theodore Roosevelt, Richard Sylvester, and Berkeley, CA Chief August Vollmer (Haberfield, 2002; Worrall & Schmalleger, 2013). One push toward ending the corrupt political practices came in 1929 from none other than a politician, President Herbert Hoover, where he appointed the National Commission on Law Observance and Enforcement, nicknamed the Wickersham Commission after its appointed chairman, George Wickersham (Gaines & Miller, 2009). This commission was tasked with evaluating the current criminal justice system with a specific focus on police brutality and political corruption (Gaines & Miller, 2009). Another spark toward reform came from a group external to law enforcement circles and was known as the Progressives which was a political reform movement in the United States to cause social, economic, and political change. August Vollmer would regularly provide recommendations to both the Wickersham Commission and the Progressives in their charges toward change (Bohm & Haley, 2010; Vodde, 2009).

Travis and Langworthy (2008) argued that while police administrators pushed the reform movement agendas forward most of the reforms in policing occurred due to partisan political battles between Democrats and Republicans. Each party was working

toward their best interests and to embarrass the other party. The Progressive reformers believed that the functions of government were to develop better living conditions and to pursue higher moral principles within their communities. The Progressives worked to have the police control unlawful alcohol consumption and to control immigrant behavior compelling the police to be the controllers of social class by enforcing unpopular laws on various ethnic communities. What the reformers did not understand was that police executives had minimal control over the virtually autonomous officers working at the street level and replacing the commanders did not change the police. A more grassroots, ground-up approach was required for true reforms to occur.

August Vollmer, considered by many as the unofficial head of the reform movement and now the father of American law enforcement, concentrated on much more than reforms. It is readily espoused by criminal justice researchers and historians that August Vollmer initiated the first formal police training practices while he was Chief of Berkeley, California (Charles, 2000; Gammage, 1963; Haberfield, 2002; Roberg et al., 2005; Vodde, 2009; Worrell & Schmalleger, 2013). During the 1920s, police reform began to take hold most assuredly due to the impact of the Wickersham Commission, however, reforms received a minimal response and lacked momentum due in part to concerns about Europe that were leading toward World War II (Vodde, 2009). In order to incorporate professionalism into policing, Vollmer believed that training and education were critical elements as he firmly advocated that police should fight crime and stay out of politics. In his quest for these modifications, Vollmer began hiring police applicants with college degrees (Bohm & Haley, 2010). In 1907, Vollmer began to offer specialized

college courses related to police work that were taught by him and other local experts, and in 1908, Vollmer's school was in operation were officers attended on their own time and received courses in photography, criminal law, evidence, police methods, and first aid. Vollmer's officers quickly found a correlation to their course work and their implementation to the field (Gammage, 1963).

According to Gammage (1963), police training originated as an apprenticeship where the newly employed officer with no prior training was equipped with the basic uniform, gun, and badge and was assigned to an experienced journeyman officer. The on-the-job nature of the training clearly involved a significant trial and error procedure with hopes that the senior officer would provide the correct guidance for the recruit resulting in minimal mistakes. This training process usually lasted anywhere from a few days to a few months resulting in a "finished" police officer expected to perform all duties with minimal supervision or direction. Gammage (1963) asserted that these nineteenth century police officer candidates were working in less complicated times, but the danger in the community was still present.

New York City established a formal police training academy in 1909, one year after August Vollmer initiated his police college education curriculum. Over the following ten years eight east coast municipal police agencies began formal training of police recruits (Gammage, 1963). "Conservatively speaking, an average of one to two departmental schools were organized annually in the years from 1909 to 1930" (p. 7). This new professional or reform model began to take hold eradicating political controls and allowing police agencies to gain control of their employees. Bohm and Haley (2010)

suggested that during this time frame police departments expended their resources toward changes related to the following:

- narrowing of the police function from social service and the maintenance of order to law enforcement only;
- centralization of authority, with the power of precinct captains and commanders checked;
- creation of specialized, centrally based crime-fighting units, as for burglary;
- a shift from neighborhood foot patrol to motorized patrol;
- implementation of patrol allocation systems based on such variables as crime rates, class for service, and response times;
- reliance on technology, such as police radios, to both control and aid the policing function;
- recruitment of police officers through psychological screening and civil service testing;
- specific training in law enforcement techniques (p. 154).

The Wickersham Commission and Vollmer worked to have a civil service system instituted providing protections from political influence with police agencies becoming more centralized where police executives could better observe and manage their personnel work toward solving crimes and performing their duties within the law. The timing of the Great Depression forcibly assisted police departments in becoming more centralized due to significant budget cuts and the loss of decentralized police precincts. This resulted in officers returning to a central police headquarters for operations which easily fell within the professional model sought by Vollmer (Worrell & Schmalleger, 2013). The economic collapse during the Great Depression also provided another influence on policing by “encouraging better-educated, middle-class men to apply for

police officer positions" (Travis & Langworthy, 2008, p. 101). Police officer jobs provided job security during those financially troubled times where alternative employment options were very limited. Vollmer and other police executives were able to elevate to basic educational mandates for entering the police profession (Travis & Langworthy, 2008).

Through the inspiration of August Vollmer, numerous police departments adopted a strong focus on reform professionalism from the 1920s to the 1960s with several of his apprentices being appointed as police chiefs in California (Walker & Katz, 2011). In 1930, higher education introduced the first known two-year degree program at San Jose State University, followed by the first bachelor degree in criminology and law enforcement being instituted at the University of California at Berkeley in 1933. Michigan State University introduced their Bachelor of Arts degree in law enforcement in 1935 with the University of Washington on their heels in 1936 as the third university to offer full college degrees with law enforcement as the major of study (Charles, 2000).

One of Vollmer's most prominent protégés, O.W. Wilson, was also a key leader in the reform movement toward police professionalism during the late 1930s through the 1960s. Wilson influence was felt at different levels within American criminal justice circles. He was appointed chief of Wichita, Kansas from 1928 to 1935, became Dean of the School of Criminology at the University of California from 1950 until his appointment as the Superintendent of Police for the city of Chicago in 1960. Wilson authored two of the most recognized books on police management, *Municipal Police*

Administration and *Police Administration*, which are credited with influencing decades of police chiefs and administrators (Walker & Katz, 2011).

While the reform movement provided much positive progress within policing, the leadership failed to repair strained relations with most ethnic and minority communities. During 1943, a series of racially oriented riots occurred in major U.S. cities such as New York, Los Angeles, and Detroit where the riots caused significant disruption in the manufacture of military vehicles and tanks needed overseas for World War II (Walker & Katz, 2011). Police agencies began to focus on community relations but not to the extent necessary to truly prevent future problems.

While environmental and political conditions prompted the need for reforms in England in the 1820s, as well as those sought by August Vollmer one hundred years later and the American riots in the 1940s, a state of unrest, violence, and disorder re-surfaced in the U.S. during the 1960s and 1970s. This turmoil was once again focused on perceptions that change was needed due to a myriad of social conditions overlapping each other (Vodde, 2009). Some of the conditions causing "one of the most challenging eras in American history for the police" (Cox et al., 2014, p. 25) were the civil rights movement, the Vietnam War with its associated protests, the peace movement, drug experimentation, judicial activism restricting police behaviors, political assassinations, major police corruption revelations, and increased crime rates. The police responded to the social environment looking to reinstate the reform agenda's law and order approach which ultimately lead to additional violence in the streets, more riots in major cities, media images of police brutality and water cannons, along with renewed public demands

for reforms asking for the police to connect to their communities. These societal concerns and demands for change sent a clear message that the police must respond using new, softer, more civil tactics where police educations and training was later deemed the answer (Cox et al. 2014; Haberfield, 2002; Vodde, 2009; Walker & Katz, 2011).

Walker and Katz (2011) reported that President Lyndon Johnson responded to the continued concerns of civil disobedience, crime rates, and the troubling relationships between the community and the police by creating several national commissions to study the problems resulting in several formal reports on their findings and recommendations. One key group was the President's Commission on Law Enforcement and Administration of Justice, which was also called the President's Crime Commission and worked from 1965-1967. They were tasked to conduct an all-inclusive study of the criminal justice system where the Commission endorsed critical research endeavors resulting in the *Task Force Report: The Police* where analytical research described the intricacies of the police role in society and how most of their time was devoted to problems unrelated to enforcing laws.

Another report from the Crime Commission in 1967, *The Challenge of Crime in a Free Society*, continued to sanction police professionalism that should include "higher recruitment standards, more training, and better management and supervision, but also called for controls over police discretion" (Walker & Katz, 2011, p. 43). In this report, the commission conveyed that they discovered that police training was inconsistent, fragmented, and primarily delivered by part time instructors who were unprepared and unmotivated to teach (Vodde, 2009). The report provided over 200 recommendations

that included all governmental entities with the vast majority concentrated toward the police as the foundation of the criminal justice system (Roberg et al., 2005). A continuum of concern was presented by the commission beginning with the poor relationships between the police and their minority communities leading to a lack of trust, which resulted in crime prevention initiatives having little impact on crimes. The commission believed that unskilled police personnel would continue to exacerbate the problems leading to two provocative and noteworthy recommendations relating that all enforcement officers and police supervisor and executives should have baccalaureate degrees (Roberg et al., 2005). "The ultimate aim of all police departments should be that all personnel with general enforcement powers have baccalaureate degrees (President's Commission, 1967, p. 109). The commission further indicated that "Police departments should take immediate steps to establish a minimum requirement of a baccalaureate degree for all supervisory and executive positions" (President's Commission, 1967, p. 110).

Within one year, Congress provided proof that they agreed by enacting the Omnibus Crime Control and Safe Streets Act in 1968. This act was more than words on paper; it provided billions of dollars in funding for the beleaguered criminal justice system with a real focus on police and their operations (Roberg et al., 2005). This act produced an immediate impact on most other colleges and universities with the increase of funded law enforcement education opportunities as the law also created the Law Enforcement Assistance Administration (LEAA). The LEAA was directed toward support of police planning initiatives, new technology, and funding for advanced police

training and education needs. The funding included one billion dollars per year toward the betterment of criminal justice agencies (Roberg et al., 2005).

The Omnibus Crime Control and Safe Streets Act of 1968 also provided for the Law Enforcement Education Program (LEEP) which provided educational financial support for current officers and college students looking for degrees in criminal justice by bestowing college grants to cover the costs of their college degrees (Charles, 2000; Cox et al., 2014). Not surprisingly, this act stimulated hundreds of American colleges and universities to develop criminal justice degree programs to fit nicely with this funding source. In order to receive the grant funds, current police officers were required to remain employed somewhere within the criminal justice system or be required to repay the loan. Upon successful completion of the four year contract, the loan was forgiven (Charles, 2000).

Another prominent report provided by the National Advisory Commission on Criminal Justice Standards and Goals in 1973, *Report on Police*, supported the President's Crime Commission on their higher education recommendations for the police. This report suggested a graduated time table for completion of college credits for all police officers where they would require a four-year bachelor degree by 1982 (Roberg et al., 2005). The report was also very critical of the police education processes at the time and recommended the following:

1. The majority of federal funds of police higher education should go to programs with broad curriculums and well-educated faculty rather than to narrow technical programs.

2. No college credit should be granted for attending police department training programs.
3. Community colleges should phase out their terminal two-year degree programs in police education.
4. Colleges should employ primarily full-time police-education teaching staffs, seeking faculty members with Ph.D. degrees in arts and sciences.
5. Prior employment in criminal justice should be neither a requirement nor a handicap in faculty selection.
6. Government policies at all levels should encourage educating police officers before they begin their careers (p. 511).

In 1994, Congress, with the support of President Clinton, enacted the Violent Crime Control and law Enforcement Act, also known as the Crime-Control Act. The law provided comprehensive crime control measures while simultaneously apportioning $30 billion to criminal justice agencies where $9 billion was to be used to hire 100,000 new police officers (Roberg et al., 2005). The new officers were slated to become the backbone of local community policing initiatives. The Police Corps program was also established under this act providing for the recruitment of officers and college scholarship incentives for those applicants. The U.S. Department of Justice oversaw the Office of the Police Corps and Law Enforcement Education, where eligible full-time students would receive $10,000 for tuition reimbursements each year during their four-year degree college education. In return, the students signed a contract with the Justice Department agreeing to serve at least four years with state or local police agency. Failure to fulfill the

contract would result in the student providing full reimbursement plus 10% interest (Roberg et al., 2005).

I am personally aware of this program as I was the Deputy Director of the Michigan Police Corps from 2002-2006. The students in Michigan received up to $30,000 in college tuition reimbursements after graduating from the Michigan Police Corps training academy. The police academy, which lasted for twenty weeks, provided students with a fully funded training experience where all equipment, classes, books, and even a stipend of $400 per week was provided at no cost to the student. Once the student graduated from the Michigan Police Corps academy, the police agency that hired the recruit was provided with $10,000 per year for the recruits' first four years of employment. The student and the hiring agency were both provided with financial incentives from the Office of the Police Corps and Law Enforcement Education providing for a pleasant marriage, so to speak. The hired police recruit was required by federal contract to serve at least four years as an officer on patrol (U.S. Department of Justice, 2002).

The newly developed criminal justice programs became factors within the deep-rooted higher education system throughout the United States leading toward the existing law enforcement degree programs in existence today (Charles, 2000; Cox et al., 2014). Michigan is no stranger to law enforcement degree programs where 17 of the 20 police training academies reside within a community college or university.

Michigan Police Officer Training Requirements

Obviously, Michigan was ahead of the curve when it came to organizing and coordinating its statewide police training requirements and standards. Through the enactment of Public Act 203 of 1965 which took effect January 1, 1966, the Michigan Legislature cleared the path for standardized police training with the creation of the Michigan Law Enforcement Officer Training Council (MLEOTC). This law had been proposed several years prior to the aforementioned President's Crime Commission's report, *The Challenge of Crime in a Free Society,* which was published in February 1967. The report recommended that "Police standards commissions should be established in every state, and empowered to set mandatory requirements and give financial aid to governmental units for the implementation of standards" (President's Commission, 1967, p. 123). The report indicated that 17 states already had Police Officers Standards and Training (POST) commissions in place and recommended that the other 33 states follow suit (President's Commission, 1967). In response, the National Association of Directors and Law Enforcement Standards and Training (NADLEST) was formed by the administrators of the state POST commissions in existence in 1969, with the full endorsement of the International Association of Chiefs of Police. The organization, seeking a more global and encompassing mission, changed its name to the International Association of Directors and Law Enforcement Standards and Training (IADLEST) in 1987 (IADLEST, 2013).

MLEOTC's initial mission statement sought "to make available to all local jurisdictions, however remote, the advantages of superior employee selection and

training" (MCOLES, 2011, p. 1). They sought to standardized police training and selection in Michigan by incorporating many of the Crime Commission's recommendations.

Michigan Public Act 203 of 1965 has had nine amendments since its enactment during which the name of MLEOTC was changed over time to the Michigan Commission on Law Enforcement Standards (MCOLES). The current MCOLES mission statement reflects that "MCOLES executes it statutory responsibility to promote public safety by setting standards for selection, employment, licensing, revocation, and funding in law enforcement and criminal justice" (MCOLES, 2011, p. 2). MCOLES is currently a member of IADLEST, where they seek to exist within nation norms and expectations regarding the required training and education of police officers.

In order to become a licensed police officer in Michigan, MCOLES has set mandatory training requirements in place for all police recruits where the minimum of 594 hours must be successfully completed within an approved training academy. The required 594 hours of training and education is defined fully within the MCOLES Basic Training Curriculum and Training Objectives Manual (MCOLES, 2010). The Basic Training Curriculum is separated into sections related to various functional areas of police officer instruction. Examples of Functional Areas would include Patrol Procedures, Investigations, and Traffic. Each Functional Area is then divided into related Subject Areas which are segmented into different training Modules where a minimum number of instructional hours are assigned and required. One example of this specific delineation would be in the Functional Area of Patrol Procedures. Overall the minimum

number of instructional hours for Patrol Procedures is 65 hours. Within these 65 hours, the academy must provide training in five Subject Areas: Patrol Operations (10 hours), Ethics in Policing and Interpersonal Relations (25 hours), Patrol Techniques (12 hours), Report Writing (12 hours), and Juveniles (6 hours). Each of these Subject Areas are subdivided into assorted Modules where a minimum number of hours is assigned for that module, such as Responding to Crimes in Progress for four hours. Each module also has a specific instructional outline defining the training objectives that must be addressed with each police recruit (MCOLES, 2010). Michigan police academies must deliver the minimum 594 training hours as required by the MCOLES (2012); yet, many academies provide substantially more education than is mandated. As training director of the Ferris State University Law Enforcement Academy, I can attest that academy recruits receive over 1100 hours of police training during each academy session, which is almost double the 594 hours required in Michigan.

Police academy trainers and instructors must meet minimum qualifications in order to teach within the academy classroom. The MCOLES Policies and Procedures Manual further specifies that "Instructors shall possess the necessary experience, knowledge, and skills to effectively instruct in their assigned areas of the basic training program …" (MCOLES, 2012, p. 77). For example, the instruction module titled "Constitutional Law," as well as all other modules related to Michigan criminal law and procedures, must be taught by an attorney admitted to the Michigan Bar. Another illustration would be related to the instruction of emergency vehicle operation where the instructor must have completed an MCOLES approved emergency vehicle operations

instructor course prior to teaching police recruits (MCOLES, 2012). These mandates placed upon the instructors' basic qualifications appear to be reasonable, justified, and well within the national norms for police officer training. MCOLES has a basic requirement for all police academy instructors where they must have at least one year of field experience in law enforcement or have "the relevant professional training, demonstrable skills and experience in the subject matter to which the instructor is assigned" (MCOLES, 2012, p. 77).

It is relevant to note that while MCOLES has many requirements for academy curriculum and their approved academy instructors, there are also many mandates for applicants wishing to become an academy student or recruit. Some of the basic requirements to be admitted into a Michigan police academy involve the applicant being a citizen of the United States, being at least 18 years of age, having a valid Michigan driver's license, having no felony crime convictions, possessing a high school diploma or general education development test certificate, possessing a good moral character, and being able to read and write at normal levels (MCOLES, 2012). For obvious reasons, there are also several medical requirements that academy recruits must meet, such as being able to pass a general physical examination, having normal vision correctable to 20/20 acuity in each eye with no color blindness, possessing normal hearing, having their height in proportion to their weight, being free from physical defects, chronic diseases, and possessing mental and emotional stability (MCOLES, 2012).

In addition to the requirements for police academy curriculum, instructors, and recruits, each entity wishing to operate a Michigan police academy must apply by

submitting a proposal to establish a new police academy and, once authorized, each academy is required to submit an Annual Operating Plan for MCOLES' review and approval. If approved to operate, the academy must negotiate an Operating Contract with MCOLES directing full compliance with all rules and regulations. MCOLES currently has authorized twenty (20) academies to operate throughout Michigan where they have sought advantageous geographical separation in order to provide most training close to the highest populated regions (MCOLES, 2012).

Each of the 20 Michigan police academies has been authorized to operate within three different training functions where the goals and objectives are directly related toward specific types of recruits. These three academy designations are categorized by MCOLES as Agency Training Schools, Pre-Service Track Schools, and Regional Training Schools (MCOLES, 2014). An Agency Training School is a police academy run by a police agency for the sole purpose of training police recruits for their department only. The two authorized Agency Training Schools are the Michigan State Police and the Wayne County Sheriff Department. Pre-Service Track Schools are police academies designed to teach students who are enrolled in college bachelor or associate degree programs that incorporate the police academy curriculum within their program. Students graduate with their chosen degree and licensable status as a police officer upon completion. Currently six Michigan colleges have been approved as Pre-Service Track Schools: Ferris State University, Grand Rapids Community College, Kellogg Community College, Lake Superior State University, Northwestern Michigan College, and West Shore Community College. The remaining Michigan police academies are labeled as

Regional Training Schools and train police recruits that have either been hired by various police agencies or who wish to pay for their academy training in order to obtain a licensable status prior to obtaining employment. Applying for police officer jobs and being immediately licensable (academy trained first) provides the applicant with skills making them valuable in the job market. The twelve academies with authorization to operate a Regional Training School are Delta College, Detroit Metropolitan Police Academy, Grand Valley State University, Kalamazoo Law Enforcement Center, Kirtland Community College, Lansing Community College, Macomb Community College, Mott Community College, Northern Michigan University, Oakland Community College, Washtenaw Community College, and Schoolcraft Community College (MCOLES, 2014). In order for any police academy recruit to be fully licensed by MCOLES as a police officer, they must attend one of the 20 academies and then be hired and sworn in as police officer for any of the Michigan police agencies. The sworn police officer status completes the licensing process.

Police Academy Training Methods

To prepare police officers for their societal roles in the 21st century, training and education are at the forefront for their success and survival. As I have previously discussed, the formal mandatory training of police officers is a relatively recent addition within the American policing with their initial training now being conducted in police training academies. While Michigan has minimum curriculum requirements for all of their 20 police academies, police academy training content throughout the United States is far from being consistent or uniform. Birzer (2003) argued that that police training in

America is consistent in its approach toward how that training is conducted or delivered with the primary direction being “very behavioral and militaristic” in nature (p. 29). This behavioral atmosphere mimics the officer hiring process over the past decades where military-oriented persons were successful due to their superior physical prowess and their ability to follow orders without questions (Birzer, 2003).

Roberg et al. (2005) defined recruit training as primarily guided by curriculum design and delivery where many different aspects have a significant bearing toward success. One of these impactful features include program orientation which relates directly to the level of stress that is induced into the academy training process. The principal method used for many police academies results in similarities to military basic training or otherwise known as military boot camp. Within this highly-structured stressful environment, police recruits are expected to withstand harsh treatment both mentally and physically while remaining fully compliant and respectful during the training. Charles (2000) described this style of police training as a militaristic environment where all actions of the recruits were highly monitored and controlled by the trainers and resulted in minimal efforts to teach critical thinking, decision making, or problem solving.

Charles (2000) defined the nonmilitary police academy model as focused on adult learning strategies where curriculum is directed toward a softer approach within the classroom not employing physical training as punishment. Multiple teaching methods are used to best prepare students to become self-directed police officers who can truly solve problems, analyze issues, learn from their mistakes, and think creatively.

McCreedy (1983) argued that the traditional training environment of most American police academies is based upon the need to operate within a "punishment-centered" (p. 32) military model where recruits must prove that they fit the mold, while simultaneously academy faculty work to eliminate the recruits who do not. Police academy instructors must understand that they are not teaching students to become military soldiers, they are teaching future police officers. Bumbak (2011) concurred because police officers have many more societal constraints on their actions than soldiers in a theatre of war. Therefore, McCreedy found three major concerns with this education model.

First, according to McCreedy (1983), the foundation of the militaristic model is based on the supposition that the required skills, knowledge, and abilities of the recruit are the same regardless of the police agency employing them. While most police agencies operate within a paramilitary structure, most are very different in their approach to policing their community and their expectations of their officers. This militaristic focus instills within the recruits that they must automatically follow all orders given to them by their superiors without question and without analysis. Clearly, this process will work well in emergency situations where time for analysis is not present; but in most circumstances, time is available and officers are expected to use proper discretion and to incorporate critical thinking within their decisions, yet they were not taught these skills in the military model (McCreedy, 1983).

Second, McCreedy (1983) argued that the castigatory or punitive nature of police academy training is invalid and should be changed as recruits must be provided the

opportunity to learn the needed skills first and then perform those functions under stress when necessary at a later time. For example, police recruits should be able to practice their driving techniques in a supportive environment slowly and repeatedly in order to develop precision in their vehicle control capabilities first and then simulated stress can be added for further development of their driving skills. The punishment-oriented approach conflicts abruptly with a supportive teaching model (McCreedy, 1983).

Lastly, McCreedy (1983) maintained that police departments integrate police academy training into their officer selection process where the high stress, punitive environment becomes a weeding-out system allowing only those who pass the "audition" to be fully accepted. This traditional type of training being meshed into any officer selection process should be changed because it results in academies looking to eliminate a high proportion of recruits to allow the academy to be perceived as successful. This also turns the academy administrators into the real decision makers on who enters the field and who gets removed, not the hiring police agency (McCeedy, 1983).

In line with McCreedy's recommendations for police academy training changes, Birzer (2003) contended that the behavioral and military model for academy instruction creates a problematic training environment and bleeds into the culture of policing leading toward a "warrior-like mentality on the part of the police" (p. 30). This points to a prominent paradox. If police departments are working within a community policing philosophy, do they want military warriors as their police officers or do they prefer critical thinking, problem solving officers in the field? If police officers are expected to work as compassionate, understanding partners with members of their community,

traditional law enforcement methods will need to somewhat take a backseat. In addition, traditional methods of police academy training must be changed allowing for academy instructors to be highly skilled in the utilization of the more effective student-centered, andragogical instruction methods resulting in recruits learning more effectively within a self-learning mode (Birzer, 2003).

The U.S. Bureau of Justice Statistics (U.S. Bureau of Justice Statistics, 2009) conducted a survey of American state and local police academies in 2006 and discovered several interesting findings. Almost half (45%) of all academies were operated by colleges and universities with nearly 75% of all instructors working on part-time status and 39% of all academy instructors being sworn police officers permanently assigned full-time to academy instruction only. Very few police academies required their instructors to have a college degree, with only 11% mandating a bachelor's degree and 8% requiring an associate's degree. Exactly 56,934 recruits entered academy training in 2005 with colleges and universities receiving the majority (36%) of those students and 86% of those recruits graduated from the police academy. Finally, "A majority of recruits were trained in academies more oriented toward a stress-based military model than a non-stress academic model" (U.S. Bureau of Justice Statistics, 2009, p. 10). The study found that 61% of all of the police recruits attended an academy that was either predominately a stressful military model or was mostly a stressful military model. Not surprisingly, the vast majority of college and university police academies were found to be employing a predominately stress-free educational environment. In summary, this research found the majority of recruits in 2005 were still being taught in high stress, militaristic conditions

by part-time instructors who had minimal college education resulting in a fairly traditional model of police academy training.

Many researchers contend that within both the traditional, militaristic style of police academy training and the non-stressful academic arena, teacher-centered approaches with a lecture format are the primary means of instruction and information sharing (Birzer, 2003; Chappell, 2008; McCoy, 2006; Shipton, 2009; Vodde. 2009; Werth, 2011). This sage-on-the-stage approach provides a unidirectional distribution of information providing recruits with a built-in rationale to become unmotivated and less attentive in class when they should be fully engaged with their instructors (Shipton, 2009). Adult learning strategies are strongly recommended where academy classes become student-centered firmly assisting in the attainment and application of student knowledge associated with developing non-technical capabilities such as communication, decision making, and problem solving (Shipton, 2009).

Ortmeier and Davis (2012) argued that police academy instructors are justified in assessing a police recruit's response and ability to use good judgment within a high stress, militaristic basic training atmosphere, but they also acknowledge that heightened stress is unfavorable to an effective learning environment within the academic classroom. High stress situations or scenarios should be based only on real life problems as the "Military-style marching and over-emphasis of uncritical obedience has little value in the performance of modern-day police tasks" (p. 248).

As indicated by Shipton (2009), police academy training curriculum has minimal required instruction directly related to building the necessary skills most connected to

community policing. The needed conceptual skills identified are closely associated with problem solving, decision making, communication, and critical thinking initiatives. Most police academies emphasize the development of practical abilities linked to topics such as firearms marksmanship, driving, or self-defense tactics suggesting dissonance between the conceptual skills that will be most utilized in the field versus what is most taught to police recruits (Shipton, 2009). The training curriculum in Michigan is devoid of specific required education related to the development and evaluation of that same conceptual skill set and clearly accentuates the development of the police practical skills described (MCOLES, 2010).

Chappell (2008) postulated that the traditional policing model is mainly reactive to crime incidents at its foundation and the community policing model is proactive in its approach to working as partners with community members to identify and solve important problems that have been isolated. Clearly, the responsibilities of police officers differ depending upon which policing philosophy or model has been deployed by the police agency. For community policing, "The emphasis is on resolving reoccurring problems rather than intervening in single incidents" (Chappell, 2008, p. 37). Police recruit education has been very slow to redirect the emphasis even after being within the community policing era for over three decades. McCoy (2006) agreed that, while traditional law enforcement education programs perform well in developing technical and procedural skills, police training does little to build the non-technical, much needed skills like problem solving, decision making, and leadership. Perhaps a change in direction

toward the use and development of other learning strategies would be more supportive toward the education of community-oriented police recruits.

Learning Theories and Instructional Paradigms

This section provides the reader with an overview of four major learning theories that may contribute significantly toward the appropriate adjustments needed in police education: behaviorism, cognitivism, constructivism, and humanism. I will also develop an explanation of pedagogy and andragogy which are two divergent instructional design paradigms related to the education of children and adults.

Pedagogy versus Andragogy

According to Knowles, Holton, and Swanson (2005), the word pedagogy originates from two Greek words, *paid* meaning "child" and *agogus* meaning "leader of," with a more precise meaning associated with "the art and science of teaching children" (p. 61). Pedagogy is also known as an educational model that finds its origin from European schools used to prepare boys for the priesthood around the 12th century and eventually, centuries later, became the model for all U.S. schools including higher education. Even though U.S. adult education programs started shortly after World War I, pedagogy was still the primary teaching model resulting in adults being taught like children. Within this model, the instructor decides what is relevant to be taught, the method of delivery, when it will be taught, and whether the students have learned the subjects. The instructor guides the education process and the student is a passive receptor of the information fully dependent on the instructor at all times.

Knowles et al. (2005) postulated that the pedagogical model is more or less a one-way transfer of knowledge and is based on the following assumptions about learners:

1. *The need to know.* Learners only need to know that they must learn what the teacher teaches if they want to pass and get promoted; they do not need to know how what they learn will apply to their lives.
2. *The learner's self*-concept. The teacher's concept of the learner is that of a dependent personality; therefore, the learner's self-concept eventually becomes that of a dependent personality.
3. *The role of experience.* The learner's experience is of little worth as a resource for learning; the experience that counts is that of the teacher, the textbook writer, and the audio-visual aids producer. Therefore, transmittal techniques – lectures, assigned readings, etc., are the backbone of pedagogical methodology.
4. *Readiness to learn.* Learners become ready to learn what the teacher tells them they must learn if they want to pass and get promoted.
5. *Orientation to learning.* Learners have a subject-centered orientation to learning; they see learning as acquiring subject-matter content. Therefore, learning experiences are organized according to the logic of the subject-matter content.
6. *Motivation.* Learners are motivated to learn by external motivators – grades, the teachers' approval or disapproval, parental pressures (pp. 62-63).

Connor, Wright, Curry, DeVries, Zeider, Wilmsmeyer, and Forman (1996) claimed that this pedagogical, teacher-directed instructional method originated with the Calvinists who believed that adults must copiously regulate, guide, and censor the

learning process for children to maintain their innocence as knowledge was evil. In time, John Dewey evaluated the education instructional methods espousing that schools were heading in the wrong direction as they should be encompassing learning using activities instead of teacher-directed curriculum. Dewey felt that children learned at much higher levels from experience rather than authoritarian approaches. Yet, almost 100 years later, Dewey's suggestions for learner-centered classrooms have not been fully realized as most formal education instruction is still centered on the teacher. "Even good-intentioned educators can squelch naturally inquisitive instincts by controlling the learning environment. By adulthood, some people view learning as a chore and a burden" (Conner et al., p. 9).

Roberg et al. (2005) reminded police educators that they must not fully eradicate pedagogical methods from police academy environments as "pedagogical teaching methods are also necessary, especially with respect to those activities that require memorization (e.g., laws and policies) and behavioral techniques (e.g., traffic stops and approaching a subject)" (p. 196). Most police academy curricula remain fixed toward teaching *how* to perform the job as opposed to teaching the recruits *why* they should perform that certain function or why another technique might be more effective. When considering instruction related to community policing, such as cultural diversity, problem solving, team work, communication skills, or conflict management, police recruits would most likely find a different teaching approach, andragogy, to be more beneficial and supportive.

Andragogy is defined as “the art and science of helping adults learn” (Knowles et al., 2005, p. 61) and is a learning model based on several assumptions providing for a learner-centered education regardless of age. While Knowles et al. (2005) suggested that pedagogy encompasses traditional teaching methods such as lectures, note taking, rote memory skills, and fact testing, andragogy provides for student-centered learning by utilizing analytical and conceptual skills such as group work, problem solving, role playing, and interactive scenarios. As police administrators and academy instructors understand the multifaceted nature of the police role in society and the necessity to make swift and accurate decisions while using discretion, the primary focus of police training and education should incorporate andragogical instruction methods (Roberg et al., 2005).

Knowles et al. (2005) itemized six assumptions about the andragogical perspective that provide a clear distinction from pedagogy, the teaching of children:

1. *The need to know.* Adults need to know why they need to learn something before undertaking to learn it. … Even more potent tools for raising the level of awareness of the need to know are real or simulated experiences in which the learners discover for themselves the gaps between where they are now and where they want to be.
2. *The learners’ self-concept.* Adults have a self-concept of being responsible for their own decisions, for their own lives. Once they have arrived at that self-concept, they develop a deep psychological need to be seen by others and treated by others as being capable of self-direction. They resent and resist situations in which they feel other are imposing their wills on them.

3. *The role of the learners' experiences.* Adults come into educational activity with both a greater volume and a different quality of experience from that of youths. By virtue of simply having lived longer, they have accumulated more experience than they had as youths. … It also means that for many kinds of learning, the richest resources for learning reside in the adult learners themselves. Hence, the emphasis in adult education is on experiential techniques – techniques that tap into the experience of the learners, such as group discussions, simulation exercises, problem solving activities, case methods, and laboratory methods instead of transmittal techniques.
4. *Readiness to learn.* Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situations.
5. *Orientation to learning.* In contrast to children's and youths' subject-centered orientation to learning (at least in school), adults are life-centered (or task-centered or problem-centered) in their orientation to learning. Adults are motivated to learn to the extent that they perceive that learning will help them perform tasks or deal with problems that they confront in their life situations.
6. *Motivation.* Adults are responsive to some external motivators (better jobs, promotions, higher salaries, and the like), but the most potent motivators are internal pressures (the desire for increased job satisfaction, self-esteem, quality of life, and the like) (pp. 64-68).

Knowles, throughout his years of research, sought to understand the differences and similarities between adult and youthful learners while seeking to determine the

underlying reasons that results in adults working to learn. "It is also important to bear in mind that the means toward facilitating effective learning does not rest with any single method, practice, or procedure; rather, it embodies a holistic and integrative methodology that considers the overall needs and dispositions of the learner, the learning environment, and the circumstances in which adults pursue learning – such as basic police training" (Vodde, 2009, p. 87).

Birzer and Tannehill (2001) found that andragogy leads to recruits and officers becoming more actively involved and self-directed in their learning processes which would be a logical outcome. Further, this instructional method would assist recruits in their quest to become outstanding community-oriented police officers. Birzer (2003) argued that the traditional behavioral approach to police education does not create the best environment for the transfer of knowledge and is far less realistic than what is offered within the andragogical conventions. Change always finds resistance and adjusting police academy curricula toward a compulsory andragogical perspective will most likely require authorization from state training commissions.

Birzer (2003) contended that if a much higher level of conceptual, problem solving, and critical thinking skills are expected of community-policing officers, those officers will be required develop and learn a higher volume of skills and abilities over the more traditional police officer. Community policing requires a proactive approach toward the multitude of community concerns where traditional policing methods are much more reactive in nature. This then culminates in a cogent pathway toward the police academy classroom needing to facilitate training that results in the elimination of

any detachment between the academy classroom, the essential performance skills of police officers, and their ability to perform those skills in the field. Andragogy becomes a viable solution to best instruct those pertinent policing topics. "It is beneficial to make training of police officers as experiential, interactive, and participatory as possible" (p. 36).

Learning Theories

The following sections provide some discourse on each these major learning theories to provide the reader with some clarification.

A brief definition of learning would be prudent as a starting point. According to Richey and Klein (2011), scientists have been studying the learning process since the late 1800's where the definition of learning has evolved. They argued that Mayer (1982) provided the most relevant definition currently where learning involves an enduring change in a person's behavior or knowledge directly related to experience. Driscoll (1994) concurred that learning involves activity that occurs throughout life and transpires intentionally within formal environments and unintentionally through personal experience. Learning can be a simplistic or a very complicated process where many competencies may be acquired. Learning is also a multifaceted process where the results of learning may be observable and overt, yet other results will be remain discreet and hidden from view. Ormrod (2004) contended that the observable changes are behavioral in nature and the changes obscure from view are mental or thought processes better known as cognitivism. With these basic thoughts about learning, I move toward further discussion on learning theories.

Behaviorism and Neo-Behaviorism

The theory of behaviorism asserts that learning occurs when there is a relatively permanent change in observable behavior founded by one's experience (Eggen & Kauchak, 1999). Behaviorists view learning "as the ability to perform new behaviors; they focus on a stimulus-response approach to learning." The stimulus-response approach involves actions (stimuli) established by someone or something within the environment that affect the human senses resulting in behaviors (responses) from those associations (Richey & Klein, 2011, p. 52).

According to behaviorism theory, there are three primary types of learning that transpire: connectionism, classical conditioning, and operant conditioning (Eggen & Kauchak, 1999; Richey & Klein, 2011). Connectionism is considered one of the original stimulus-response theories where learning occurs by responses to stimuli that result in receiving reinforcements which allow connections to be made. The strength of each connection is determined by whether the reinforcement has positive or negative consequences; rewards strengthen the behaviors and punishments weaken them. These stimulus-response connections can easily be used to explicate the learning of facts and other simple behaviors; however, most findings contend that true learning is much more intricate (Eggen & Kauchak, 1999; Richey & Klein, 2011).

The more complex ideas about learning were first described by Ivan Pavlov, a Russian physiologist and Nobel Prize recipient in 1904 for his classical work on animal digestion (Eggen & Kauchak, 1999). During his research, Pavlov had his research assistants provide dogs with meat powder and then provide a measurement of the dogs'

salivation. After many repetitions, the dogs began to salivate at the presence of the assistants regardless of whether they had meat with them. This response was labeled "classical conditioning or respondent learning because the learner was responding to the environment" (Eggen & Kauchak, 1999, p. 198). Another example of classical conditioning would be student test anxiety where students become ill when preparing to go to school to face testing processes. These negative connections to school start to become more powerful over time and may continue when the students become parents. As parents, they even refuse to attend their children's school functions due to their past adverse experiences. These negative connections to school provides further evidence toward the rationale for teachers to maintain a positive emotional atmosphere in their classrooms in order to eliminate future negative associations (Eggen & Kauchak, 1999).

The third type of behavioral learning involves operant conditioning which is the next logical progression toward understanding this theory where it is argued that people do more than respond to stimuli; they also regularly initiate actions or behaviors. B. F. Skinner, considered one of the most influential psychologists of the twentieth century, postulated that learners not only respond to stimuli, but that their actions are mainly controlled by the intended consequences of their behaviors (Eggen & Kauchak, 1999). These consequences will then influence future behaviors. As an example, a supervisor's praise toward a worker performing well is a consequence and the praise becomes the reinforcement mechanism toward strength the response in the future. This reinforcement is considered as an integral component to operant conditioning where both positive and negative reinforcement are instrumental. Some consequences weaken behaviors and even

cause a vast decrease in their frequency where this process is best known as punishment (Eggen & Kauchak, 1999; Richey & Klein, 2011).

Birzer (2003) argued that behaviorism is ever-present within police academy training environments which are replete with militaristic conditions where recruits are clearly working within a punishment orientation. As previously discussed, McCreedy (1983) fully agreed also that most police academies function within a punitive structure and adjustments should be seriously considered. Even Skinner encouraged educators to emphasize reinforcing the successes of students instead of punishing them for their failures where reinforcements should be immediate and consistently administered (Ormrod, 2004).

Cognitivism

Cognitivist theorists hold that learning is constructed upon internal higher mental functions as opposed to the behavioral theorists focus on external non-mental observable behaviors. In addition, cognitivists contend that students are most likely to obtain and recall information in the long term if the learning process is student-oriented, pertinent to them, and founded on their prior knowledge (Conner et al., 1996). Cognitivism focuses on human perception, problem-solving skills, memory, reasoning, and decision making capabilities while simultaneously moving away from animal research due to their inability in these areas (LeFrancois, 1995).

According to Ormrod (2004), cognitivism is presently the principal human learning perspective with its theoretical roots correlated to research from the 1920s and 1930s. Within the cognitivist perspective, five general assumptions or implications

related to education exist. The first implication is that learning is influenced by cognitive processes leading to the conclusion that educators must remain directed toward their students' cognitive abilities; teachers must relate to not only what students are learning, but also on how they are attempting to learn it. Ormrod's (2004) second assumption contends that as students mature they become able to understand higher level thinking. Ormrod (2004) contends that both Piaget and Vygotsky have argued previously that time and maturation result in students developing complex reasoning skills where instructors must know and incorporate those levels when deciding on their course objectives. The third implication from Ormrod (2004) involves the concept that humans initiate an organization process for everything that they learn, and teachers should use this idea by creating organized lessons that help their students to correlate the main topics. His fourth assumption indicates that it is easiest to process and learn new information when that information connects to prior knowledge. Learning will then occur quickly if students can associate the new information with ideas that they are already familiar with. Lastly, people decide what they will learn leading to Skinner's contention that students must remain mentally active in order to assist their education and learning processes. Those students who are not actively engaged during course instruction will learn very little (Ormrod, 2004).

Simply phrased, "Cognitive psychology is the study of how our minds work, how we think, how we remember, and ultimately, how we learn … Our innate cognitive architecture remains the same no matter what subject we try to master" (Conner et al., 1996, p. 26). Cognitive theorists believe that learning is a building procedure where we

layer new information on top of prior knowledge developing a bridge of data that constantly evolves as we mature. Eventually, certain activities become automatic requiring minimal thought processes. Thus, learning is an ever-developing procedure where our prior experience and knowledge causes us to constantly test new information that is encountered against what we believe. A prime example would be when we develop a very workable solution to a problem and later re-use that same solution when the problem resurfaces (Conner et al., 1996).

For the most part, the neophyte will have naïve theories about certain things where the experts will have much more relevant information on similar topics. Conner et al. (1996) argued that the neophyte envisions the parts of the puzzle where the expert sees the entire puzzle. In the 1980s, research discovered "intelligent novices" who appear to solve problems and learn new topics very efficiently regardless of the knowledge foundation, leading to the idea that novices can perform at expert levels with less knowledge and skills. Cognitive psychologists labelled this higher order capability as metacognition (Conner et al., 1996).

Metacognition is our "ability to think about thinking, to be consciously aware of ourselves as problem solvers, and to monitor and control our mental processing" (Conner et al., 1996, p. 28). One key factor of metacognition is our mindfulness of the difference between a surface learning or rote memorization of data and the deeper learning process leading to a full understanding of information (Conner et al., 1996). When a student decides to take notes in class because she understands that note taking improves her attention during class, she has demonstrated control and awareness over her attention and

has performed self-regulation. This self-regulation is a component of metacognition that controls the delivery of information for mental storage (Eggen & Kauchak, 1999). These metacognitive skills integrate problem solving abilities and are considered by researchers as "the most important lifelong learning skill" (Conner et al., 1996, p. 28). Conner et al. (1996) further indicated that teachers should include development of these skills into educational curricula to assist students in their transition toward expert status or to become an intelligent novice. Police academies would be well advised to consider this strategy.

Constructivism

In following with cognitivist theorists, humans do not automatically absorb information, but in order to learn, they process information in many ways looking to make sensible connections. This process involves the learner taking that information and constructing their knowledge base to facilitate their understanding. Students do not receive understanding from their instructor; they must create or construct their own understanding or wisdom from the information in front of them. According to Bruner and Piaget, the world is not discovered, but is created or constructed by a process where the learner is the manufacturer of knowledge (LaFrancois, 1995). This process is called constructivism. Within this construction progression, humans interact within their domain and then construct meaning from the experiences (Eggen & Kauchak, 1999; LaFrancois, 1995; Ormrod, 2004).

The constructivist model has been found to thrive in environments where the information is constantly changing or evolving leading the participants to find methods to

work well in unknown, vague, and unstructured settings (Conner et al., 1996). This learning theory provides productive ideas for dealing with circumstances that are uncertain, very complex, and have time frames that are limited for developing structure within the solution parameters. Therefore, knowledge development in fast-paced, unknown, or chaotic situations would be difficult outside of the constructivist approach, so the malleable use of prior information is recommended to provide the best results. The majority of information that must be learned currently involves advanced knowledge within undefined environments, and the constructivist approach recommends that learning occurs within "realistic settings and that the selected learning tasks be relevant to the learner's life experiences" (Conner et al., 1996, p. 30). This theory seems to fit very well within police academy education needs as police officers must be able to overcome unknown environments and situations that require flexible and immediate decisions.

Constructivism can be found to be extensively utilized in the education and learning processes within medical, law, and architectural fields of study (Conner et al., 1996). Within these areas of study, constructivist theorists endorse the following learning strategies where they involve: (1) cognitive apprenticeships where experts model and coach a learner toward expert performance; (2) presenting multiple perspectives and using collaborative learning to develop and share alternative views; (3) social negotiation so debate and discussion can take place; (4) using examples as realistic illustrations; and (5) reflective awareness (Conner et al., 1996, p. 31).

In doing so, this theory endorses a student-centered classroom or setting where the instructor is primarily a facilitator or tutor guiding the students in their quest for new

information and knowledge allowing them the opportunity to experiment with new paradigms.

Humanism

A definition of humanism theory relates to the motivation of humans to seek and achieve their utmost leading toward the highest level of personal growth (Eggen & Kauchak, 1999). A key component involves their motivation to attain experiences with relevant meaning. This motivation is thought to be innate where there are no unmotivated learners (Eggen & Kauchak, 1999).

According to Schunk (2008), humanistic theory is founded on a mixture of constructivism and cognitivism with the theory directly involving a person's ability to make decisions in order to maintain control of their lives. This theory includes multiple assumptions one of which is that the study of people must be holistic in scope where their activities, judgments, and feelings are instrumental. Another assumption that is found within this theory indicates that crucial areas of study include personal decisions, creativity, and self-actualization as aspects of motivation is a significant factor for realizing basic needs.

Humanism provides for personal development and growth and seeks to also provide learners with methods to explore and seek creative ideas. Humanists use andragogic methods to develop critical thinking skills while focusing on the learner's personal experiences, needs, and expectations. The instructor's role is to add new opportunities and experiences for the learners by engaging them in group projects, inductive deliberations, self-evaluation, and reflection. A tenet of the theory is that if

learners feel comfortable and secure in the environment they will work hard toward learning with the opposite occurring in a hostile classroom (Conner et al., 1996). A connection or assumption might be made here toward the instructional strategies within classroom of American police academies.

Humanism participates with learners closely and assists them in determining their personal objectives as they relate to their experiences. The instructor does not order or direct these objectives; they are decided by each learner. The learners should eventually discover that they are responsible for their own learning. It is thought that most topics within education are somewhat inconsequential, so the desire for education must come from within seeking personal gratification (Conner et al., 1996).

In assimilating the learning theories from behavioral to cognitive to humanistic, I find that the theories progressed from teacher-centered toward a very student-centered learning situation. This theory development relates very well to the previous discussion on pedagogical and andragogical teaching methodologies leading to the potential of enhancing police training in this same trajectory. An investigation into this new direction for teaching and the development of empirical evidence to provide answers are some of the motivating factors of this study. Moving future police training from a pedagogical focus toward an andragogical methodology should be explored. My research is concentrated in this direction focusing on one learning strategy that might shed light on this – the efficacy of problem-based learning within police academy educational settings.

Problem-Based Learning

This section provides an overview of the various dimensions of problem-based learning (PBL) including a definition of PBL, a historical perspective, and a research review related to the efficacy of PBL and its relationship to education and police training standpoints.

A Historical Perspective

One primary facet of problem-based learning is the ability of students to consider and question the nature of problems and decide on the best methods to explore them. These processes are not new to education and date back to early Milesian and Ionian philosophers during the seventh century B.C. (Salvin-Baden & Major, 2004). Another key aspect of PBL relates to the need of students to develop metacognitive skills where their intellectual capabilities are utilized to solve intricate problems. This education process also dates back to ancient Greek philosophers Socrates, Plato, and Aristotle where they changed many perceptions about knowledge procurement (Salvin-Baden & Major, 2004).

However, the modern era of PBL arguably originates from John Dewey's 1916 findings that teachers provoke the interest in students where they naturally seek to explore and be innovative when dealing with educational topics (Delisle, 1997). Delisle (1997) argued that, even decades after Dewey's findings, students continue to learn best from personal experience and working to solve problems. Students build upon their foundation of knowledge and skills as they solve real problems and answer questions that really matter. Gijbels, Dochy, Van den Bossche, and Segers (2005) concurred that the

foundational ideas of PBL have a long history that can be found within the research of Bruner, Dewey, Piaget, and Rogers where learning occurs when students develop personal educational objectives and work toward subsequent achievement. In the 1960s, PBL was originally developed and designed to teach medical doctors to solve medical problems, instead of the traditional memorization of facts and minimal focus on problem solving in a clinical environment (Gijbels et al., 2005).

In 1966, McMaster University Medical School in Hamilton, Ontario, Canada, began the planning process for a new hospital and new medical school. The medical school faculty decided that this was an appropriate time to develop a new curriculum while simultaneously building their new facilities. Howard Barrows, a physician and professor at McMaster University, took Dewey's aphorisms to heart and sought to implement these methods within new medical curricula at his school and indirectly to the forefront of education circles. The first PBL medical class began in 1969 where Barrows and Tamblyn, who are generally attributed with the creation of PBL, taught and later described the new endeavors at McMaster. They found that students within the PBL classes had increased problem solving skills, higher levels of motivation, and improved self-study abilities (Savin-Baden & Major, 2004).

Other medical schools began to follow McMaster University's lead by initiating a new PBL curriculum. In the early 1970s, Michigan State University College of Human Medicine, the University of Limburg in the Netherlands, and the University of Newcastle in Australia each adopted a PBL educational model and experienced considerable success which started a worldwide influence in the medical world. Additional medical schools

headed in the same direction with various PBL hybrid representations resulting in mixtures of traditional lecture and PBL courses. In short time, other disciplines began to move toward PBL, such as law, economics, optometry, social science, architecture, and law enforcement. Currently, PBL is being used in elementary and secondary school classrooms as many researchers are in agreement with Barrows (Barrows, 1996; Savin-Baden & Major, 2004). These findings lead toward a conclusion that further investigation into PBL is reasonable for future police training environments.

What is Problem-Based Learning?

Albanese and Mitchell (1993) provided a definition related to medical education that is often cited: "Problem-based learning at its most fundamental level is an instructional method characterized by the use of patient problems as a context for students to learn problem-solving skills and acquire knowledge about the basic and clinical sciences" (p. 53). PBL has been described as "the most innovative instructional method conceived in the history of education" and was originally developed to alleviate concerns within traditional teaching and learning environments for medical students (Hung, Jonassen, & Liu, 2008, p. 486). It is currently used throughout secondary and post-secondary education curricula. PBL has been defined as "An instructional method that initiates students' learning by creating a need to solve an authentic problem. During the problem-solving process, students construct knowledge and develop problem-solving skills while working toward a solution to the problem" (Hung et al., 2008, p. 486).

Barrows and Tamblyn (1980) found that "Learning from problems is a condition of human existence. In our attempts to solve the many problems we face every day,

learning occurs…no doubt, problem based learning is the basic human learning process that allowed primitive man to survive in his environment" (p. 1). Problems provoke thought, stimulate action, and many times demand attention. When problems are considered important and relevant, people expend personal energy and resources to solve them efficiently. It is this curiosity toward problem solutions that creates the basis for using problems as foundation for teaching and instruction (Barrett & Moore, 2011).

Some police academy instructors might agree that the policing profession requires a lifelong aptitude to solve very complex and specific community problems; yet, the value of problem-based learning is not first and foremost when developing their teaching or lesson plans. Barrows and Tamblyn (1980) agreed that medical educators prepare their curricula in a similar fashion with no deliberate consideration toward problem solving most likely because they are highly skilled researchers and clinicians who have received no formal training to be an educator. This shortsightedness does not allow them the time to view themselves as teachers, which is their greatest responsibility in medical schools. As a police educator and instructor for over 30 years, I can correlate Barrows and Tamblyn's claims to police academy instructors. It has been my personal experience with hundreds of police trainers that they are usually outstanding street officers, community police officers, criminal investigators, or administrators with remarkable experience and personal capabilities; however, many instructors lack the teaching platform skills and knowledge associated with being a true teacher. In addition, Michigan police academies do not require academy instructors to develop those much

needed teaching skills. The content is certainly delivered resulting in varied amounts of learning.

Within his PBL curriculum design, Barrows (1996) argued that six basic or core components must be present to be considered PBL. First, learning must be student-centered. In this environment and under the direction of a facilitator, students are allowed to determine what information is important and have the responsibility for their own education. They, in this self-directed mode, decide what information is critical to solve the problem and where they need to go to discover that data (books, library, experts, etc.). This concept correlates directly within the confines of constructivism, as previously discussed, where the emphasis is focused on the actions of students toward learning rather than what the instructor anticipates. The student-center approach directly conflicts with the traditional agenda where the instructor is the sage-on-the stage, providing mostly lecture-based material for the required absorption by students.

The second component involves learning taking place within small group settings. Students are assigned randomly to small groups of 5-8 members where they must socialize and negotiate with other students in order to come to a consensus on the best problem resolutions. Students are then re-shuffled for each new problem resulting in them needing to work effectively with different students each time. Shipton (2009) agreed with Barrows in that sociocultural theory, such as that from Vygotsky, asserts that learning is not an individual endeavor, but that learning is "strongly influenced by social interactions that occur in meaningful contexts" (p. 60). According to Driscoll (1994), the highest levels of learning in humans develop through social interaction as collaboration

within group structures is paramount to understanding other perspectives toward solutions.

The third element is where teachers must become tutors or facilitators. The instructor, now turned facilitator, must assume that role to guide students to pursue answers to the questions that they should discover themselves. The hope is that the students eventually challenge each other with the proper queries to determine the best solutions to the problems. The instructors should not: lecture, provide factual data, advise students whether they are correct, or guide students to the precise resources to solve the problem. The instructors must allow the students to struggle through the process. During the McMaster transition to PBL, they found that the instructors were taking the path of least resistance by providing the students with the answers when they were struggling the most. To alleviate this instructional issue, Barrows implemented the use of tutors who had no expertise in the subject area of the course. The tutors would perform their facilitation of the problem solving, but due to their lack of knowledge or expertise of the content, they could not answer content questions. At times, this was found to be problematic. It is clear that having professors who are content experts and who understand their role as tutor provides for the best outcomes during PBL classes (Barrows, 1996).

The fourth PBL component from Barrows (1996) relates to problems being the primary focus and stimulus for learning. Problems should represent the challenges that the students will face when in the field and must be relevant in order to provide student motivation for learning. During the problem analysis, the student should uncover what

they need to learn so that they may assimilate information from the various disciplines involved. This problem-solving process is expected to enable student memory and application during the confrontation of future problems. Duch et al. (2001) indicated that the types of problems used in PBL are instrumental in whether successful learning is achieved in college courses. Faculty find that most students are either unable or have no ambition to delve into deeper learning and must be forced into this arena as they prefer the simpler surface learning related memorization of factual material. The typical college textbook fails to provide challenging problems that nurture problem solving, critical thinking, or other analytical skills, according to Duch et al. (2001).

The fifth element of PBL from Barrows (1996) declares that problems are the means for developing problem-solving abilities. The format for the problems must be related to real world applications where students are placed in an experiential environment and allowed to work their way through various explorations depending upon the discipline. Duch et al. (2001) agreed and suggested that there are five primary characteristics of effective PBL problems:

1. An effective problem must first engage students' interest and motivate them to probe for deeper understanding of the concepts being introduced. It should relate the subject matter to the real world as much as possible.
2. Problems that work well sometimes require students to make decisions or judgments based on facts, information, logic, and/or rationalization. In this kind of problem, students will be asked to justify their decisions and reasoning based on the principles being learned.

3. The problem should be complex enough that cooperation from all members of the student group will be necessary in order for them to effectively work toward a solution. The length and complexity of the problem or case must be such that students soon realize that a 'divide and conquer' effort will not be an effective problem-solving strategy.
4. The initial question in the first stage of a problem should be open-ended, based on previously learned knowledge, and/or be controversial so that all students in the groups are initially drawn into the discussion of the topic. This strategy keeps the students functioning as a group, rather than encouraging them to work individually at the outset of the problem.
5. The content objectives of the course should be incorporated into the problems, connecting previous knowledge to new concepts, and connecting new knowledge to concepts in other courses and/or disciplines (pp. 49-49).

The sixth and final criterion described by Barrows (1996) contends that new information is transferred to students when self-directed learning is applied. Students in PBL courses are expected to work together and learn by encouraging teamwork, discussion, and continuous comparative analysis much like experts within the discipline. The students should have the ability to decide upon their needed resources and what is necessary to learn with only some guidance and direction from the class facilitator (instructor). In a police academy setting, police recruits would be expected to apply their knowledge and current levels of proficiency based upon their academic studies and prior

exploration, instead of relying solely upon being told what they need to know from the instructor.

Problem-based learning (PBL) is a teaching methodology that begins the acquisition of new information by using a problem as the catalyst (Lambros, 2004). Critical to the success of PBL is the use of properly constructed ill-structured problems that reinforce existing knowledge and help students to decide that the new experience will be valuable, realistic, and relevant to their lives now and in the future. Each student plays a specific role in a small group setting where they work toward solving the problem providing them with a proprietorship toward a positive result. PBL is student-oriented where the learners decide on the learning needs and concerns for the particular problem before them. This then provides a learning environment where the instructor is a facilitator or tutor throughout the problem solving process. The students, being in charge of their learning, decide the path toward the problem resolution with the teacher providing only the problem and guidance when necessary (Lambros, 2004).

Problem-based learning is a curriculum design that uses real-life problems that are ill-structured, flexible, or ambiguous. An ill-structured problem is one that has not definite and perhaps confusing or fairly complex, with a number of interconnected issues. PBL works to get students intrigued into the problem solving process and making them stakeholders into the final resolutions. “The problem-based scenario dictates a comprehensive student investigation that is fluid, dynamic, flexible, and ever changing” (Fogarty, 1997, p. 2).

A good example of problem-based learning and its problem solving process would be to assign students to determine a route to drive to Detroit, Michigan, from anywhere in the continental United States. The students analyze the problem, determine their current knowledge base, decide what they need to go out and learn, seek the knowledge, and share it with their group to determine the appropriate solution to the problem. Along the way, each group will most likely determine different routes to drive to Detroit – the paths may be different, but to be successful the end result of arriving in Detroit is the same.

A basic principle in support of PBL is one that began prior than formal education itself which claims that all learning is initiated by introducing an interesting problem that the learner truly wishes to resolve (Duch et al., 2001). Within higher education, PBL integrates many of the sought-after educational outcomes such as: (1) thinking critically with the ability to analyze complex problems, (2) locate, assess, and utilize significant educational resources, (3) display outstanding skills related to written and oral communications, and (4) develop into life-long learners by using their intellectual and content knowledge (Duch et al., 2001).

Is Problem-Based Learning Better?

Considering the use of PBL within any curriculum begs the question: Is PBL truly more effective way to instruct students than the more traditional teaching and learning methodologies? There are two early research studies that are considered by many as the premier studies on PBL and its true effect on learning outcomes (Albanese & Mitchell, 1993; Vernon & Blake 1993). These meta-analytical studies brought to the

forefront findings related to student performance and student perceptions as they relate to PBL and its many components. Albanese and Mitchell (1993) and Vernon and Blake (1993) were the first two studies to conduct systematic reviews of the existing literature on PBL. Some concerns with these two studies are that they both were published in the same year, in the same scholastic journal, and they both studied virtually the same two decades of PBL research. Colliver (2000), Dochy, Segers, Van den Bossche, and Gijbels (2003), Koh, Khoo, Wong, and Koh (2008), and Schmidt, Vermeulen, and van der Molen (2006) have more recently conducted systematic reviews of PBL research and have presented findings from differing perspectives.

The review by Albanese and Mitchell (1993) incorporated the results of PBL research within the medical field from 1973 to 1992. They reported that medical students found PBL, as compared to traditional instruction, to be more nurturing and enjoyable. Also, students performed as well, if not better, on clinical testing and faculty assessments. The research determined that, in a few instances, non-PBL students tested lower than PBL students on basic science examination and showed gaps in their cognitive knowledge base. A weakness of their meta-analysis only involved the research from ten studies due to the criteria selected for final inclusion into their meta-analysis being fairly restrictive and not all of the ten studies could be analyzed for every outcome measure sought.

Vernon and Blake (1993) conducted five separate meta-analyses on 35 studies from 19 different medical schools using twelve published studies that fit their criteria. They considered the research on all PBL evaluative research from 1970 to 1992 and

maintained that the overall results support the PBL programs over the more traditional teaching methods. They found that the students in PBL groups had favorable attitudes and opinions about their medical school programs and had higher clinical performance indicators, when compared with the non-PBL groups. Contrary to Albanese and Mitchell's (1993) findings, the PBL student groups did not significantly differ from non-PBL students on measurements of factual and clinical knowledge. The traditional non-PBL students performed better on one portion of their national board examinations, but this data could not be generalized across the different schools due to the overall heterogeneity of the test scores. Other areas of support for PBL methods were based on positive findings related to "faculty attitudes, student mood, class attendance, academic process variables, and measures of humanism" (Vernon & Blake, 1993, p. 550).

Berkson (1993) pursued evidence that PBL was effective for medical education by reviewing ten PBL research studies prior to 1992 and argued that there was no clear evidence that PBL developed problem solving skills greater than conventional medical school teaching methods. Therefore, PBL methodologies did not matter for the development of knowledge or academics. She did find that students and faculty members preferred PBL over conventional methods and that students taught using PBL acquire a deeper understanding of course material as opposed to the approach related to short- term memory obtained in traditional classes. Berkson found also that PBL did enhance students' clinical evaluations. While Berkson does not believe that PBL has met its expectation, she argues that PBL has driven the educational community away from the status quo and deficiencies in conventional education and pushed educators forward

toward enhanced teaching principles. “Preoccupation with principles of learning and pedagogy is a PBL strength, one that translates into a more active engagement of the student with his or her learning task (Berkson, 1993, p. 586).

A synthesis of PBL literature from 1970 to 1997 was conducted by Kalaian, Mullan, and Kasim (1999) where meta-analytic assessment was performed. Their focus was to compare the effects of PBL with traditional curricula on national medical licensing examination scores. The National Board of Medical Examiners (NBME) Parts I and II were considered resulting in findings that PBL curricula was associated with higher scores on the NBME II examination which involves a clinical science measurement. Traditional curricula was determined to provide higher scores on the NBME I examination which was a basic science measurement. Their findings correlated with previous research that indicated that basic science knowledge was found at higher levels within conventional programs and greater results in clinical knowledge and skills were the usual result of PBL curricula (Strobel & van Barneveld, 2009).

Colliver (2000) embarked on a PBL literature review from 1992 to 1998 and did not concur with the two previous influential meta-analytical studies and the general findings. The critical-natured review of the literature revealed no convincing evidence that PBL medical program students performed better than non-PBL students in attaining clinical knowledge or performance, “at least not of the magnitude that would be expected given the resources required for a PBL curriculum” (Colliver, 2000, p. 259). The findings did not conclude that PBL curriculums in medical schools caused a decrease in student knowledge procurement.

Blake, Hoskawa, and Riley (2000) investigated if differences in licensing examination results existed after the implementation of PBL within multiple classes of one medical school. Student results on the United States Medical Licensing Examination (USMLE) Parts 1 and 2 were analyzed in relation to a recently implemented PBL curriculum and were compared with prior medical classes that were taught in a traditional fashion. The researchers found that USMLE Part 1 mean scores were higher for the PBL classes as opposed to the non-PBL classes. The USMLE Part 2 mean scores for the PBL classes were found to be above the national mean, but they were below the national mean score for schools with a convention curriculum. Therefore, Blake et al. (2000) concluded that the changes toward PBL in the medical school curriculum did not hinder student performance on their licensing exams and resulted in higher mean scores overall.

In more recent research, Dochy et al. (2003) conducted the first meta-analytical review of the PBL literature related to the effects on knowledge and skill acquisition that was outside the realm of medical school education. They included 43 studies that met their criteria for selection which was PBL empirical research conducted in real classrooms. They found "a robust positive effect from PBL on the skills of the students" and "no single study reported negative effects" (p. 548). The researchers found the PBL had a significant positive effect on application of student knowledge. They did find a negative effect tendency that was small and non-robust when considering the PBL effects on student knowledge attainment that was "strongly influenced by outliers" (Gijbels et al. 2005, p. 32).

Vander Kooi (2006) conducted research on students who were currently participating in police academy training to determine their perceived attitudes about how PBL influenced their education process and compared those findings with those of students attending traditionally taught police academies. Students' perceptions about their critical thinking skills, their problem solving abilities, their satisfaction with their curriculum methodology, and their belief that they were being well prepared for their future careers in policing were analyzed. The study found higher average scores on student perception for all categories, but only one area had statistically significant results. Vander Kooi (2006) indicated the use of open-ended questions provided insight into student perceptions of PBL where they believed that they had a more in-depth appreciation of critical thinking and problem solving.

Strobel and van Barneveld (2009) conducted a systematic review of meta-analytic research conducted since 1992 on the comparison of PBL and traditional curricula. They found that PBL students performed better in the area of long term (deeper learning) memory when compared with traditionally educated students where short term (surface learning) retention of information was greater. Students and faculty had increased satisfaction with the PBL methodology. Further, traditional students fared better on standardized tests that measured basic science knowledge while PBL students scored better when they were required to elaborate beyond forced-choice type questions, according to Strobel and van Barneveld (2009). PBL curricula was significantly favored when evaluating the application of skills, knowledge, and clinical performance. "The results of these qualitatively synthesizing meta-analyses of PBL for preparation for the

workplace indicate, however, that PBL is significantly more effective than traditional instruction to train competent and skilled practitioners and to promote long-term retention of knowledge and skills acquired during the learning experience or training session" (Strobel & van Barneveld, 2009, p. 55).

Post-Graduation Effects of PBL

Schmidt et al. (2006) surveyed 820 graduates of a PBL medical school where the participants evaluated themselves on 18 professional competencies. They compared the PBL group with 621 graduates from a non-PBL or traditional medical school where they found that the PBL medical school graduates assessed their abilities higher in 14 of 18 competency categories. Schmidt et al. (2006) found that the PBL group appraised their interpersonal skills as much better, their problem solving, self-directed learning, and information gathering abilities as better, and their task-supporting skills as somewhat better. They also discovered that the non-PBL group rated themselves slightly better in their medical knowledge. This research provided some evidence that PBL continues to affect the usual PBL-related competencies, such as interpersonal and cognitive purviews, but also affects the work-related skills that are associated with success in the field.

Koh et al. (2008) conducted a meta-analytic or systematic review of the effects of PBL during medical school had on post-graduation physician competencies. Their research reviewed 15 medical education journal articles where graduates of PBL medical schools were compared to graduates of traditionally instructed medical school and physician competencies were evaluated post-graduation. They found that the PBL-educated physicians, when compared with traditionally educated (non-PBL) physicians,

had better communication and diagnostic capabilities and had a higher level appreciation for ethical and legal issues and cultural considerations for patient care. The PBL physicians were also found to deal with uncertainty at higher levels. While the researchers discovered interesting findings, the meta-analysis did not provide an explanation as to *why* the PBL teaching methodology actually works better (Koh et al., 2008).

In research involving post-graduation nurse competencies, Applin, Williams, Day, and Buro (2011) employed a convenience sample of 121 graduate nurses from PBL and non-PBL nursing programs with at least six months nursing employment experience. Graduates from PBL and non-PBL schools reported equally that they had the requisite skills for entry into the nursing field based upon the professional standards applied. PBL graduates indicated that "the structure and process of their nursing programs were instrumental in their preparation to meet entry-to-practice competencies" (Applin et al., 2011, p. 133). The PBL students further acknowledged that their aptitudes in critical thinking, self-directed learning, evidence-based practice, and teamwork that they learned within the PBL curriculum were critical in their ability to meet those expected competencies. Non-PBL students did not indicate how their nursing programs assisted them to meet those same entry-level competencies (Applin et al., 2011, p. 133).

Research on the effects of PBL on undergraduate studies for doctors and their work after graduation revealed that the graduates had high levels of satisfaction with their undergraduate programs and claimed to be well prepared for their graduate studies and professional careers (Antepohl, Domeij, Forsberg, & Ludvigsson, 2003). The graduates

also indicated that they were also well prepared in terms of their communication skills, their ability to collaborate, and their development of critical thinking and scientific capabilities. Overall appreciation of the PBL curriculum was expressed.

Chapter Summary

Most research findings have determined that PBL educational curricula results in higher levels of student satisfaction, critical thinking, problem solving skills, skill acquisition, clinical performance, both during school and after graduation (Albanese & Mitchell, 1993; Antepohl et al., 2003; Applin et al., 2011; Blake et al., 2000; Dochy et al. 2003; Kalaian et al., 1999; Koh et al., 2008; Stroebel & van Barneveld, 2009; Vander Kooi, 2006; Vernon & Blake, 1993). There are still some studies reporting mixed findings with some negative results when comparing PBL students with non-PBL students (Berkson, 1993; Coliver, 2000; Fenwick & Parsons, 1998; Lieux, 2001). However, the vast majority of research conducted in this area comes from the medical research community which is logical based upon the creation of PBL coming first from within the medical school environment over four decades ago (Albanese & Mitchell, 1993; Antepohl et al., 2003; Applin et al., 2011; Blake et al., 2000; Dochy et al. 2003; Kalaian etal., 1999; Koh et al., 2008; Stroebel & van Barneveld, 2009; Vernon & Blake, 1993). The majority of other educational disciplines have minimal PBL-related research to rely upon to aid in their quest for superior educational methodologies to implement.

The education of future police officers (academy recruits) is no exception as very little empirical research exists to convince police educators that PBL or some other teaching method is a significant step above the traditional police academy teaching

curriculum. Police executives are demanding that their officers work closely with clients in their communities to collaborate and solve very important problems as they are identified (Ortmeier & Davis, 2012). In order to be successful, police recruit training must be focused on development of skills that are related to needs such as communication, critical thinking, problem solving, collaboration, and resource allocation. Current police academy training methods are decades behind in the teaching and learning methods that are being used in most curricula. Research that provides evidence that the conventional, lecture-based, instructor-focused is not the best option for teaching police recruits is needed. Recent findings in learning theory suggests that adults learn differently than children, yet police academy classrooms remain directed away from changing. In addition, levels of student satisfaction are important when making decisions to adjust curricula. The PBL literature has consistently determined that student satisfaction with PBL methods is higher than non-PBL methods, yet change is still resisted (Albanese & Mitchell, 1993; Antepohl et al., 2003; Applin et al., 2011; Blake et al., 2000; Dochy et al., 2003; Kalaian et al., 1999; Koh et al., 2008; Stroebel & van Barneveld, 2009; Vander Kooi, 2006; Vernon & Blake, 1993). This might be related to the fact that the majority on research on the effects of PBL on students remains within the medical field. Generalization of existing PBL empirical research findings toward police recruits will not suffice for most police executives and their decision processes. Minimal research on the effects of PBL on police academy recruits has been reported providing emphasis for the necessity. This study helps to fill the void in this area and provides data constructive and useful for future police training.

CHAPTER III

RESEARCH METHODOLOGY

This chapter provides a description of the methods used to collect empirical data that seeks to provide answers for my research questions. It details the research design, participants, sample, instrumentation, and data analysis procedures, as well as explaining the limitations and delimitations of this study.

The level of competence for police officers entering the field of law enforcement is vital to ensuring that safe, ethical, and community-oriented service are foundational components within policing practices. Police academy graduate competence is an indicator of program quality assurance, as well as a measure that recruits are well prepared to embark on a professional trajectory within rapidly changing environments (Vodde, 2009). Police academies have a clear obligation to provide learning opportunities and curricula that support students in their quest for an exceptional education and practical experiences upon entering the threshold of police work. The concern for police academy administrators and faculty is the decision surrounding which educational curricula and teaching methods will best prepare the future police officers (recruits) to meet their upcoming challenges. Consideration must also be given to teaching and learning theories related to andragogical problem-based learning practices versus conventional lecture-based curriculum (Birzer & Tannehill, 2001).

This study conducted comparative statistical analyses of the Michigan Commission on Law Enforcement Standards (MCOLES) Police Officer Licensing Examination mean scores associated with Michigan police academy graduates taught in an academy which had formally adopted the use of PBL (PBL) and those academies that had not formally adopted PBL (NPBL) from 2006 to 2014. In addition, I conducted similar statistical analysis comparing licensing examination mean test scores within the same academy from 1999 to 2005 during their NPBL educational years with the years of 2006 to 2014 after the implementation of PBL. The overall licensing examination means scores were utilized in the analyses, as well as the breakdown of the same licensing examination's six functional area mean scores.

The MCOLES Police Officer Licensing Examination has been subdivided into six functional areas with each area consisting of different educational components from the mandated academy curriculum. Table 1 describes the six functional areas and the assessed content from the academy curriculum assigned to each area.

When compiled into the overall licensing examination, all academy educational content is tested with the scores from the separate functional areas being maintained by MCOLES. The MCOLES provided mean scores for these separate functional areas as well as the mean scores for the overall examination.

Additionally, this study investigated the perceptions of police academy graduates as to whether they were satisfied with their police academy education and training that was provided and then compares their levels of satisfaction and perceptions based upon their academy curriculum type: formally adopted problem based learning (PBL) or not

formally adopted problem-based learning (NPBL). Satisfaction levels were explored in four areas with two areas connected to core competencies of policing related to their acquired problem solving skills and critical thinking abilities. In addition, the graduates' levels of satisfaction and perceptions of their classroom experiences and their personal beliefs that their academy education prepared them adequately to perform as a police officer in Michigan were explored. One purpose of this study is to determine whether their academy training influences the competence of sworn police officers in Michigan based upon their self-reported perceptions.

Table 1

MCOLES Licensing Examination Functional Areas

Title	Assessed Content
Functional Area 1	Constitutional Law, Criminal Law, Criminal Procedures, Civil Law, Basic Investigation, Drugs, Sexual Assault, Child Abuse, Crime Scene Processing, Domestic Violence
Functional Area 2	Patrol Operations and Techniques, Interpersonal Relations, Ethics, Report Writing, Dealing with Juveniles
Functional Area 3	Detention: Prisoner Care and Booking, Criminal Case Prosecution, Civil Processes
Functional Area 4	Police Skills Components: First Aid, Firearms, Physical Training, Emergency Vehicle Operations, Fitness and Wellness
Functional Area 5	Traffic Laws, Vehicle Stops, Traffic Enforcement, Drunk Driving Investigation, Crash Investigations
Functional Area 6	Emergency Preparedness, Civil Disorders, Tactical Operation, Environmental Crimes, Terrorism Awareness, Incident Command Systems

Research Design

Babbie (1993) contended that the classical or conventional experiment entails three main components: (1) independent and dependent variables, (2) experimental and control groups, and (3) pre-testing and post-testing. An experiment usually investigates the effect of an independent variable on a dependent variable. "Typically, the independent variable takes the form of an experimental *stimulus,* which is either present or absent: that is, a *dichotomous variable*, having two attributes" (p. 238). In the first portion of this study, the independent variable consisted of the experimental stimulus or the educational curriculum implemented at various Michigan police academies (PBL vs. NPBL curriculum), with the dependent variable being the MCOLES Police Officer Licensing Examination mean scores. The comparative analyses involved determining the effect of PBL, if any existed, on the licensing examination mean scores.

In the secondary research design component of this study, police academy graduates (current licensed Michigan police officers) that attended a police academy utilizing either a PBL or NPBL education curriculum, the independent variable, were surveyed. These officers were asked to share their perceptions regarding the role their police academy played in the development of their problem solving skills, critical thinking abilities, and communication capabilities, and their satisfaction with their academy classroom experiences and whether they believed that they were adequately prepared by their academy, the independent variables, to perform as a police officer. Within this ex post facto quasi-experimental design, police officers attending an academy using PBL were considered the experimental group and police officers attending an

academy using a traditional teaching methodology were the control group. Pre and post testing was not possible for this research design.

For this quantitative, cross-sectional research, a quasi-experimental design was selected using a static-group comparison or a two-group ex post facto assessment. Kraska and Neumand (2011) claimed that quasi-experimental designs are variations of the classic experimental design where researchers may not be able to incorporate pretests, control groups, or randomization. This design type allows researchers to test for causal relationships where classical designs would not be practical or would be inappropriate. Quasi-experimental designs have deemed successful in the criminal justice field with measuring cause and effect interactions in program evaluations and natural experiments (Kraska & Neumand, 2011). Natural experiments involve naturally occurring events where the researcher does not influence or manipulate the treatment groups. A prime example of this would be a modification in law or criminal justice practice where preexisting data is collected after the fact and the researcher had no influence. In my study, I have used data that was derived from changes in instruction methodologies that I did not influence or manipulate. The implementation of PBL within the one police academy occurred many years prior to my study allowing this study to consist of natural experimentation with associated data.

The static-group comparison is considered a pre-experimental design that facilitates research where experimental and control groups exist without any pretesting apparatus (Babbie, 1993). Hagan (2005) concurred that the two-group ex post facto design allows the study of the experimental group and the control group after the

experimental group has received some treatment. In this study, the experimental group (police officers from a Michigan academy) had received the treatment (PBL instruction) prior to the control group being identified. This design is also well suitable for a comparison of two groups where randomization is not possible (Singleton, Straits, & Miller-Straits, 1993). In addition, if randomization is not an functional option for the research, the application of control groups are very similar to the experimental group when considering recruitment and history is a feasible choice (Singleton, et al., 1993).

According to Lewis-Beck, Bryman and Liao (2004), cross-sectional data originates from research where the observations for the participants are collected at the same time and where time is not a factor within the research design. Also, the term cross-sectional usually describes research conducted using questionnaires where the subjects provide information in a single session. Archival records would be another source of cross-sectional data. They maintain that cross-sectional data provides an effective means for ascertaining relationships between variables. In this research, both official archival data and survey data was utilized and studied.

A survey, titled *Police Academy Preparation Survey,* was created by the researcher to collect data to address each research question (See Appendix A). Due to this instrument being created by me as an original document specifically for this research, reliability and validity did not pre-exist. More details on this survey and the pilot testing is found in the upcoming instrumentation section. The data collected from this study was utilized to better understand the opinions and perceptions of police officers related to their police academy education experiences. Conclusions were drawn regarding police

officers' perspectives on whether their academy training provided exceptional development of their personal skills and their level of agreement regarding whether their academy best prepared them for their careers in policing.

Participants

One portion of this study investigated the Michigan Police Officer Licensing Examination results from 1999-2014 which involved 12,331 police academy graduates taking the test. Their test scores were provided in aggregate as mean scores only without no individual identifying factors.

Another component of my study involved experimental and control groups. The experimental group in this study was composed of all of the practicing police officers who had attended and successfully graduated from the Ferris State University (FSU) law enforcement academy between 2008 and 2014. Ferris State University began utilizing PBL as the foundation of its law enforcement academy training curriculum in 2005 and continues today. The police officers asked to participate were all FSU academy graduates from the MCOLES data base who were actively licensed as Michigan police officers (n = 137). The control group was comprised of the practicing police officers, with some exceptions as explained in the following paragraph, who had attended and successfully graduated from other Michigan police academies (NPBL) between 2010 and 2014. These police officer participants for the control group were all non-FSU academy graduates (n = 2,345) from the MCOLES data base who were actively licensed as Michigan police officers, who have an email address in the database (n = 1,035), and for whom the email address when tested did not return as undeliverable (n = 729). It is

important to note that even if the email address was deemed deliverable, it may have gone to an account not actively used by the police officer. This is one limitation of this research. The email addresses on file were tested to determine whether they were still active by sending them a test message. If the test message was returned as undeliverable, the police officers' email addresses were considered inactive and removed from consideration.

It should be noted that police officers who graduated from the Michigan State Police (MSP) and Department of Natural Resources (DNR) academies were excluded due to many of their recruits possibly attending another academy prior to admission to those academies. The MSP and DNR require all police recruits hired by them to attend their agency's training academy regardless of whether the recruit was a currently licensed officer who had previously attended another police academy. Many of the MSP and DNR academy graduates have attended other academies in Michigan (Michigan Department of Natural Resources, 2016; Michigan State Police, 2016) and it would be untenable to ask them to differentiate between academies for the purposes of this study. In addition, police officers who graduated from Michigan police academies and then migrated to other states in the U.S. or were hired by a federal law enforcement agency will be excluded as the MCOLES does not maintain records of graduates who leave Michigan for police employment. Therefore, determining their current agency location outside of Michigan was not possible. These excluded academy graduates were removed from consideration prior to the email testing process previous discussed.

A critical criterion for control group selection involved the officers being taught within academies that had not formally adopted PBL (NPBL) instructional strategies for the majority of the academy educational experience. The total selection process provided equal opportunity for the inclusion of participants as related to demographical background such as age, gender, educational levels, socioeconomic status, and regional employment. The questionnaires used for the survey data were provided to all research participants where participation was voluntary and strictly confidential.

Instrumentation

The data collected for this research came from two different entities. First, mean scores from the MCOLES Police Officer Licensing Examination were obtained from MCOLES executives in an aggregate form, while also allowing differentiation of the Ferris State University academy from the other Michigan police academies. No individual scores for each person who took the licensing exam could be obtained; just aggregate exam mean scores for each academy were released. Second, data for this study was collected using a questionnaire that was sent using police officer email addresses maintained in a database controlled by MCOLES.

This study encompassed the statistical analyses of official records related to police officer licensing examination means scores, as well as the perceptions of police officers related to their personal attribute development and satisfaction of their academy training after entering the law enforcement work force. A survey instrument that would easily adapt to this research could not be located. In addition, research related to police officer satisfaction levels of their academy experiences was also not discovered. The

closest study was work by Vander Kooi (2006) who studied the perceptions of Michigan police academy students while they were attending the academy using a survey instrument focused upon at least five areas of interest to my research: critical thinking, problem solving, student satisfaction, their academy profile, and demographic data. That survey instrument related to student satisfaction of their academy education processes and the correlation to four very specific training modules. Some of the survey questions were pertinent and adaptable to my research and were utilized in part with permission of the author (Vander Kooi, 2006).

Other existing survey instruments related to student satisfaction also did not correlate to police academy training due to the distinctive educational training objectives specific for police academies. As a result, I developed a survey instrument directed toward police officers' perceptions related to their police academy development of their skills in the areas of critical thinking, problem solving, and communication. The survey also focused on the academy graduates' levels of satisfaction with their academy training and how well the academy prepared for their current career in policing in Michigan.

In creating this survey, I evaluated the competencies police academies should be developing in their recruits. MCOLES (2006) conducted a statewide job task analysis related to police officers where several areas of core competencies were identified as key components toward being a successful police officer in Michigan. The core competencies researched by MCOLES related directly to decision making, problem solving, communications, cultural diversity, multi-tasking, ethics, and job experience. As a result, I developed my survey questions utilizing the MCOLES *Statewide Job Task*

Analysis of the Patrol Officer Position – Final Report (2006) that incorporated the key research questions related to some of the identified core competencies.

The survey instrument is divided into eight components related to (1) the level of PBL instruction provided by police academies, (2) their acquired problem solving skills, (3) their acquired critical thinking abilities, (4) their development of communication abilities, (5) their satisfaction with their academy classroom experiences, (6) their beliefs that the training prepared them adequately to perform the duties of a police officer in Michigan, (7) Their overall satisfaction with their academy, (8) three open-ended questions related to the effects of their academy training on their current police career and their suggested changes to their education, and (9) general demographic data about the respondents to discover the levels of homogeneity between groups.

The researcher-developed survey comprises ordinal closed-ended questions using Likert-type scales. Such scales are considered one of most common types of survey methods used for research due to their ability to gauge attitudes, opinions, and behaviors. Dillman, Smyth, and Christian (2014) contended that there are generally two types of closed-ended ordinal questions: the vague quantifier responses or the natural metric answers. The vague responses include those such as, very satisfied or somewhat dissatisfied. The natural metric responses involve answers that are more specific such as, one time, three times, or never. While there are inherent concerns with vague answers causing error to enter into the process, these types of questions are employed most often because have a tendency to actually reduce the burden on respondents to be too precise. Precision in the quantification of their opinions or answers may not be possible and the

vagueness within the replies releases respondents from this undue burden, many times resulting in less error. “The reality is that it may be impossible to get precise measures of some constructs, and using vague quantifiers may be the best we can do” (Dillman et al., 2014, p. 151). I selected closed-ended questions with bipolar ordinal scales because they measure from a scale’s center zero point outward in two directions. “In other words, bipolar scales measure both direction (i.e., positive or negative) and the level or magnitude (i.e., *how* positive or how negative) of opinions” (p. 151). As I sought police officer opinions and perceptions, the use of bipolar ordinal scales were deemed appropriate for my research in this area. Dillman et al. (2014) further suggested that when using bipolar scales researchers should limit the number of reply categories to between five and seven allowing for two to three levels of variation on both sides of the center point. In my study, I limited the number of response categories for the 40 close-ended survey questions to six in order to provide for this suggested variation.

The questionnaire used for this research was pilot tested with a group of 42 police academy college student volunteers at Ferris State University. The academy volunteers reviewed drafts of the survey instrument to improve the survey questions, to assist with content validity, to provide opinions on clarity and accuracy, and to estimate survey completion timing (Creswell, 2003). The recruit volunteers computed the total amount of time necessary to complete the questionnaire. The mean time reported by the pilot group, approximately 7-8 minutes, was presented in the survey cover letter to the participants. The student volunteers were also asked to write notations about the survey opening message, the survey questionnaire, and cover letter providing any suggested edits that

they recommend as they completed the survey, as suggested by Dillman et al. (2014). The student feedback was strongly considered resulting in some editing of the survey questions' wording to provide clarity prior to the implementing the final questionnaire. Approval to begin gathering data was obtained from the Western Michigan University Human Subjects Institutional Review Board. A complete copy of the opening message and survey instrument can be found in Appendix A.

Data Collection Procedures

According to Dillman et al. (2014), the fastest growing method of surveying in the United States is electronic, using email addresses to obtain responses over the Internet due to considerations related to low costs, speed, and scale. In 2013, 85% of Americans used the Internet, with most preferring to conduct their daily activities and business electronically and choosing less to do so in person or even by telephone. Further, most adults in the U.S. (91%) have cellphones and are much more likely to access the Internet using their phones (Dillman et al., 2014). "The fact that people have become more accustomed to completing various daily activities online could be good for survey researchers interested in conducting web surveys, since people may also have become more receptive to completing surveys online" (Dillman, 2014, pp. 301-302). Electronic Internet surveys were the primary method for survey data collection in this study due to current trends of the majority of Americans preferring to conduct their business electronically over the Internet and their use of cellphones to facilitate their electronic transactions. In addition, the use of email addresses for the distribution of my survey instrument provided me with a low cost and swift method of delivery and return.

The survey instrument was sent via electronic mail to all of the FSU academy graduates from 2008-2014 who were currently employed as police officers in Michigan (n = 152). Their email addresses were previously obtained by FSU for future alumni communications and activities. In addition, the survey was delivered to 741 email addresses of Michigan police officers who graduated from a Michigan police academy from 2010-2014 where the email address appeared active. The email survey approach was performed for these populations in order to reduce research costs and to reduce data entry errors. Snap Surveys was selected for use in this study where the email survey data was automatically stored on the Snap Surveys server where a password was necessary to access the information. Snap Surveys is an international corporation that provides survey software and web based survey services to a wide variety of organizations worldwide. Snap Surveys is audited and certified by Bureau Veritas as ISO 27001 compliant which is the internationally recognized standard for information security systems. Snap Surveys' online questionnaire delivery and reporting services provides data security on all levels and is standard on all accounts, such as the account for my research. The data from the electronic survey was exported from the Snap Surveys site into SPSS (Statistical Package for the Social Sciences, Version 21.0; SPSS Inc, Chicago, IL) for statistical analysis at the end of the survey administration timeline.

In an effort to build trust, rewards, and cost efficacy, social exchange theory was a significant factor in the data collection design for this research (Dillman, 2000). This theory contends that within human behavior there is an innate desire for human interactions, and that people are generally motivated to interact based upon a set of

expected rewards. In order to predict certain human actions, the elements of trust, rewards, and costs should be the main considerations (Dillman, 2000). People will contemplate whether the rewards will outweigh the costs over time (trust), what they expect to gain (rewards), and what they anticipate to give up to receive the rewards (costs). Based upon their analysis of these three criterion, people will then decide what activities that they will perform. Researchers should also contemplate these factors and incorporate them into the design for any survey research (Dillman, 2000). As such, I assimilated several of Dillman's recommendations related to building a tailored design within this data collection methodology: conveying appreciation, supporting group values (police officer peers and association), making the survey questions easy to understand and answer, providing response convenience, minimizing requests for personal information, and making the survey seem important (Dillman, 2000).

Two weeks after the initial email message requesting participation for the survey, I sent a follow-up email message to the non-responders asking them to participate in this survey research. A final request to participate was sent electronically one week after that to all participants. The participants' email addresses might be open and available for messages, but may not have been actively in use at the time of the survey delivery. In addition, email address data is currently requested, but not required, by MCOLES when academies register their academy recruits for academy entrance, leaving accurate email addresses in jeopardy. The total collection time for this electronic survey was six weeks resulting in 231 participants. Copies of all email messages are provided in Appendix B.

When participants opened the website link for the survey, the first page of the survey provided the opening message with the consent to participate. The web-based questionnaire consisted of five main groups of closed questions consisting of 40 questions that have ordered choices. Each question provided a forced choice option using a six point scale of agreement from strongly disagree to strongly agree as previously indicated. The survey allowed the participant to skip any question, choose not to answer, or exit the survey at any time. Three open-ended survey questions were provided allowing written responses in short essays up to 100 words each. Demographic information was queried in eight questions: four closed questions to determine the police officers' job function, gender, ethnicity, and education levels and four open-ended questions related to work experience, agency size, age, and police academy name. No identifiable personal information was requested.

The MCOLES controls and maintains the distribution list of police officer emails and agencies of employment, which are confidential. I requested access and was provided police officer names, academy names, agencies of employment with addresses, and some email addresses. The electronic spreadsheet with this data was stored on my personal computer which was password protected at all times. The email note and first page of the survey provided to all participants contained information about the study, the data being collected, the use of the data, and their voluntary participation.

Data Analysis Plan

To address the research questions for this study, the data acquired through official State of Michigan records and this survey questionnaire was interpreted using statistical

methods of analysis. All data collected from the records and from this survey was entered into SPSS (Statistical Package for the Social Sciences, Version 21.0; SPSS Inc, Chicago, IL), and all analyses were conducted using this software.

The general intent of my research was to gather quantitative data using police officer licensing examination mean scores and using a survey comprised primarily of closed-ended questions where the participants answered using a six point ordinal Likert scale. The main focus of the research involved the comparison of police officer licensing examination results mean scores and police officer perceptions of their police academy education process regarding how well they believe that they were prepared for the job in various areas and their overall satisfaction with the training. The independent variable for both portions of the research is whether the academy they attended had formally adopted PBL or not effected the dependent variables related to the examination means scores or police officer perceptions on their problem solving, critical thinking, and communication skill development, their academy class satisfaction, and academy preparation for policing.

In order to fully define the demographic data collected, I performed descriptive statistical analyses to determine the mean, median, mode, standard deviation, distributions, and ranges for each question where necessary. Descriptive statistics provided an overview of the extent of intergroup homogeneity (Creswell, 2003).

Independent sample *t*-tests were utilized to compare the mean calculations of the independent groups, PBL and NPBL, where the PBL group received the treatment of the formally adopted special pedagogical teaching strategies related to PBL. When

comparing the means of two groups to predict whether the differences are statistically significant, the statistic best used is a *t*-test (Field, Miles, & Field, 2011; Ravid, 2000). The mean comparison on licensing examination scores and police officer perceptions was facilitated by using independent sample *t*-test statistical analyses.

To minimize type-I errors, a P value of ≤ 0.05 was used for all analysis requiring a statistical significant test. If a larger P value is established (< 0.01), the testing runs the risk of creating type-I errors. Using a lower P value (< 0.1), the testing becomes at risk for creating type-II errors (Maxfield & Babbie, 2011).

My research questions related to police officer perceptions of their acquired problem solving skills, their acquired critical thinking skills, and their acquired communication abilities were analyzed within the survey sub-questions of Question 2. The police officers' satisfaction with their academy instruction was analyzed in sub-questions of Questions 3 and 5, where their beliefs about whether their police academy prepared them adequately for policing will be observed in the survey's sub-questions for Questions 4. Demographic data was collected and analyzed within the survey questions 9 -16. My research question pertaining to the extent that regular use of PBL training strategies within a police academy predict their acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with their academy classroom experiences, and their belief that the training prepared them adequately to perform as a police officer was analyzed within the survey's sub-questions in Question 1. The relationship between the specific research questions, the precise survey questions, and test analyses that was performed on each question is illustrated in Table 2.

Table 2

Statistical Analysis Explanation

Research Question	Survey Question	Statistical Analysis
3.a. Police Officer Acquired Problem Solving Skills PBL vs. Non-PBL *Perceptions*	2f, 2g, 2h, 2i, 2j	T-Tests
3.b. Police Officer Acquired Critical Thinking Skills PBL vs. Non-PBL *Perceptions*	2a, 2b, 2c, 2d, 2e	T-Tests Reliability Analysis
3.c. Police Officer Acquired Communication Skills PBL-Non-PBL *Perceptions*	2k, 2l, 2m, 2n, 2o	T-Tests Reliability Analysis
3.d. Satisfaction with Academy Instruction PBL vs. Non-PBL *Perceptions*	3a, 3b, 3c, 3d, 3e, 3f, 5a, 5b, 5c, 5d	T-Tests Reliability Analysis
3.e. Training Prepared Officers for Job PBL vs. Non-PBL *Perceptions*	4a, 4b, 4c, 4d, 4e, 4f, 4g, 4h	T-Tests Reliability Analysis
4. Academy Instruction Style and Functions	1a, 1b, 1c, 1d, 1e, 1f, 1g	T-Tests Reliability Analysis (Chronbach's Alpha)
Demographic Survey Questions	9, 10, 11, 12, 13, 14, 15, 16	Descriptive Statistics

The three open-ended survey questions (6 – 8) allowed the participants the opportunity to provide a full or detailed explanation of their thoughts related to their perceived value of their academy education and their recommendations to enhance academy training in the future. These questions also allowed the participants to express

their attitudes in greater depth without the restrictions of forced responses (Hagan, 2005). The responses were reviewed with a focus on repeating themes, key words, and phrases from the participants resulting in a summation of these ideas to further provide clarity of the opinions and insight of the police officer participants.

Limitations and Delimitations

My study was limited by the official recorded data on the Michigan police officer licensing examination means scores. The actual test scores for every test taker were not provided to me to allow my calculations for overall mean scores and content areas of the examination. The MCOLES pre-calculated mean test scores were provided to me for analysis, so I was required to trust their calculations of the mean scores for all test takers.

My research was delimited by me to only police officers trained in police academies in Michigan who are currently working in the field of whom I obtained actively used email addresses. My research did not involve those academy recruits who successfully completed a Michigan academy and never obtained employment. These additional opinions and perceptions might provide valuable insight into the academy training process. Thus, the results of this study cannot be generalizable to all police officers in Michigan.

One limitation involved the inability to contact all police officers who graduated from an academy since 2010 using electronic means. This was not possible due to many officers' email contact information being unavailable due to the data not being required for academy enrollment and not provided for other personal security concerns.

Another limitation entailed the email addresses collected and stored by MCOLES within their records system. The addresses were controlled by MCOLES staff employees where I did not have direct access to their complete database; they provided me with data in a spread sheet format where it was necessary for me to trust them and their internal computerized data source. It was necessary me for work with the police officer employment listing to determine and eventually eliminate officers whose email addresses were not present. After compiling the list of officers with email addresses, it was essential for me to conduct email test messages to determine if the addresses were still active and accepting incoming messages. This process eliminated approximately 300 more officers from the sample population resulting in 866 active email addresses. There was still no guarantee that these email addresses were being monitored regularly by the officers on the list further limiting the number of potential responses to the survey. Despite these limitations, important information could still be generated and reported about police officer perceptions and opinions related to their police academy education experiences

It should be noted that the MCOLES provided me with mostly unrestricted access to officer data that would not normally be provided to other outside researchers. I was provided with direct access to the MCOLES Executive Director and all of his staff members because of my personal friendships and network relationships as a current Michigan police academy training director. This access was very valuable allowing swift and simple contact with the State officials who were the actual record keepers.

Chapter Summary

Chapter III provides an overview of the methods used to collect the data and the statistical analysis procedures employed to assess answers for the research questions for this study. Detailed descriptions of population sample, the survey instrument and its development, the data collection procedures, and methods of statistical analyses used were provided. Chapter IV provides the result of the data analysis.

CHAPTER IV

RESULTS

My study sought to assess the perceived effectiveness of problem-based learning (PBL) teaching strategies within police training academies in Michigan. I also sought to measure the effects of PBL strategies on the MCOLES Police Officer Licensing Examination mean scores in Michigan. The research questions presented for my study are as follows:

1. What difference, if any, exists between two groups of academy students taught at the same police academy, where one group of academy students was taught using the traditional lecture-based (NPBL) methodology during the years 1999-2005, and a second group was instructed using a Problem-based Learning (PBL) methodology during the years 2006-2014, in reference to (a) their MCOLES overall police officer licensing examination mean scores, and (b) their MCOLES police officer licensing examination's six functional area mean scores?
2. What difference, if any, exists between the students at this same police academy (PBL), and students at other Michigan police academies which continued to use traditional lecture-based (NPBL) methodology during the years 2006-2014, in reference to (a) their overall MCOLES overall police officer licensing examination mean scores, and (b) their MCOLES police officer licensing examination's six functional area mean scores?

3. What difference, if any, exists between the perceptions of practicing police officers who had graduated from police academies that had formally adopted a PBL teaching model, and practicing police officers who graduated from police academies which had not formally adopted PBL (NPBL) teaching model, in reference to (a) the level of PBL instruction provided; (b) their acquired problem solving skills; (c) their acquired critical thinking skills; (d) their developed communication abilities; (e) their satisfaction with their academy classroom experiences; (f) their beliefs that the training prepared them adequately to perform as a police officer; and (g) their overall satisfaction with their academy experiences?
4. To what extent did differences exist between the PBL academies and the NPBL academies in reference to their academy's instruction style, their acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with their academy classroom experiences, their belief that the training prepared them adequately to perform as a police officer, and their overall satisfaction with their academy experiences?

In an attempt to address these research questions in part, I requested and obtained official recorded data from the MCOLES for all police officer licensing examination mean scores from 1999-2014 where there were 12,331 Michigan police academy graduates who were required to take the examination to become licensed as police officers. Of the police officers who participated in the mandated licensing examination, 631 were students from Ferris State University. Ferris State University Law Enforcement

Academy implemented problem-based learning (PBL) teaching strategies as its foundation for all educational and training objectives in 2005. In May 2006, the academy graduated its first class where these new learning strategies were in place for the entire academy session. I sought to determine whether PBL had an effect on the licensing examination test scores by comparing the results for 1999-2005 against the test results for 2006-2014. The MCOLES provided the examination mean scores for each year for all police academies in Michigan and separate examination mean scores for each year for Ferris State University. This was basically to find if any difference existed between the means scores prior to the implementation of PBL to the means scores after PBL was put into practice at FSU only. In addition, the licensing examination is scored in six different functional areas with one overall composite score for each examinee. MCOLES was able to provide separate mean scores for each of the six functional areas for each year, so comparative statistical analysis was performed on that data to determine if any difference existed for FSU from 1999-2005 and 2006-2014.

I further sought to determine if any differences existed between FSU academy examinees who experienced PBL and the remaining academies in Michigan who did not experience PBL (NPBL) and had primarily traditional lecture-based instructions. Overall composite test means scores from 1999-2005 were compared with mean scores from 2006-2014, as well as the means scores from the six functional areas of the examination.

This study also invited 729 Michigan police officers who graduated from a NPBL police academy from 2010-2014 and 137 Michigan police officers who graduated a PBL police academy (Ferris State University) from 2008-2014 to participate in an online

survey during a four-week period beginning in 2015. Of the 729 NPBL trained police officers, 123 police officers completed the survey. Of the 137 PBL police officers from Ferris State University, 108 officers completed the survey. One explanation for the vast difference in these response proportions might be that the officers from Ferris State University knew me personally as one of their academy instructors, where the participants from other academies had no previous contact with me. The survey instrument queried the participating police officers' perceptions regarding their acquired problem solving skills, their acquired critical thinking skills, their acquired communication abilities, their satisfaction with their police academy classroom experiences, and lastly, their beliefs that their academy training prepared them adequately to perform as a police officer in Michigan.

Description of the Population

The target population primarily consisted of Michigan sworn police officers who had graduated from a Michigan police academy. Of this population, 866 police officers were identified by MCOLES as currently employed by a police agency where MCOLES had a recorded email address on file. These addresses were provided to me to allow electronic delivery testing and then delivery of my survey for this research endeavor. The majority of police officer respondents were males (88%) who were White or non-Hispanic (95%), working their job in a road patrol (92.6%) for a small to mid-size police agency (62%), possessing an associate or bachelor degree (88%), with four years or less experience as a police officer (74%). The population provides a sizeable group of police

officers who are fairly fresh from their police academy education experience. Table 3 provides detailed demographic data for all participants.

Table 3

Participant Demographics (n=231)

Descriptions	PBL n (%)	NPBL n (%)	Total n (%)
Current Job Descriptions			
Road Patrol	100 (43.3)	114 (49.4)	214 (92.6)
First Line Supervision	4 (1.7)	6 (2.6)	10 (4.3)
Investigative	4 (1.7)	1 (0.4)	5 (2.2)
Administrative	0 (0.0)	2 (0.8)	2 (0.9)
Gender			
Male	98 (42.4)	105 (45.5)	203 (87.9)
Female	10 (4.3)	18 (7.8)	28 (12.1)
Race/Ethnicity			
African American/Black	3 (1.3)	3 (1.3)	6 (2.6)
Asian	0 (0.0)	1 (0.4)	1 (0.4)
Hispanic	0 (0.0)	3 (1.3)	3 (1.3)
Native American	0 (0.0)	0 (0.0)	0 (0.0)
White/Non-Hispanic	104 (45.0)	116 (50.2)	220 (95.2)
Other	1 (0.4)	0 (0.0)	1 (0.4)
Education Level			
High School/GED-No College	0 (0.0)	0 (0.0)	0 (0.0)
Two Years College or Less	0 (0.0)	6 (2.6)	6 (2.6)
Associate Degree	0 (0.0)	42 (18.2)	42 (18.2)
More Than Two Years College-No Deg. Yet	0 (0.0)	4 (1.7)	4 (1.7)
Bachelor Degree	101 (43.7)	61 (26.4)	162 (70.1)
Some Graduate Courses	3 (1.3)	4 (1.7)	7 (3.0)
Graduate Degree	4 (1.7)	5 (2.2)	9 (3.9)
Post Graduate Education	0 (0.0)	1 (0.4)	1 (0.4)
Years of Police Experience			
>0-2	40 (17.4)	48 (20.9)	88 (38.1)
2-4	34 (14.8)	49 (21.3)	83 (35.9)
4-6	22 (9.6)	23 (10.0)	45 (19.5)
6-8	11 (4.8)	1 (0.4)	12 (5.2)
8 or More	0 (0.0)	2 (0.9)	2 (0.9)
Police Agency Size			
1-10	19 (8.5)	15 (6.7)	34 (15.2)
11-30	27 (12.1)	28 (12.6)	55 (24.7)
31-70	26 (11.7)	30 (13.4)	56 (25.1)
71-150	24 (10.8)	28 (12.6)	52 (23.3)
151-200	6 (2.7)	5 (2.2)	11 (4.9)
201-300	2 (0.9)	5 (2.2)	7 (3.1)
Greater Than 300	4 (1.8)	4 (1.8)	8 (3.6)

Note: Not all respondents responded to all items.

Analysis of Questions

Research Question 1

Research Question 1 studied the effects of problem-based learning (PBL) on Michigan's Police Officer Licensing Examination mean scores for academy recruits from Ferris State University (FSU). An analysis was conducted to compare a time frame at FSU (1999-2005) when PBL was not part of the teaching strategy, with a later time period at FSU (2006-2014) after PBL was instituted as the foundation of academy instruction. I statistically compared the overall mean scores of the licensing examination and also compared the six functional areas or individual components of the licensing examination to determine what difference, if any, existed between these scores. Did PBL constitute any change in the student testing mean scores during the time frames? Did PBL matter when reviewing and comparing the six different segments of the licensing examination and the resulting means scores during the same time frames?

To address this research question, I obtained the licensing examination mean test scores from the State of Michigan and conducted independent sample *t*-tests to compare the overall mean scores for FSU pre-PBL from 1999-2005 and FSU post-PBL from 2006-2014. The number of FSU licensing examination scores reported by Michigan were 631 in total (pre-PBL, n=275; post-PBL, n=356). There was a significant difference in the overall mean scores for pre-PBL (M=79.28, SD=1.38) and post-PBL (M=81.11, SD=1.69) conditions. See Table 4 for a display of these results.

Table 4

Independent Sample T-Tests Comparing Licensing Examination Mean Scores Between PBL and NPBL Academies: Pre-PBL Years (1999-2005) and Post-PBL Years (2006-2014)

Variable (Exams Scored)	Other State Academies Non-PBL		Ferris State University PBL			
	Mean	SD	Mean	SD	*t*	*Sig (2-tailed)*
Pre-PBL Years (1999-2005) n=7 years (6,984)	77.71 (6,709)	0.488	79.29 (275)	1.38	2.84	*0.023
Post-PBL Years (2006-2014) n=9 years (5,978)	77.11 (5,622)	0.333	81.11 (356)	1.69	6.96	*0.000

*p<=0.05 Number of examinations scored in parenthesis.

In addition, there was a significant difference in the mean scores for Functional Areas 1-4 with no significant differences found for Functional Areas 5 and 6. As a reminder from Table 1, Functional Area 1 covers the content for: Constitutional Law, Criminal Law, Criminal Procedures, Civil Law, Basic Investigation, Drugs, Sexual Assault, Child Abuse, Crime Scene Processing, and Domestic Violence. Functional Area 2 is focused on Patrol Operations and Techniques, Interpersonal Relations, Ethics, Report Writing, Dealing with Juveniles with Functional Area 3 devoted to Detention: Prisoner Care and Booking, Criminal Case Prosecution, and Civil Processes. Functional Area 4 tests the content for Police Skills Components such as First Aid, Firearms, Physical Training, Emergency Vehicle Operations, Fitness and Wellness, and Functional Area 5 dealing with all traffic related topics. Lastly, Functional Area 6 is directed toward Emergency Preparedness, Civil Disorders, Tactical Operation, Environmental Crimes, Terrorism Awareness, and Incident Command Systems.

For Functional Area 1, a significant difference in the mean scores was found for pre-PBL (M=77.00, SD=2.16) and post PBL (M=83.66, SD=3.39) conditions. Functional Area 2 also revealed a significant difference in the mean scores for the pre-PBL (M=85.43, SD=3.36) and post-PBL (M=89.11, SD=1.76) conditions. In Functional Area 3, a significant difference in the mean scores was found for the pre-PBL (M=78.00, SD=2.08) and post-PBL (M=89.11, SD=4.48) conditions. Functional Area 4 showed a significant difference in the mean scores for the pre-PBL (M=82.71, SD=3.15) and post-PBL (M=72.77, SD=2.44) conditions. Functional Area 5 provided no significant difference in the mean scores for the pre-PBL (M=74.57, SD=2.44) and post-PBL (M=75.88, SD=1.62) conditions. In Functional Area 6, no significant difference in the mean scores was found for the pre-PBL (M=75.71, SD=4.75) and post-PBL (M=77.00, SD=5.05) conditions. Table 5 illustrates these results.

Table 5

Independent Sample T-Tests Comparing FSU Pre-PBL (1999-2005) and Post-PBL (2006-2014) Examination Mean Scores

Variable	Ferris State University Pre-PBL		Ferris State University Post-PBL			
	Mean	SD	Mean	SD	*t*	*Sig (2-tailed)*
Overall	79.28	1.38	81.11	1.69	2.31	*0.036
Functional Area 1	77.00	2.16	83.66	3.39	−4.51	*0.000
Functional Area 2	85.43	3.36	89.11	1.76	−2.84	*0.013
Functional Area 3	78.00	2.08	89.11	4.48	−6.03	*0.000
Functional Area 4	82.71	3.15	72.77	2.44	7.13	*0.000
Functional Area 5	74.57	2.44	75.88	1.62	−1.30	0.215
Functional Area 6	75.71	4.75	77.00	5.05	−0.518	0.612

*p<=0.05.

Research Question 2

Research Question 2 examined the effects of problem-based learning (PBL) on Michigan's Police Officer Licensing Examination mean scores for academy graduates from Ferris State University (FSU) and the licensing examination mean scores for academy graduates from all other Michigan police academies for 2006-2014. Ferris State University's police academy provided PBL instruction from 2006-2014 while the other Michigan academies did not (NPBL) during the same years. I statistically compared the overall mean scores of the licensing examination and also compared the six functional areas or individual components of the licensing examination to determine what difference, if any, existed between these groups and their mean scores. Did PBL constitute any change in the student testing mean scores between these groups during the time frames? Did PBL matter when reviewing the six different parts of the licensing examination for these groups during the same time frames?

Table 6 represents the independent sample *t*-test results comparing the mean scores of the MCOLES Police Officer Licensing Examinations from 2006-2014 where comparative analysis was conducted between all other state police academies (NPBL) and Ferris State University's police academy (PBL). The mean scores were derived from the administration of 5,978 police officer licensing examinations by MCOLES from 2006-2014.

There was a significant difference in the overall mean scores for the NPBL (M=77.11, SD=0.33) and the PBL (M=81.11, SD=1.69) conditions. In addition, there was a significant difference in the mean scores for all exam Functional Areas with the

exception of Functional Areas 4 and 6. For Functional Area 1, a significant difference in the mean scores was found for NPBL (M=77.22, SD=0.66) and PBL (M=83.66, SD=3.39) conditions. Functional Area 2 also revealed a significant difference in the mean scores for the NBL (M=83.44, SD=1.33) and PBL (M=89.11, SD=1.76) conditions. In Functional Area 3, a significant difference in the mean scores was found for the NPBL (M=79.33, SD=4.00) and PBL (M=89.11, SD=4.48) conditions. Functional Area 4 showed no significant difference in the mean scores for the NPBL (M=73.33, SD=2.00) and PBL (M=72.78, SD=2.44) conditions. Functional Area 5 provided a significant difference in the mean scores for the NPBL (M=72.55, SD=1.33) and PBL (M=75.88, SD=1.62) conditions. In Functional Area 6, no significant difference in the mean scores was found for the NPBL (M=74.77, SD=0.67) and the PBL (M=77.00, SD=5.05) conditions. Table 6 presents these results.

Table 6

Independent Sample T-Tests Comparing Other State Academies (NPBL) with FSU (PBL) Licensing Exam Mean Scores 2006-2014

Variable	Other State Academies Non-PBL		Ferris State University PBL			
	Mean	SD	Mean	SD	*t*	*Sig (2-tailed)*
Overall	77.11	0.33	81.11	1.69	−6.96	*0.000
Functional Area 1	77.22	0.66	83.67	3.39	−5.59	*0.000
Functional Area 2	83.44	1.33	89.11	1.76	−7.69	*0.000
Functional Area 3	79.33	4.00	89.11	4.48	−4.88	*0.000
Functional Area 4	73.33	2.00	72.77	2.44	0.529	0.604
Functional Area 5	72.55	1.33	75.88	1.62	−4.77	*0.000
Functional Area 6	74.77	0.66	77.00	5.05	−1.31	0.209

*p<=0.05

Research Question 3

Research Question 3 examined the difference, if any, between the academy graduates' (now licensed Michigan police officers) perceptions who graduated from a PBL academy with the perceptions of the graduates (now licensed Michigan police officers) who completed a NPBL academy. The time frame used for this comparison were graduates from years 2006-2014. The police officers were asked to provide their perceptions on (a) their acquired problem-solving skills, (b) their acquired critical thinking skills, (c) their acquired communication abilities, (d) the satisfaction with their academy classroom experiences, (e) whether their training prepared them adequately to perform as a police officer, and (f) their academy's instruction style. Did the change to PBL to FSU make a difference in the graduate police officers' perceptions when compared to the graduate police officers' perceptions from other Michigan police academies in these areas?

Table 7 provides a representation of the seven survey questions asking PBL academy graduates perceptions of their police academy's instruction style or methods. Five of the seven questions in this category had means within the moderate agreement level. The academy requiring multiple teamwork or group projects on a regular basis was perceived and ranked with the highest amount of agreement (M=5.75, SD=0.74). The graduates second most agreed upon facet of their instruction was related to their academy using primarily PBL instructional strategies (M=5.70, SD=0.79). These two survey question means had the highest levels of agreement among all 40 survey questions in this research. The least agreed upon instructional style was the academy's use of primarily

lecture-based methods (M=3.99, SD=1.34), where the mean fell slightly into the disagreement level.

Table 7

PBL Academy Instruction-Related Perceptions (n=108)

My police academy:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Allowed students to have a strong leadership role during classes every day	0 (0.0)	3 (2.8)	3 (2.8)	15 (13.9)	28 (25.9)	59 (54.6)	5.27 (0.992)
Required multiple teamwork or group projects on a regular basis	1 (0.9)	1 (0.9)	0 (0.0)	3 (2.8)	12 (11.1)	91 (84.3)	5.75 (0.738)
Provided daily small group work where we had to solve problems	2 (1.9)	0 (0.0)	0 (0.0)	13 (12.0)	27 (25.0)	66 (61.1)	5.42 (0.929)
Required me to regularly assess the impact of resolutions for many problems	1 (0.9)	1 (0.9)	2 (1.9)	16 (14.8)	31 (28.7)	57 (52.8)	5.28 (0.955)
Required me to make and justify difficult decisions nearly every day	0 (0.0)	4 (3.7)	5 (4.6)	23 (21.3)	48 (44.4)	28 (25.9)	4.84 (0.987)
Primarily used problem-based learning strategies	2 (1.9)	0 (0.0)	0 (0.0)	2 (1.9)	18 (16.7)	86 (79.6)	5.70 (0.788)
Primarily used lecture-based teaching strategies	4 (3.7)	8 (7.4)	31 (28.7)	24 (22.2)	24 (22.2)	17 (15.7)	3.99 (1.34)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

Table 8 represents the opinions of the NPBL academy graduates perceptions of their police academy's instruction style or methods employing the same seven survey questions. All seven questions in this category had means within the lowest level of agreement. Their academy's primary use of a lecture-based instruction style has the highest level agreement (M=4.80, SD=1.07), while the item having the second most highest agreement related to their academy requiring multiple teamwork or group projects on a regular basis (M=4.72. SD=1.16). The least agreed upon instructional style

associated with their police academy requiring them to make and justify difficult decision nearly every day (M=4.15, SD=1.26) where the mean fell into the lowest level of agreement.

Table 8

NPBL Academy Instruction-Related Perceptions (n=123)

My police academy:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Allowed students to have a strong leadership role during classes every day	2 (1.6)	4 (3.3)	22 (17.9)	32 (26.0)	33 (26.8)	30 (24.4)	4.46 (1.22)
Required multiple teamwork or group projects on a regular basis	3 (2.4)	0 (0.0)	13 (10.6)	35 (28.5)	33 (26.8)	39 (31.7)	4.72 (1.16)
Provided daily small group work where we had to solve problems	3 (2.4)	4 (3.3)	22 (17.9)	40 (32.5)	31 (25.2)	23 (18.7)	4.31 (1.20)
Required me to regularly assess the impact of resolutions for many problems	3 (2.4)	6 (4.9)	16 (13.0)	36 (29.3)	31 (25.2)	31 (25.2)	4.46 (1.27)
Required me to make and justify difficult decisions nearly every day	4 (3.3)	10 (8.1)	26 (21.1)	28 (22.8)	32 (26.0)	23 (18.7)	4.16 (1.35)
Primarily used problem-based learning strategies	3 (2.4)	9 (7.3)	23 (18.7)	40 (32.5)	27 (22.0)	21 (17.1)	4.15 (1.26)
Primarily used lecture-based teaching strategies	0 (0.0)	3 (2.4)	13 (10.6)	28 (22.8)	41 (33.3)	38 (30.9)	4.80 (1.07)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

Table 9 depicts the levels of agreement of the PBL academy graduates correlated to their instruction and development of critical thinking skills where the means of all five survey questions in this category were within the level of moderate agreement. The PBL academy graduates indicated the highest levels of agreement with their learning to apply critical thinking skills, such as analysis, evaluation, and inference (M=5.34, SD=0.919)

and with their learning to defend their decisions with justification (M=5.34, SD=0.939). The least agreed upon critical thinking skill development linked to their learning to conduct in-depth research into numerous areas of policing (M=5.01, SD=1.07) where the mean remained within the level of moderate agreement.

Table 9

PBL Academy Critical Thinking Instruction Perceptions (n=108)

Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Critically analyzed many current issues related to law enforcement	1 (0.9)	1 (0.9)	1 (0.9)	22 (20.4)	29 (26.9)	54 (50.0)	5.21 (0.967)
Apply critical thinking skills, such as analysis, evaluation, and inference	1 (0.9)	1 (0.9)	1 (0.9)	14 (13.0)	31 (28.7)	60 (55.6)	5.34 (0.919)
Research and consider multiple sources in my search for resolutions	1 (0.9)	1 (0.9)	2 (1.9)	18 (16.7)	37 (34.3)	49 (45.4)	5.19 (0.949)
Defend my decisions with justification	1 (0.9)	1 (0.9)	1 (0.9)	16 (14.8)	27 (25.0)	62 (57.4)	5.34 (0.939)
Conduct in-depth research into numerous areas of policing	2 (1.9)	1 (0.9)	4 (3.7)	22 (20.4)	36 (33.3)	42 (38.9)	5.01 (1.07)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

The levels of agreement of the NPBL academy graduates related to their instruction and development of critical thinking skills are illustrated in Table 10. The five survey question means in this category were within the lowest level of agreement, with the NPBL academy graduates indicating the most agreement with their learning to defend their decisions with justification (M=4.91, SD=1.01). Their next highest mean was related to their learning to apply critical thinking skills, such as analysis, evaluation, and inference (M=4.67, SD=0.981). The lowest level of agreement in this critical

thinking skill development category was, similar to the PBL graduates, linked to their learning to conduct in-depth research into numerous areas of policing (M=4.09, SD=1.32) where the mean remained slightly within the level of agreement.

Table 10

NPBL Academy Critical Thinking Instruction Perceptions (n=123)

Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Critically analyzed many current issues related to law enforcement	1 (0.8)	3 (2.4)	11 (8.9)	50 (40.7)	29 (23.6)	29 (23.6)	4.54 (1.07)
Apply critical thinking skills, such as analysis, evaluation, and inference	0 (0.0)	1 (0.8)	12 (9.8)	44 (35.8)	36 (29.3)	30 (24.4)	4.67 (0.981)
Research and consider multiple sources in my search for resolutions	1 (0.8)	2 (1.6)	22 (17.9)	45 (36.6)	32 (26.0)	20 (16.3)	4.35 (1.06)
Defend my decisions with justification	0 (0.0)	1 (0.8)	11 (8.9)	29 (23.6)	38 (30.9)	43 (35.0)	4.91 (1.01)
Conduct in-depth research into numerous areas of policing	5 (4.1)	6 (4.9)	31 (25.2)	33 (26.8)	25 (20.3)	22 (17.9)	4.09 (1.32)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

The mean scores for the levels of agreement of the PBL trained officers revealed that the means related to their problem solving instructions were all within the moderately agree category. These results are illustrated in Table 11. Their highest level of agreement was found with the officers' perceptions connected to their development of decision making skills (M=5.55, SD=0.825). While still within the moderate level of agreement, the least important item for the police officers associated with being taught to define the scope of very complex policing problems (M=5.03, SD=1.02).

Table 11

PBL Academy Problem Solving Instruction Perceptions (n=108)

Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Define the scope of very complex problems related to policing	1 (0.9)	1 (0.9)	4 (3.7)	26 (24.1)	32 (29.6)	44 (40.7)	5.03 (1.02)
Analyze problems and make quick decisions toward solutions	1 (0.9)	2 (1.9)	1 (0.9)	8 (7.4)	37 (34.3)	59 (54.6)	5.36 (0.922)
Develop and use various problem solving models	1 (0.9)	1 (0.9)	2 (1.9)	19 (17.6)	30 (27.8)	55 (50.9)	5.23 (0.973)
Evaluate problems from a variety of perspectives	1 (0.9)	1 (0.9)	2 (1.9)	12 (11.1)	36 (33.3)	56 (51.9)	5.31 (0.922)
Develop my decision making skills	1 (0.9)	1 (0.9)	0 (0.0)	7 (6.5)	26 (24.1)	73 (67.6)	5.55 (0.825)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

Table 12 displays the perceptions of NPBL police officers regarding their police academy instruction surrounding problem solving development.

Table 12

NPBL Academy Problem Solving Instruction Perceptions (n=123)

Section 2 Questions Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Define the scope of very complex problems related to policing	3 (2.4)	1 (0.8)	28 (22.8)	42 (34.1)	30 (24.4)	18 (14.6)	4.22 (1.13)
Analyze problems and make quick decision toward solutions	1 (0.8	3 (2.4)	4 (3.3)	36 (29.3)	42 (34.1)	36 (29.3)	4.83 (1.03)
Develop and use various problem solving models	3 (2.4)	1 (0.8)	14 (11.4)	42 (34.1)	40 (32.5)	21 (17.1)	4.47 (1.09)
Evaluate problems from a variety of perspectives	1 (0.8)	4 (3.3)	12 (9.8)	37 (30.1)	42 (34.1)	26 (21.1)	4.58 (1.08)
Develop my decision making skills	1 (0.8)	3 (2.4)	7 (5.7)	35 (28.5)	36 (29.3)	40 (32.5)	4.82 (1.08)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

Their opinions of the five survey questions were all within the lowest level of agreement. Their top two items of highest agreement were their capability to analyze problems and make quick decisions toward solutions (M-4.83, SD=1.03) and their instructions toward developing their decision making skills (M=4.82, SD=1.08). Their instruction on defining the scope of very complex policing problems was perceived on the lowest level agreement (M=4.22, SD=1.13).

Five survey questions were used to determine the level of agreement of police officers who received their academy training in PBL and NPBL formats regarding their development of personal communication skills. The PBL academy graduates' response mean scores all were in the moderately agree level of 5.0 or higher. The NPBL academy graduates had mean scores in response to the same questions that were within either the disagree or agree levels. The PBL police officers had the highest levels of agreement when assessing whether their academy taught them how to collaborate and work in groups (M=5.62, SD=0.794).

The same PBL trained officers indicated that their academy taught them to develop group presentations and required them provide many group presentations with mean scores just below the previous category (M=5.53, SD=0.891). The NPBL academy officers' means scores were just the opposite, as this same item was perceived with the lowest level of agreement of the five communication development survey items (M=3.34, SD=1.44) finding that group presentation development was in the disagreement tier. The NPBL academy officers' means further showed that they believed that their academy helped them to learn to improve their communication skills (M=4.58, SD=1.28) and to be

able to communicate verbally very well (M=5.62, SD=1.11). The agreement levels of the communication instruction perceptions of both the PBL and NPBL respondents are displayed in Tables 13 and 14.

Table 13

PBL Academy Communication Instruction Perceptions (n=108)

Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Develop and I provided many group presentations during the academy	1 (0.9)	1 (0.9)	1 (0.9)	10 (9.3)	19 (17.6)	76 (70.4)	5.53 (0.891)
How to collaborate and work in groups	1 (0.9)	1 (0.9)	0 (0.0)	5 (4.6)	22 (20.4)	79 (73.1)	5.62 (0.794)
Improve my verbal communication skills	1 (0.9)	1 (0.9)	1 (0.9)	10 (9.3)	25 (23.1)	70 (64.8)	5.47 (0.891)
Defend and explain my position on complex issues on a daily basis	1 (0.9)	1 (0.9)	4 (3.7)	18 (16.7)	33 (30.6)	51 (47.2)	5.17 (1.00)
Communicate very well verbally	1 (0.9)	1 (0.9)	2 (1.9)	14 (13.0)	30 (27.8)	60 (55.6)	5.32 (0.946)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

The PBL academy police officers responded to survey questions connected to how satisfied they were with their classroom experiences. All six of the means were found within the agree level. The highest response means related to the officers being very satisfied that their academy helped them to develop strong problem solving skills (M=4.94, SD=1.15) and to develop strong critical thinking skills (M=4.90, SD=1.14) with the development of communication skill ranked third (M=4.87, SD=1.14). The means for these questions are provided in Table 15.

Table 14

NPBL Academy Communication Instruction Perceptions (n=123)

Because of my police academy training, I learned to:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Develop and I provided many group presentations during the academy	17 (13.8)	14 (11.4)	38 (30.9)	28 (22.8)	14 (11.4)	11 (8.9)	3.34 (1.44)
How to collaborate and work in groups	2 (1.6)	4 (3.3)	12 (9.8)	49 (39.8)	31 (25.2)	24 (19.5)	4.43 (1.11)
Improve my verbal communication skills	4 (3.3)	3 (2.4)	16 (13.0)	29 (23.6)	35 (28.5)	35 (28.5)	4.58 (1.28)
Defend and explain my position on complex issues on a daily basis	5 (4.1)	4 (3.3)	29 (23.6)	29 (23.6)	31 (25.2)	23 (18.7)	4.21 (1.32)
Communicate very well verbally	1 (0.8)	3 (2.4)	14 (11.4)	36 (29.3)	37 (30.1)	31 (25.2)	4.62 (1.11)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

Table 15

PBL Academy Satisfaction with Classroom Experiences (n=108)

I am very satisfied that my academy helped me to develop:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Strong critical thinking skills	2 (0.9)	7 (3.0)	12 (5.2)	65 (28.1)	50 (21.6)	95 (41.1)	4.90 (1.14)
Strong problem solving skills	2 (0.9)	5 (2.2)	17 (7.4)	59 (25.5)	47 (20.3)	101 (43.7)	4.94 (1.15)
Strong communication skills	1 (0.4)	7 (3.0)	18 (7.8)	60 (26.0)	52 (22.5)	92 (39.5)	4.87 (1.14)
Strong research skills and the ability to report findings	3 (1.3)	13 (5.6)	28 (12.1)	58 (25.1)	57 (24.7)	72 (31.2)	4.60 (1.27)
Strong written and oral communication skills	1 (0.4)	5 (2.2)	23 (10.0)	61 (26.4)	54 (23.4)	87 (37.7)	4.83 (1.13)
Strong public presentation skills	10 (4.3)	12 (5.2)	34 (14.7)	52 (22.5)	44 (19.0)	78 (33.8)	4.49 (1.44)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

The NPBL academy police officers also responded to the six survey questions correlated to how satisfied they were with their classroom experiences. The means were found to be within both the agree and disagree levels. The highest response mean was found to be related to the officers being very satisfied that their academy helped them to develop strong communication skills (M=4.46, SD=1.14) and to develop strong problem solving skills (M=4.90, SD=1.14) with the development of communication skill ranked third (M=4.45, SD=1.14). The lowest mean displayed that the respondents disagreed and did not believe that their academy helped to develop strong public presentation skills (M=3.66, SD=1.32). The six survey questions means are exhibited in Table 16.

Table 16

NPBL Academy Satisfaction with Classroom Experiences (n=123)

I am very satisfied that my academy helped me to develop:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Strong critical thinking skills	1 (0.8)	6 (4.9)	12 (9.8)	52 (42.3)	26 (21.1)	26 (21.1)	4.41 (1.12)
Strong problem solving skills	1 (0.8)	4 (3.3)	17 (13.8)	47 (38.2)	25 (20.3)	29 (23.6)	4.45 (1.14)
Strong communication skills	0 (0.0)	6 (4.9)	17 (13.8)	43 (35.0)	27 (22.0)	29 (23.6)	4.46 (1.14)
Strong research skills and the ability to report findings	2 (1.6)	12 (9.8)	27 (22.0)	42 (34.1)	23 (18.7)	17 (13.8)	4.00 (1.23)
Strong written and oral communication skills	0 (0.0)	4 (3.3)	21 (17.1)	46 (37.4)	28 (22.8)	24 (19.5)	4.38 (1.08)
Strong public presentation skills	9 (7.3)	11 (8.9)	34 (27.6)	39 (31.7)	17 (13.8)	12 (9.8)	3.66 (1.32)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

Eight survey questions were provided for the respondents that related to the police officers' perceptions of how well their police academy prepared them for the policing

duties. The PBL police academy graduates' agreement means were within the agree and moderately agree levels. The highest agreement mean indicates that the PBL academy police officers responded that after being on the job they believe that their academy prepared them with an outstanding ability to analyze and apply the laws of Michigan (M=5.24, SD=0.936) with their academy preparing them to function at high levels as a Michigan police officer next highest ranking mean (M=5.15, SD=1.02). Their lowest level of agreement was found with their academy preparing them extremely well for the field training process once they were hired (M=4.80, SD=1.09). See Table 17 for the

Table 17

PBL Academy Preparation for the Job Perceptions (n=108)

After being on the job, I believe that my academy experiences:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Provided me with outstanding abilities in all areas of law enforcement	1 (0.9)	3 (2.8)	2 (1.9)	33 (30.6)	38 (35.2)	30 (27.8)	4.81 (1.02)
Prepared me with much more than just the basics of policing	1 (0.9)	2 (1.9)	5 (4.6)	18 (16.7)	33 (30.6)	49 (45.4)	5.10 (1.06)
Taught me the value of community involvement and service	1 (0.9)	2 (1.9)	3 (2.8)	21 (19.4)	34 (31.5)	47 (43.5)	5.09 (1.03)
Prepared me well for most aspects of law enforcement	1 (0.9)	1 (0.9)	4 (3.7)	25 (23.1)	31 (28.7)	46 (42.8)	5.06 (1.02)
Were easily applied to my job as a police officer from the first day	2 (1.9)	1 (0.9)	5 (4.6)	32 (29.6)	34 (31.5)	34 (31.5)	4.82 (1.08)
Prepared me extremely well for the field training process once I was hired	1 (0.9)	3 (2.8)	7 (6.5)	28 (25.9)	36 (33.3)	33 (30.6)	4.80 (1.09)
Provided me with an outstanding ability to analyze and apply the laws of Michigan	1 (0.9)	1 (0.9)	0 (0.0)	21 (19.4)	31 (28.7)	54 (50.0)	5.24 (.936)
Prepared me to function at high levels as a Michigan police officer	1 (0.9)	2 (1.9)	3 (2.8)	18 (16.7)	34 (31.5)	50 (46.3)	5.15 (1.02)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

illustration of how well the PBL officers perceived that their academy prepared them for the job. When compared to the NPBL academy officers, the lowest level mean for the PBL officers is still higher than all of the NPBL response means.

Table 18 provides the levels of agreement for the NPBL academy trained police officers when responding to the eight survey questions seeking their perception on how well their academy experiences prepared them for policing.

Table 18

NPBL Academy Preparation for the Job Perceptions (n=123)

After being on the job, I believe that my academy experiences:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Provided me with outstanding abilities in all areas of law enforcement	9 (7.3)	9 (7.3)	21 (17.1)	40 (32.5)	24 (19.5)	19 (15.4)	3.97 (1.40)
Prepared me with much more than just the basics of policing	10 (8.1)	7 (5.7)	32 26.0)	27 (22.0)	25 (20.3)	21 17.1)	3.93 (1.46)
Taught me the value of community involvement and service	7 (5.7)	5 (4.1)	18 14.6)	55 (44.7)	16 (13.0)	20 (16.3)	4.06 (1.28)
Prepared me well for most aspects of law enforcement	4 (3.3)	3 (2.4)	12 (9.8)	57 (46.3)	26 (21.1)	19 (15.4)	4.28 (1.13)
Were easily applied to my job as a police officer from the first day	1 (0.8)	4 (3.3)	19 (15.4)	51 (41.5)	24 (19.5)	23 (18.7)	4.33 (1.10)
Prepared me extremely well for the field training process once I was hired	8 (6.5)	7 (5.7)	18 (14.6)	43 (35.0)	21 (17.1)	25 (20.3)	4.12 (1.40)
Provided me with an outstanding ability to analyze and apply the laws of Michigan	1 (0.8)	5 (4.1)	13 (10.6)	43 (35.0)	24 (19.5)	36 (29.3)	4.57 (1.19)
Prepared me to function at high levels as a Michigan police officer	5 (4.1)	3 (2.4)	13 (10.8)	40 (32.5)	31 (25.2)	30 (24.4)	4.47 (1.27)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6 Note: Not all respondents responded to all items.

The NPBL officers' highest ranking means followed the pattern as the PBL officers except with lower means. The NPBL officers perceived that after being on the job, their academy experiences provided them with an outstanding ability to analyze and apply the laws of Michigan (M=4.57, SD=1.19) and their academy prepared them to function at high levels as a Michigan police officer (M=4.47, SD=1.27). Their lowest mean rankings was related to their disagreement that their academy prepared them with more than just the basics of policing (M=3.93, SD=1.46) and their disagreement that their academy provided them with outstanding abilities in all areas of law enforcement (M=3.97, SD=1.40).

In seeking the perceptions of police officers who attended PBL academies, I surveyed the respondents using four questions focused on their overall satisfaction of their police academy experiences. The PBL academy officers level of agreement with these questions were within the moderately agree segment. The highest level of agreement came from the item indicating that their police academy offered many experiences that were extremely rewarding and satisfying (M=5.43, SD=0.919). The second highest agreement was determined to be with their academy providing them with top notch training that has been very valuable. The officers also agreed that their academy worked well and needs little change to develop better officers (M=5.08, SD=1.07) and that their academy was extremely valuable and worth every dollar that it cost (M=5.08, SD=1.08). Table 19 provides these results.

The means of the perceptions of the officers trained in a NPBL academy environment were found to be slightly lower than the PBL officers with all of the means

Table 19

PBL Academy for Overall Satisfaction of Academy Experiences (n=108)

Overall, my police academy:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Provided me with top notch training that has been very valuable	1 (0.9)	1 (0.9)	3 (2.8)	17 (15.7)	21 (19.4)	65 (60.2)	5.32 (1.00)
Offered many experiences that were extremely rewarding and satisfying	1 (0.9)	1 (0.9)	1 (0.9)	13 (12.0)	24 (22.2)	68 (63.0)	5.43 (0.919)
Worked well and needs little change to develop better police officers	1 (0.9)	2 1.9)	5 (4.6)	20 (18.5)	31 (28.7)	49 (45.4)	5.08 (1.07)
Was extremely valuable and worth every dollar that it cost	1 (0.9)	2 (1.9)	5 (4.6)	21 (19.4)	29 (26.9)	50 (46.3)	5.08 (1.08)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

being within the agree level. The same four survey questions sought their overall satisfaction of their police academy experiences. The NPBL officer highest level of agreement came from the item indicating that their police academy provided top notch training that has been very valuable (M=4.62, SD=1.28) while the next highest agreement was determined to be with their academy offering them many experiences that were rewarding and satisfying (M=4.61, SD=1.14). The lowest level of agreement was related to their academy worked well and needs little change to develop better officers (M=4.10, SD=1.26). Table 20 shows these data findings.

Research Question 4

Research Question 4 investigated to what extent differences existed between the PBL academies and the NPBL academies in reference to their acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with

Table 20

NPBL Academy for Overall Satisfaction of Academy Experiences (n=122)

Overall, my police academy:	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	6 n (%)	Mean (SD)
Provided me with top notch training that has been very valuable	6 (4.9)	1 (0.9)	7 (5.7)	43 (35.0)	27 (22.0)	38 (30.9)	4.62 (1.28)
Offered many experiences that were extremely rewarding and satisfying	1 (0.9)	3 (2.4)	13 (10.6)	45 (36.6)	24 (19.5)	36 (29.3)	4.61 (1.14)
Worked well and needs little change to develop better police officers	6 (4.9)	4 (3.3)	25 (20.3)	41 (33.3)	29 (23.6)	17 (13.8)	4.10 (1.26)
Was extremely valuable and worth every dollar that it cost	10 (8.1)	3 (2.4)	16 (13.0)	37 (30.1)	21 (17.1)	35 (28.5)	4.32 (1.48)

Note: Likert scale: Strongly disagree=1, Moderately disagree=2, Disagree=3, Agree=4, Moderately agree=5, Strongly agree=6.

their academy classroom experiences, their belief that the training prepared them adequately to perform as a police officer, and their academy's instruction style.

In order to answer the components of Research Question 4, I collapsed the perceived agreement level means for the same sub-sets of survey questions to create seven new variables, and conducted independent samples *t*-tests to compare those collapsed or combined means to determine if significant differences exist.

The survey instrument used for this research involves 40 6-point Likert scale-type questions seeking the level of agreement for each item. In order to determine and measure whether all of the survey items within the instrument measure similar constructs, Cronbach's coefficient alpha (α) was used to analyze the internal consistency or reliability. Reliability refers to whether a measurement instrument, such as a survey questionnaire, will dependably reflect the same concepts that it is evaluating (Field et al.,

2012). "Internal consistency refers to the extent that all parts of the measurement techniques are measuring the same concept" (Wood & Ross-Kerr, 2010, p. 214). Cronbach's coefficient alpha is considered the most common measure of internal consistency, reliability, or homogeneity. Further, it is considered the most universally used measurement method for multiple Likert scale questions in order to determine reliability of the scale (Cronbach's alpha using SPSS, n.d.). According to George and Mallery (2006), coefficient alpha is measured utilizing a similar scale as a Pearson *r* where it varies from 0 to 1. "The closer the alpha is to 1.00, the greater the internal consistency of items in the instrument being assessed" (p. 223). While there is no absolute interpretation of alpha values, a coefficient above 0.70 is considered acceptable reliability where greater than 0.80 is indicative of good reliability and higher than 0.90 generally is interpreted as excellent reliability (George & Mallery, 2006). Two of the coefficients for my seven new variables were good and above 0.80, and five were above 0.90, allowing sufficient leverage and influence to collapse these variables.

The alpha coefficient of reliability for the seven items in Section 1 related to the respondents' perceptions on their academy's instruction methods is 0.836, which suggests a relatively good level of internal consistency.

The survey questions in Section 2 were divided into three components. The first element involves the police officers' opinions on their academy's development of their critical thinking skills with the Cronbach's alpha coefficient resulting in 0.895, which suggests a nearly excellent level of internal reliability. The second component entailed the officers' perceptions of whether their academy helped them to develop problem

solving skills which resulted in an alpha coefficient of 0.908, further reflecting an excellent level of reliability. The third sub-set of questions in Section 2 were related to the police academy's development of the participants' communication skills which resulting in a Cronbach's alpha coefficient of 0.909, matching the previous excellent level of internal reliability.

The six questions within Section 3 related directly to the police officers' perception of their satisfaction of their academy's development of their personal skills. The alpha coefficient for these questions was 0.949 which provided another finding of an excellent level of internal consistency and reliability.

Section 4 presented eight survey questions requesting levels of agreement from the participants related to their academy preparing for the job of policing. The results of alpha coefficient for these eight questions was 0.951, once again providing another example of an excellent level of reliability.

The last grouping of questions, Section 5, asked the respondents about their opinions of their overall satisfaction of their police academy which gave rise to yet another excellent level of reliability based upon a Cronbach's alpha coefficient of 0.934.

Based upon these alpha coefficient results, all of the items within each of the seven sub-sets of survey questions appear to assess that single dimension as defined and virtually nothing else. Table 21 illustrates the results of the Cronbach's alpha coefficient analysis.

Upon conducting the *t*-test analysis for differences in these seven variables between those in the PBL group and those not, I discovered all of the mean differences

Table 21

Cronbach's Alpha Coefficient: Reliability Results for the Seven Survey Question Sub-Sets

New Variables	Number of items	Valid N	Cronbach's alpha
Academy Instruction Methods	7	231	0.836
Critical Thinking Development	5	229	0.895
Problem Solving Development	5	229	0.908
Communication Skill Development	5	229	0.909
Satisfaction of Skills Development	6	229	0.949
Preparation for the Job	8	227	0.951
Overall Academy Satisfaction	4	230	0.934

were statistically significant (p=0.000). These seven new variables comprise the entire 40 survey questions and contrast the PBL academy officers' and the NPBL officers' levels of agreement to those questions. The PBL academy graduates' means are higher than the NPBL graduates' means in all seven collapsed variables with a range from 0.71 to 1.19. The largest mean difference was found within the area of communication skill development (PBL M=5.42; NPBL M=4.24; MD=1.19), with the mean difference related to satisfaction of skills development close behind (PBL M=5.39; NPBL M=4.23; MD=1.16). The third largest mean difference was found within the area of overall academy satisfaction (PBL M=5.23; NPBL M=4.41; MD=0.82). Table 22 displays all of the findings from these independent samples *t*-tests analysis.

I further conducted statistical analysis to compare the mean differences for the individual question perceptions on the level of agreement for the PBL and NPBL officers' responses. Tables 23-29 provide these results and show that the mean differences for all of the survey questions were statistically significant (p=0.000). The seven survey questions in Section 1 related to the respondents' level of agreement with

Table 22

Independent Sample T-Tests Comparing FSU (PBL) and Other State Academies (NPBL) Agreement Levels: Question Sub-Set Means Collapsed

Question Sub-Set Variable	Ferris State University PBL			Other State Academies Non-PBL					
	N	Mean	SD	N	Mean	SD	Mean Diff.	*t*	*Sig (2-tailed)*
Academy Instruction Methods	756	5.18	1.12	861	4.44	1.24	0.74	12.60	*0.000
Critical Thinking Development	539	5.22	0.97	612	4.51	1.12	0.71	11.40	*0.000
Problem Solving Development	540	5.29	0.95	609	4.58	1.10	0.71	11.74	*0.000
Communication Skill Development	540	5.42	0.92	609	4.24	1.34	1.19	17.66	*0.000
Satisfaction of Skills Development	648	5.39	0.92	736	4.23	1.21	1.16	20.30	*0.000
Preparation for the Job	863	5.01	1.04	974	4.22	1.30	0.79	14.52	*0.000
Overall Academy Satisfaction	432	5.23	1.03	488	4.41	1.31	0.82	10.60	*0.000

*p<=0.05.

their opinions about their academy instruction. In Table 23, you will find the results of the independent samples *t*-tests comparing the means of the PBL and NPBL academy graduates.

All seven of the mean differences were statistically significant (p=0.000). The PBL police academy graduates' means are higher than the NPBL academy graduates' means in a range from 0.680 to 1.55. The largest disparity between the two groups (the highest mean difference) was from the respondents' agreement that the PBL academy used primarily problem-based learning strategies which would be expected (PBL M=5.07; NPBL M=4.15; MD=1.55). The level of agreement for the survey question asking about their academy using primarily lecture-based strategies, which would be in

Table 23

Independent Samples T-Tests Comparing Academy Instruction-Related Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 1 Questions My police academy:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Allowed students to have a strong leadership role during classes every day	5.27 (0.992)	4.46 (1.223)	0.805 (0.148)	5.520	*0.000
Required multiple teamwork or group projects on a regular basis	5.75 (0.738)	4.72 (1.162)	1.03 (0.130)	8.112	*0.000
Provided daily small group work where we had to solve problems	5.42 (0.929)	4.31 (1.202)	1.11 (0.140)	7.886	*0.000
Required me to regularly assess the impact of resolutions for many problems	5.28 (0.955)	4.46 (1.269)	0.82 (0.149)	5.603	*0.000
Required me to make and justify difficult decisions nearly every day	4.84 (0.987)	4.18 (1.351)	0.68 (0.158)	4.401	*0.000
Primarily used problem-based learning strategies	5.70 (0.788)	4.15 (1.261)	1.55 (0.141)	11.01	*0.000
Primarily used lecture-based teaching strategies	3.99 (1.336)	4.80 (1.071)	0.82 (0.161)	−5.01	*0.000

*Difference is significant at p<= 0.05.

direct contrast to PBL strategies, resulted as expected in the PBL graduates disagreeing and with the NPBL academy graduates agreeing (PBL M=3.99; NPBL M=4.80; MD=0.806).

These results reveal academy graduates' opinions that they perceived their academies, PBL and NPBL, utilizing PBL methods and NPBL lecture-based instructional strategies, as might be anticipated.

Five survey questions in Section 2 sought the Michigan police officers' perceptions on whether their academy experiences taught them critical thinking skills. Table 24 illustrates the independent samples *t*-test results comparing the levels of agreement. All of the mean differences were statistically significant (p=0.000). The

largest mean difference on critical thinking skill development between the participant groups was with their learning to conduct in-depth research into numerous areas of policing. The PBL graduates moderately agreed where the NPBL academy graduates agreed at a lower level (PBL M=5.01; NPBL M=4.09; MD=0.919). The police officers' second highest mean difference related to their learning to research and consider multiple resources in their search for resolutions (PBL M=5.19; NPBL M=4.35; MD=0.833).

Table 24

Independent Samples T-Tests Comparing Critical Thinking Instruction Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 2 Questions Because of my police academy training, I learned to:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Critically analyzed many current issues related to law enforcement	5.21 (0.987)	4.54 (1.073)	0.67 (0.134)	4.977	*0.000
Apply critical thinking skills, such as analysis, evaluation, and inference	5.34 (0.919)	4.67 (0.981)	0.68 (0.125)	5.406	*0.000
Research and consider multiple sources in my search for resolutions	5.19 (0.949)	4.35 (1.060)	0.83 (0.133)	6.246	*0.000
Defend my decisions with justification	5.34 (0.939)	4.91 (1.012)	0.43 (0.129)	3.347	*0.001
Conduct in-depth research into numerous areas of policing	5.01 (1.068)	4.09 (1.324)	0.92 (0.158)	5.810	*0.000

*Difference is significant at p<= 0.05.

The perceptional scope of the participants regarding the development of their problem solving abilities was evaluated using five survey questions. Table 25 displays the independent samples *t*-tests comparing the means for each question correlating the differences between PBL and NPBL academy graduates. The largest level of agreement mean difference was displayed with the question concerning that because of their

academy the officers learned to define the scope of very complex problems relating to policing (PBL M=5.03; NPBL M=4.22; MD=0.806). The next highest mean difference came from the survey question the officers learning to develop and use various problem solving models (PBL M=5.23; NPBL M=4.47; MD=0.760). These findings provide indications that the PBL instructed officers felt that they were taught to solve problems and to determine the scope and depth of complex problems within law enforcement at a higher level than the NPBL believed. All five of the mean differences were found significant (p=0.000).

Table 25

Independent Samples T-Tests Comparing Problem Solving Instruction Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 2 Questions Because of my police academy training, I learned to:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Define the scope of very complex problems related to policing	5.03 (1.018)	4.22 (1.132)	0.81 (0.143)	5.652	*0.000
Analyze problems and make quick decision toward solutions	5.36 (0.922)	4.83 (1.026)	0.53 (0.129)	4.125	*0.000
Develop and use various problem solving models	5.23 (0.973)	4.47 (1.088)	0.76 (0.137)	5.548	*0.000
Evaluate problems from a variety of perspectives	5.31 (0.922)	4.58 (1.082)	0.72 (0.132)	5.475	*0.000
Develop my decision making skills	5.55 (0.825)	4.82 (1.083)	0.73 (0.126)	5.759	*0.000

*Difference is significant at p<= 0.05.

The respondents indicated that they differed the most on their academy teaching them to develop and provide many group presentations during the academy training, with the NPBL disagreeing with the survey question. The level of disagreement of the NPBL officers is significantly lower than the PBL officers where they were over two mean

points lower (PBL M=5.53; NPBL M=3.34; MD=2.19). The respondents also differed significantly on whether their academy taught them how to collaborate and work in groups. The PBL graduates moderately agreed while the NPBL graduates provided the lowest level of agreement (PBL M=5.63; NPBL M=4.43; MD=1.19). Learning to give group presentations and to function and work in groups was found more prevalent in the PBL academy. All of the mean differences were determined significant (p=0.000). The statistical results of the five survey questions are displayed in Table 26.

Table 26

Independent Samples T-Tests Comparing Communication Instruction Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 2 Questions Because of my police academy training, I learned to:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Develop and I provided many group presentations during the academy	5.53 (0.891)	3.34 (1.441)	2.19 (0.156)	14.04	*0.000
How to collaborate and work in groups	5.63 (0.794)	4.43 (1.113)	1.19 (0.126)	9.377	*0.000
Improve my verbal communication skills	5.47 (0.891)	4.58 (1.278)	0.89 (0.144)	6.182	*0.000
Defend and explain my position on complex issues on a daily basis	5.17 (1.00)	4.21 (1.316)	0.96 (0.156)	6.253	*0.000
Communicate very well verbally	5.32 (0.946)	4.62 (1.108)	0.70 (0.135)	5.176	*0.000

Difference is significant at p<= 0.05.

Upon comparing the means of the police officers' perceptions of satisfaction with their academy coursework, the officers reported the largest difference when asked whether they were very satisfied with their academy helping them to develop strong public presentation skills. The PBL academy graduates moderately agreed while the NPBL graduates disagreed with that statement revealing their dissatisfaction (PBL

M=5.43; NPBL M=3.66; MD=1.77). In addition, the participants reported the second largest satisfaction mean difference on whether their academy developed their research skills and their ability to report their research findings (PBL M=5.28; NPBL M=4.00; MD=1.28).

In Table 27, the independent sample t-tests results are provided for these six survey questions. You will find that the PBL graduates moderately agree with all of the questions displaying their satisfaction of their development of strong critical thinking skills, strong problem solving skills, strong communication skills, and strong written and oral communication skills. The NPBL academy graduates reported lower levels of agreement with these items. All of the differences are significant (p=0.000).

Table 27

Independent Samples T-Tests Comparing Satisfaction Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 3 Questions I am very satisfied that my academy helped me to develop:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Strong critical thinking skills	5.45 (0.890)	4.41 (1.123	1.039 (0.14)	7.835	*0.000
Strong problem solving skills	5.49 (0.881)	4.45 (1.139)	1.044 (0.14)	7.836	*0.000
Strong communication skills	5.34 (0.949)	4.46 (1.144)	0.884 (0.14)	6.400	*0.000
Strong research skills and the ability to report findings	5.28 (0.926)	4.00 (1.228)	1.278 (0.15)	8.992	*0.000
Strong written and oral communication skills	5.34 (0.959)	4.38 (1.083)	0.960 (0.14)	7.095	*0.000
Strong public presentation skills	5.43 (0.888)	3.66 (1.316)	1.770 (0.15)	12.07	*0.000

*Difference is significant at p<= 0.05.

Table 28 displays results of the independent samples *t*-tests comparing PBL and NPBL academy graduates' mean scores of responses indicating their perceptions about how well their academy prepared them for police work. They were asked eight survey questions in order to evaluate their academy experiences after being on the job.

Table 28

Independent Sample T-Tests Comparing Preparation for the Job Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 4 Questions After being on the job, I believe that my academy experiences:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2- tailed)
Provided me with outstanding abilities in all areas of law enforcement	4.81 (1.020)	3.97 (1.402)	0.846 (0.16)	5.263	*0.000
Prepared me with much more than just the basics of policing	5.10 (1.058)	3.93 (1.461)	1.176 (0.17)	7.042	*0.000
Taught me the value of community involvement and service	5.09 (1.028)	4.06 (1.280)	1.035 (0.16)	6.692	*0.000
Prepared me well for most aspects of law enforcement	5.06 (1.022)	4.28 (1.127)	0.775 (0.14)	5.425	*0.000
Were easily applied to my job as a police officer from the first day	4.82 (1.075)	4.33 (1.102)	0.496 (0.14)	3.448	*0.000
Prepared me extremely well for the field training process once I was hired	4.80 (1.092)	4.12 (1.400)	0.673 (0.17)	4.030	*0.000
Provided me with an outstanding ability to analyze and apply the laws of Michigan	5.24 (0.936)	4.57 (1.185)	0.667 (0.14)	4.762	*0.000
Prepared me to function at high levels as a Michigan police officer	5.15 (1.021)	4.47 (1.267)	0.681 (0.15)	4.507	*0.000

*Difference is significant at p<= 0.05.

The largest mean difference between the PBL and NPBL graduates was associated with whether their academy experiences prepared them with much more than just the basics of policing. The PBL academy graduates moderately agreed or showed moderate satisfaction with that statement while the NPBL revealed a level of disagreement or dissatisfaction with these academy experiences (PBL M=5.10; NPBL

M=3.93; MD=1.18). The next largest mean difference was within the area of whether their police academy taught them the value of community involvement and service (PBL M=5.09; NPBL M=4.06; MD=1.04). The third largest mean difference was found related to whether the officers believed their academy experiences provided them with outstanding abilities in all areas of law enforcement. The PBL graduates agreed with the NPBL graduates reporting that they disagree (PBL M=4.81; NPBL M=3.97; MD=0.846).

In summary, the PBL trained police officers reported levels of moderate or standard agreement with all eight survey questions. The NPBL officers agreed at standard levels with six questions and disagreed with two questions providing opinions that their academy may not have prepared them well in those areas.

The last category of questions is associated with perceptions of the academy graduates' overall satisfaction of their police academy experiences. In Table 29, you will find the results of the independent samples *t*-tests comparing the PBL and NPBL graduate means when responding to these overall satisfaction questions. All of the mean differences are statistically significant (p=0.000). The largest overall satisfaction mean difference connects with the question on whether their police academy worked well and needs little change to develop better police officers (PBL M=5.08; NPBL M=4.10; MD=0.985). The second highest mean disparity on their overall satisfaction related to whether their academy offered many experiences that were extremely rewarding and satisfying (PBL M=5.43; NPBL M=4.61; MD=0.819). All of the PBL officer means ranked at the moderately agree level while the NPBL officer means ranked in the standard agree level.

Table 29

Independent Samples T-Tests Comparing Overall Academy Satisfaction Perceptions of PBL Academy Graduates (PBL) and Non-PBL Academy Graduates (NPBL)

Section 5 Questions Overall, my police academy:	PBL Mean (SD)	NPBL Mean (SD)	Mean Diff. (SD)	t	Sig (2-tailed)
Provided me with top notch training that has been very valuable	5.32 (1.003)	4.62 (1.275)	0.701 (0.15)	4.660	*0.000
Offered many experiences that were extremely rewarding and satisfying	5.43 (0.919)	4.61 (1.140)	0.819 (0.14)	6.030	*0.000
Worked well and needs little change to develop better police officers	5.08 (1.069)	4.10 (1.258)	0.985 (0.16)	6.362	*0.000
Was extremely valuable and worth every dollar that it cost	5.08 (1.078)	4.32 (1.484)	0.764 (0.17)	4.499	*0.000

*Difference is significant at p<= 0.05.

Open Ended Responses

The PBL and NPBL participants were also asked to provide additional thoughts and opinions on their police academy education process by responding to three open ended questions on what aspects they considered most valuable to their police career, what aspects they considered least valuable to their current career, and what they would recommend for their academy to change to better prepare future police officers. From the responses entered by the police officers, a master listing was completed where I analyzed the responses looking for major trends or categories that emerged.

The simple counting of the entire group of officers' responses for the first open ended question revealed an significant number focused on criminal law courses (70 officers - 35%) and the use of scenario instruction strategies (62 officers – 31%). Upon deeper analysis of the responses, I discovered three overall categories that emerged: learning methodologies, individual classes, and the use of scenario training. Of the 97

responses, 50 PBL academy police officers identified learning methods as the most valuable aspect of their academy training with 28 listing individual classes, and the remaining 19 officers indicating that scenario training was most valuable to them. In contrast, the NPBL officers provided 101 total responses with 56 officers listing individual classes as their academy's most valuable aspect followed by 23 officers indicating scenarios and 22 officers identifying learning as most valuable. Some participants provided more than one answer to the question so the first or primary component of the answer was utilized in these analyses. The common categories of the officers are displayed in Table 30.

Table 30

Common Categories of the Participants' Comments on the Most Valuable Aspects of Their Police Academy Education (Open-Ended Responses; n=198)

Categories	PBL Responses	%	NPBL Responses	%
Learning Methodologies	50	52	22	22
Individual Classes	28	29	56	55
Scenario Training	19	20	23	23
Total Responses	97	100	101	100

Note: Not all participants responded to this item.

The largest differences between the responses correlated with learning methods as compared with their impressions of their individual classes. The PBL officers reported that the methods of learning was the most valuable (52%) aspect of their academy training while only 22% of the NPBL officers felt the same. The methods of learning clearly stood out to the PBL academy officers as the most appreciated facet of their experiences. One PBL officer wrote, "The critical thinking and problem solving, alone

and in groups. Also being forced to make a decision and act accordingly with little to no help was very beneficial." Another PBL officer commented, "Problem based learning in the academy helped me develop my critical thinking skills, which allows me to make quick and effective decisions." The NPBL officers, although expressing value, categorized the learning methods used in their academies as the lowest of the three valuable themes. One NPBL officer commented about their individual classes, "I consider the legal aspect as well as the practical exercises very valuable in the actual job."

In contrast, the NPBL officers indicated that their individual classes (55%) were the most valuable aspect of their academy. One NPBL officer stated, "The law I learned in the Academy was the information that best transferred to my career. The scenarios were also more helpful than any lecture for day to day police demands." Another NPBL officer commented.

> The preparation we got in terms of the laws was extremely valuable. We also got hands on from the beginning in defensive tactics which was also very important. Learning the basic functions of a police officer did prepare me well to transition into the field training process. The scenario portions of the academy were the best part and an even higher emphasis should be placed on them.

The PBL academy officers listed individual academy classes as less important to them with 29% of the responses focused with this theme.

The most valuable rating of scenario training was fairly equal between the two groups with 20% of PBL responses and 23% of the NPBL officers reporting this as the most valuable feature during their academy education.

Upon investigating the second open ended survey question about the least valuable aspects of their academy training, 62 officers within the entire group of participants indicated that all facets of their academy training was valuable to them. Of the 80 PBL officer responses, 14 officers (18%) claimed that learning methodologies were least valuable to them with 24 officers (30%) identifying individual classes that were least appreciated. They did indicate that some least valuable aspects were related to defensive tactics (nine officers), lectures (eight officers), and first aid training (eight officers) with no larger specific groups being found. One NPBL officer wrote, "PPCT and defensive tactics classes could have been cut in half and give more tactical firearms/building searching and clearing course. We had very little training in this, I believe two hours total and I do this regularly on the job now." Another PBL officer indicated that, "The medical training I have received has been the least utilized skill I have." Further examination into all of the responses to the second open-ended question revealed three general trends: learning methodologies, individual classes, and all instruction was valuable. When comparing the PBL and NPBL academy officers' responses, more than half PBL respondents (42 officers or 53%) indicated that everything in their academy was valuable while only one-quarter of the responding NPBL participants (20 officers or 24%) indicated that everything was valuable. One PBL participant said that, "I feel all areas are applicable to my career, I may not use them

everyday however there are so many factors to this job that you can never learn enough." Another NPBL officer stated, "All aspects were important to some degree. Everything has some purpose."

In contrast, 82 NPBL officers responded to this open ended question with 42 of those officers (51%) designating individual classes as having least value to them. The NPBL officers further responded with 20 officers (24%) listing learning methodologies in their academy instruction as least valuable. Several of the participants provided multiple answers to this question leading to the first or primary response being used for this analysis. Table 31 illustrates the mutual themes from all of the officers who participated.

Table 31

Common Categories of the Participants' Comments on the Least Valuable Aspects of Their Police Academy Education (Open-Ended Responses; n=162)

Categories	PBL Responses	%	NPBL Responses	%
Learning Methodologies	14	18	20	24
Individual Classes	24	30	42	51
All Instruction Valuable	42	53	20	24
Total Responses	80	100	82	100

Note: Not all participants responded to this item.

The main differences between the response groups was associated with all of the academy instruction having value as explained previously and their perceptions of their academy's individual classes. The PBL officers (18%) recounted that the methods of learning was the least valuable aspect of their academy training, while 24% of the NPBL officers felt the same. The academy's individual classes stood out the most to the NPBL

officers (51%) as the having the least amount of value to them, where 30% of the PBL officers responded similarly.

The third open-ended question asked the respondents about what they would recommend for their police academy to change to better prepare future police officers. Of the 231 participants, 194 responses were submitted with numerous participants providing more than one answer ending in 270 total answers. For the purposes of this study, I used only the first or primary response from each participant. A review of the officers' reactions resulted in responses that were much less categorical in nature lending itself to many individual and specific areas of consideration. In order to keep individual responses to a minimum, I considered answers to the question where more than one participant commented on the topic resulting in a total of 224 answers. Tables 32 and 33 display the results of the officers' reactions and their frequency.

Some of the commonalities exist when combining the PBL and NPBL officers' responses to this question. The largest common response involved Michigan police academies needing more scenario training where 64 officers (28.5%) wish to see more scenarios added to the academy training curriculum. "More hands on scenarios (we were provided with several, however, you cannot receive enough training)" was commented by a PBL academy officer. Another NPBL officer remarked.

> I would recommend more scenario based learning with students having to deal with scene management of chaotic or stressful situations. Giving students more opportunity to apply what they learned in the class room to

using it on the road. Boosting student confidence in rapid decision making.

Table 32

Common Categories of the PBL Participants' Comments on Recommended Changes to Better Prepare Future Police Officers (Open-Ended Responses; n=97)

Category	Frequency	%
Add more scenarios	27	27.8
No change	18	18.5
More tactical training	13	13.4
Increased radio communication training	6	6.2
Add certifications	5	5.2
Discuss field training officer program	4	4.1
More report writing	3	3.1
Adding civil complaints	3	3.1
More physical training	3	3.1
Teach daily routine policing tasks	3	3.1
Better discipline requirements	2	2.1
Wear vests and duty belts during training	2	2.1
More problem based learning situations	2	2.1
Add more stress training	2	2.1
Apply readings to exercises	2	2.1
Teach different styles of policing	2	2.1
Total	97	100

Note: Not all participants responded to all items. Some participants provided more than one response to the question.

This corresponds directly with the responses within the first open-ended question about the most valuable aspects of their academy. The participants as a whole found scenario training valuable and requested more of the same.

The second largest response incorporated 25 officers (11.1%) requesting no changes at all or everything is fine. One NPBL officer observed, "I wouldn't really change anything, was a life changing experience. I think that I had to give it everything I had and in return I was given skills that I will use for the rest of my career." The third

Table 33

Common Categories of the NPBL Participants' Comments on Recommended Changes to Better Prepare Future Police Officers (Open-Ended Responses; n=127)

Category	Frequency	%
More scenarios	37	29.1
Less lecture	8	6.3
Prepare more for everyday police work	7	5.5
No change	7	5.5
More structure to physical training	7	5.5
Prepare more for the police hiring process	6	4.7
More vehicle and felony stop training	5	3.9
More realistic report writing	4	3.1
More militaristic training	4	3.1
Better instructors	4	3.1
Teach more about the motor vehicle code	4	3.1
Teach more about citizen resistance	3	2.3
More civil and criminal law	3	2.3
Teach more community policing strategies	3	2.3
Add more certifications	3	2.3
More personal searches and subject control	3	2.3
More fighting skills and defensive tactics	3	2.3
Add Simunition training	2	1.5
Hold poor performing recruits a higher standards	2	1.5
Teach about field training officer program	2	1.5
Better screening of academy applicants	2	1.5
More group projects	2	1.5
Teach about L.E.I.N.	2	1.5
Prepare for court procedures	2	1.5
More tactical training	2	1.5
Total	127	100

Note: Not all participants responded to all items. Some participants provided more than one response to the question.

most requested change came from 15 officers (6.6%) calling for more tactical training to be added. Of the participating officers, 10 officers (4.5%) requested for Michigan academies to add more instruction on the daily routine activities of police work, and 8 officers (3.6%) call for more training certifications to be provided.

When contrasting the comments of PBL and NPBL officers, some differences prevail. Six PBL academy officers would add more radio communication training while this topic was not mentioned by the NPBL officers. Eight NPBL officers cited that lectures should be diminished with no PBL officers requesting this. Finally, seven NPBL officers recommend that their academies add more structure to physical training classes where this was not found within the PBL officers' comments.

Several areas of change were evenly recommended by both groups. More police report writing was recommended by three PBL officers and four NPBL officers. More instruction on handling civil complaints was requested by three officers from each group. Lastly, additional instruction on the field officer training (FTO) programs was requested by four PBL officers and two NPBL officers. Two police academy administrative functions were commented on where two NPBL officers request their academy to hold poor performing recruits to higher standards and two NPBL officers seek better screening of academy applicants.

Chapter Summary

Chapter IV provided a comprehensive review of the results of my statistical analysis of the data acquired from official Michigan police officer licensing examination mean scores and my electronic survey instrument. Descriptive statistics as well as independent sample *t*-tests and reliability analysis were provided. Three open-ended survey questions were also explored resulting in common trends being determined. Many participant responses were presented in direct support of the results. Chapter V

will elucidate how these results correlate with the current research and propose several recommendations for Michigan police academy administrators and educators.

CHAPTER V

DISCUSSION AND RECOMMENDATIONS

This chapter evaluates the results from my survey instrument, *Police Academy Preparation Survey*, that was completed by 231 Michigan police officers who attended either a police academy that formally adopted PBL as the foundation of its teaching strategies and methodologies or a police academy that had not formally adopted PBL (NPBL) teaching strategies as their primary teaching strategy. The intent of my research was to determine if those taught in PBL academies revealed significantly greater results in the police academy training and education of police officers. First, I focused on official testing records from the Michigan Police Officer Licensing Examination to study whether or not PBL academies had an effect on the state licensing test mean scores over the last 16 years. Using those mean scores, I investigated whether the one PBL academy had significant changes in its state test mean scores after adopting PBL teaching strategies. Second, I compared the mean scores for the PBL academy and all of the other non-PBL police academies in Michigan over last nine years to determine if any differences existed. Another intent of this study was to evaluate and compare PBL and NPBL academy police officer perceptions to examine whether differences existed in their perspectives on the level of PBL instruction provided, their acquired problem solving skills, their acquired critical thinking skills, their developed communication abilities, their satisfaction with their academy classroom experiences, and their beliefs that the

training prepared them adequately to perform as a police officer. And lastly, I sought to determine the extent that the level of PBL instruction provided within a police academy predicted the officers' acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with their academy classroom experiences, and their belief that the training prepared them adequately to perform as a police officer.

As explained in Chapters I and II, this study collected empirical data in order to better inform the research on this topic and in turn police officer educators and trainers on whether PBL teaching methodologies could assist in the development of police academy recruits. Further, minimal research currently exists showing the importance, if any, of PBL when associated with police academy environments. Birzer (1999) postulated that traditional, lecture-based, authoritarian teaching strategies potentially restrict and limit the ability of police recruits to be best prepared for the job ahead. This study explored whether PBL might assist police educators by analyzing official licensing records and the perceptions of police officers who recently graduated from a Michigan police academy as related to PBL and its possible effects.

Summary of the Major Results

The findings presented in this study are based on official government testing records and the perceptions of 231 Michigan police officers who recently graduated from a Michigan police academy. The majority of these participants have served as police officers for four years or less, and are college educated White males working patrol in a small to mid-size police departments located throughout Michigan.

Findings Related to Licensing Examination Mean Scores

The intent of Research Question 1 was to examine the effects of PBL on the Michigan Police Officer Licensing Examination mean scores for academy students from a university academy that had formally adopted PBL as its instructional methodology. Was there any difference in the licensing examination mean scores between two groups of academy students taught at the same police academy, where one group of academy students was taught using the traditional lecture-based (NPBL) methodology during the years 1999-2005, and a second group was instructed using a Problem-based Learning (PBL) methodology during the years 2006-2014? The answer from my research was in the affirmative.

I found that the pre-PBL test results significantly differed from the post-PBL test results where overall post-PBL licensing exam mean scores had a statistically significant increase of nearly two points (Pre-PBL M=79.28; Post-PBL M=81.11). The Michigan Police Officer Licensing Examination incorporates measurements of practical skills and knowledge where test-takers must synthesize short vignette or scenario-style questions. My findings correspond with Albanese and Mitchell (1993) as they found that PBL medical students performed as well, if not better, on clinical testing and, in a few instances, non-PBL students tested lower than PBL students on basic science examinations and showed gaps in their cognitive knowledge base.

My results also paralleled some of the findings of Kalaian et al. (1999) research which compared the effects of PBL with traditional curricula on national medical licensing examination scores, resulting in PBL curricula being associated with higher

scores on the portion of the examination involving mostly clinical science measurement. My research found that the largest mean score difference between the pre-PBL scores and the post-PBL mean scores occurred in Functional Area 3 where the scores differed significantly higher by 11.11 points. Functional Area 3 involves examination questions connected to prisoner detention procedures, criminal case prosecution, and civil processes. It appears that the use of PBL teaching strategies had a strong influence on the academy student knowledge development in these areas resulting in this substantial increase in one area, concurring also with Kalaian et al. (1999).

My findings also coincided partially with Vernon and Blake's (1993) results where they found that medical students within the PBL student groups did not significantly differ from non-PBL students on measurements of factual and clinical knowledge. Their traditional non-PBL students even performed better on one portion of their national board examinations, which is not the case within my study's mean score analysis of the Michigan licensing examinations. One area of accord in my study involved the mean score results for Functional Area 4, which involves test questions related to the police skill components such as first aid, firearms, physical training, and vehicle operation. In my analysis, the pre-PBL students' exam mean scores from the same PBL academy had a statistically significant higher score than the post-PBL students means by nearly ten percentage points (Pre-PBL M=82.71; Post-PBL M=72.77). One explanation would relate to the possibility that the police skills tested in Functional Area 4 were historically taught and continued to be taught using a practical, applied hands-on approach with a minimum of classroom content. The implementation of new or

enhanced PBL strategies into instructional areas that are considered already PBL infused, such as these police skill areas, appear to have resulted in a negative effect. The primary focus of the curriculum changes toward PBL may have been directed at the other education and training objectives and unintentionally not toward the areas already considered experiential in nature.

I compared different classes within the same police academy, and Blake et al., (2000) was similar in that it investigated if differences in medical licensing examination results existed after the implementation of PBL within multiple classes of one medical school. In their study, the results of the United States Medical Licensing Examination (USMLE) were analyzed in relation to a newly implemented PBL curriculum and were compared with prior medical classes that were taught in a traditional fashion. The researchers found that USMLE Part 1 mean scores were higher for the PBL classes as opposed to the non-PBL classes. The USMLE Part 2 mean scores for the PBL classes were found to be above the national mean, but they were below the national mean score for schools with a convention curriculum. Therefore, the changes toward PBL in the medical school curriculum did not hinder student performance on their licensing exams and resulted in higher mean scores overall. My findings were similar, where the PBL implementation resulted in higher mean scores except in one area, as explained in the previous paragraph.

Another concentration of the licensing exam mean score portion of my study, Research Question 2, examined the effects of problem-based learning (PBL) on Michigan's Police Officer Licensing Examination mean scores for academy graduates

from the PBL police academy and the licensing examination mean scores for academy graduates from all other Michigan police academies for 2006-2014. In comparing the licensing examination mean scores during the years 2006-2014, I found that the overall mean scores of PBL academy were significantly different from the NPBL academies where the means were four points higher (PBL M=81.11; NPBL M=77.11). When investigating and contrasting the six different Functional Areas within the overall licensing exam, Functional Areas 1, 2, 3, and 5 for the PBL academy had mean scores that were higher than the NPBL academies where the mean differences were statistically significant. Functional Area 1, which includes several topics related to legal aspects and criminal investigations, the mean difference was nearly 6.5 points higher for the PBL officers (PBL M=83.66; NPBL M=77.00). Functional Area 2 is composed of training objectives connected to patrol techniques, ethics, interpersonal relations, and report writing and resulted in a mean difference of 5.7 points higher for the PBL group (PBL M=89.11; NPBL M=83.44). The mean score differences for Functional Area 3 revealed the PBL academy officers scores to be 9.8 points higher than the NPBL officers (PBL M=89.11; NPBL M=79.33). This was the largest difference for all of the Functional Areas. Functional Area 3 comprises training topics related to prisoner detention procedures, criminal case prosecution, and civil processes. The last statistically significant finding was within Functional Area 5 which involves instruction focused on motor vehicle laws, traffic enforcement, vehicle stops, drunk driving investigations, and crash investigations. The PBL academy mean scores were 3.33 points higher than the NPBL academy scores (PBL M=75.88; NPBL M=72.55).

My study had results similar to Dochy et al. (2003) who had conducted the first meta-analytical review of the PBL literature related to the effects on knowledge and skill acquisition that was not related to medical school education. They reviewed 43 studies that met their criteria for selection which was PBL empirical research conducted in real classrooms. They found robust positive effects from PBL on the skills of the students with no reported negative effects and discovered that PBL had a significantly positive effect on application of student knowledge.

In summary, there was a significant difference in mean scores where the PBL academy had higher mean scores than the NPBL academies. The four percentage point increase provides a view of positive outcomes that should cause students, faculty, and administrators to take notice.

Findings Related to Academy Graduate Perceptions—Closed-Ended Questions

Research Question 3 analyzed the difference, if any, between the police academy graduates' perceptions who graduated from a PBL academy with the perceptions of the graduates who completed a NPBL academy. The 231 respondents, who were all currently licensed police officers, provided their perceptions on the effects of their academy based upon (1) their academy's instruction style, (2) their acquired critical thinking skills, (3) their acquired problem-solving skills, (4) their acquired communication abilities, (5) their satisfaction with their academy classroom experiences, and whether (6) their training prepared them adequately to perform as a police officer. Did the addition of PBL to FSU make a difference in the graduate police officers' perceptions when compared to the graduate police officers' perceptions from other

Michigan police academies in these areas? The answer is that PBL appears to have made a difference with the PBL academy officers' perceptions in all areas.

The graduates' perceptions on the instruction method used by their police academy provided that a strong majority of PBL officers (98%) agreed that their academy primarily used PBL teaching strategies. These same officers agreed that some lecture-based instruction (60%) was still present, as lecture is still a component of PBL. The NPBL academy graduates' perceptions held that a solid majority agreed (87%) that their academies principally used lecture-based teaching strategies. These officers also believed to a lesser degree (72%) that some PBL strategies were used by their instructors. The mean differences between PBL and NPBL on the levels of agreement for each of the seven questions in this category were all significant where the largest mean difference correlated with whether PBL or lecture was the primary method of content delivery. This would be expected as the PBL academy instructors would have provided explanations of their teaching methodologies to assist their students with understanding why the content was delivered as such. The students should therefore have noted that PBL strategies were actually utilized, which they did reveal in this research. The NPBL academy graduates, if taught mainly by using lectures, would be expected to have perceived that teaching methodology and this study shows that did prevail.

When reviewing the responses of the participants for their levels of agreement on whether their academies developed their critical thinking skills, I found that the PBL academy graduates were much more positive about their instruction in this arena than the NPBL academy graduates. I collapsed the strong and moderate levels of agreement

response numbers together to look at the differences in the two highest levels of agreement. The PBL officers had a significantly higher level of agreement for all five of the critical thinking related questions. The average of the means for the collapsed highest levels for the five questions determined that 83% of the PBL officers and 49% of the NPBL officers responded accordingly. The independent samples t-tests comparing the means confirmed this also. Rationale for these findings would be that during PBL exercises students are required to think and respond critically about how to solve the problems that they are assigned in small groups (Barrows, 1996). The PBL instructors focus on being good facilitators and tutors, not the lecturer of most content. During the facilitation, the instructors guide students using techniques that help them toward depth of the issues and not just to come with any answer. Indeed, the NPBL academies may not dwell on developing critical thinking skills as they are not mandated within the MCOLES (2013) training objectives. Some NPBL police academy teachers may direct students toward thinking deeper about answers, but class time, unless specifically created for critical thinking exercises, is not abundant or easily available.

Problem solving skill development was queried in my study and determined to be a positive factor for the academy students. The PBL academy graduates again provided higher levels of agreement than the NPBL graduates for all five of the survey questions related to problem solving. The majority of NPBL academy officers agreed that problem solving skills were developed, just at a lower level of agreement. These findings provide a view that the foundation of PBL includes a substantial component of problem solving which should leave a lasting impact on the graduates' education and response to police

work in the field. The NPBL officers believe that they received some problem solving skill development, but to a lesser extent.

Another finding from my study involves the police officers indicating the level of satisfaction with their academy, where the PBL academy graduates were satisfied with their academy instruction at levels of one mean point higher than NPBL graduates. This provides a distinct separation where the NPBL officers were satisfied, but the PBL officers were much more satisfied with their academy experiences. These results concur with Strobel and van Barneveld's (2009) research which concluded that students and faculty had increased satisfaction with the PBL methodology, and that PBL curricula was significantly favored when evaluating the application of skills, knowledge, and clinical performance. Berkson (1993) also found that students and faculty preferred PBL over conventional methods and that students taught using PBL acquire a deeper understanding of course material as opposed to the approach related to short-term memory obtained in traditional classes. In addition, Vernon and Blake (1993) determined that students liked PBL classes better where they claimed that PBL was more nurturing and enjoyable.

Another aspect of my study, Research Question 4, explored to what extent overall differences existed between the PBL academies and the NPBL academies in reference to their academy's instruction style, acquisition of critical thinking skills, problem solving skills, communication abilities, their satisfaction with their academy classroom experiences, and their belief that the training prepared them adequately to perform as a police officer. I collapsed the perceived agreement level means for the same sub-sets of survey questions and created seven new variables of which I used to conduct independent

samples *t*-tests to compare those collapsed means to determine if significant differences exist. Cronbach's coefficient alpha (α) was used to analyze the internal consistency or reliability of my survey instrument which resulted in all good or excellent reliability findings for the seven new variables. Further statistical analysis revealed that all of the mean differences for the perceptions on the level of agreement for PBL and NPBL academy graduates were significant.

My research discovered that the PBL academy graduates' means were higher than the NPBL graduates' means in all seven collapsed variables with a range from .71 to 1.19. The largest mean difference was found within the area of communication skill development (PBL M=5.42; NPBL M=4.24; MD=1.19). Those same PBL officers specified that they were satisfied at a significantly higher level than the NPBL officers on their satisfaction of their skill development (PBL M=5.39; NPBL M=4.23; MD=1.16). The third largest mean difference between PBL and NPBL officers' perceptions were found within the area of overall academy satisfaction (PBL M=5.23; NPBL M=4.41; MD=0.82). These findings indicate that the PBL trained officers agreed at significantly higher levels than the NPBL officers that overall they were very satisfied with their police academy as well as their academy's educational efforts to develop their overall personal skills and to provide them with outstanding abilities to communicate.

Findings Related to Academy Graduate Perceptions—Open-Ended Questions

The final aspect of my research incorporated three open-ended questions in order to seek free response data on the potential differences between perceptions of PBL and NPBL police academy graduates since they have been working as police officers in

Michigan. The questions requested their opinions on (1) what aspects of your police academy education do they consider the most valuable to their police career now, (2) what aspects of your police academy education do they consider the least valuable to their police career now, and (3) how, if at all, would recommend your police academy change to better prepare future police officers?

The police officer participants provided some common categories within their responses. For the first question, three major trends arose from the 198 total responses where the officers felt that the most valuable aspects of their training were their individual classes, their academy learning methodologies and their scenario training features. Of all participants, the greatest amount (36%) cited individual classes as the most valuable factor of their academy education. Within those individual classes, 54 officers listed their criminal law classes as being most valuable. Other individual courses, such as report writing, physical training, and firearms, were listed, but to a much lesser extent. When comparing the PBL and NPBL officer responses, 56 NPBL officers (55%) listed individual classes as being most valuable, while only 28 PBL officers (29%) indicated the same.

The next highest percentage of all officers responding to the first open-ended question involved 36% of all participants (198) listing their academy learning methodologies as the most valuable element. The majority of PBL officers (52%) felt that their learning methodologies were the most important aspect where only 22% of the NPBL officers felt the same way. It is noteworthy that students would recall and recite that the methodologies used for the delivery of classroom content was most important.

The PBL learning method is supposed to embrace all of the content and training objectives that are mandated for licensing police officers. PBL is comprehensive in its approach to police education and training and was used throughout most aspects of the academy curriculum. Clearly the police officers from both types of academies understood the primary teaching methodologies used by their academy instructors and this was further delineated by the participants in their responses to this open-ended question.

The third part of this question involves the officers' responses about their academy scenario training with both groups having similar percentages in their identification of scenarios being most valuable to them. The NPBL officers had a slightly higher response rate (23%) when compared to the PBL officers (20%). While these response numbers were smaller, they are still important within the overall assessment of what the officers consider as most valuable from their academy experiences.

The second open-ended question provided an opportunity for the officers to provide their perceptions on the least valuable elements of their academy experiences. In all, 162 officers responded to this question resulting in three main themes being identified: all instruction was valuable (nothing was least valuable), individual courses, and learning methodologies. The majority of the officers (41%) indicated some individual class as being least valuable to them, with the next largest group (38%) of officers citing that everything taught in their academy had value and nothing was least valuable to them. The classes that were listed most often as least valuable were defensive

tactics, first aid, traffic, and report writing. These classes were listed in very small numbers and the other academy classes cited were even less. Thirty-four officers out of 162 total officers listed learning methods, such as lecture-based instruction, giving presentations, and reading assignments, as the least valuable aspect of their academy. The vast majority of NPBL officers (75%) indicated some individual class or the learning method utilized as least important to them. In comparison, less than half of the PBL officers (48%) had a similar response, with no PBL academy officers mentioning PBL teaching methods as a problem.

The third open-ended question was directed toward the officers' perceptions on their recommendations for their academy to change to better prepare future police officers. Of the 224 responses that were considered in the study, 64 officers (37 NPBL officers and 27 PBL officers) indicated that their academies need more scenario-type training. Scenario training in Michigan academies is required in only a few areas where the amount of hours are minimal (MCOLES, 2010). To work in tandem with scenario training, 15 officers (13 PBL officers and 2 NPBL officers) called for more tactical training to be added to the academy curricula. The MCOLES is striving currently to add more hours for scenario instruction that incorporates tactical situations with police academies working to move in that direction to provide this change. There was another pattern of responses from 25 officers (18 PBL officers and 7 NPBL officers) indicating that academies should change nothing providing a clear recognition of student satisfaction. This was also a component of open-ended Questions 1 and 2.

Some contrasting findings in open-ended Question 3 exist in the comments from six PBL officers seeking more radio communication training, and no NPBL officers requesting this. Eight NPBL requested that lectures be diminished while no PBL officers cited this. In addition, seven NPBL officers wish for their academies to increase the structure of the physical training classes and this was not mentioned by any PBL officers. Seven officers requested more report writing instruction which was also noted in open-ended Question 1 for being the most valuable for their careers in policing.

In summary, several recommendations from the participants remain on the forefront from these three questions. The majority of officers who responded endorse changes such as more training scenarios, with 37 NPBL officers and 27 PBL officers in support. With nearly a third of the officers in both types of academies seeking more scenarios, strong consideration should be provided toward this training enhancement. The officers in my study also recommended the continuation of robust criminal law instruction with equal support where 36 NPBL officer and 34 PBL officers listed this topic as valuable. More tactical training was requested by 13 PBL officers and 4 NPBL officers, providing emphasis toward curriculum change in this direction. With the changes in mind, many officers (18 PBL officers and 7 NPBL officers) recommended that no changes at all should take place. The officers request that the amount of instruction on the topics of defensive tactics, traffic, first aid and report writing need to be reduced, along with students being required to give less presentations and less reading assignments. The reduction of lecture-based instruction was supported by only NPBL

officers. Many academy administrators and instructors might provide mixed reviews on these requests.

Relationship of Results to Existing Research

Table 34 provides a comparison summary of the results from my study to the research currently exists, as was described in the previous section.

Table 34

Comparison Summary of Previous Research

Key Findings (Queen, 2016)	Previous Research and Literature
Licensing Exam Mean Scores • Overall Post-PBL exam scores in the same academy were higher than Pre-PBL scores by nearly two percentage points (Post-PBL M=81.11; Pre-PBL M=79.28) • Pre-PBL students in same academy performed better in one licensing exam Functional Area than Post-PBL students (Pre-PBL M=82.71; Post-PBL M=72.77) • Overall PBL academy licensing exam means scores were higher than NPBL academies mean scores by four percentage points (PBL M=81.11; NPBL M=77.11)	Affirms: • Post-PBL medical students in the same school performed higher on licensing exams than Pre-PBL students (Blake et al., 2000) • PBL did not cause decrease in medical student test scores (Kalaian et al., 1999; Stroebel & van Barneveld, 2009) • Traditional NPBL medical students performed better on one portion of their board exams (Vernon & Blake, 1993) • PBL had significant positive effects on the application of student knowledge (Dochy et al., 2003) Adds to: • PBL students performed as well or better than NPBL students on clinical and science testing (Albanese & Mitchell, 1993; Vernon & Blake, 1993) • PBL medical students had higher scores on one portion of medical licensing exams (Blake et al., 2000; Kalaian et al., 1999; Stroebel & van Barneveld, 2009; Vernon & Blake, 1993) Disputes: • No clear evidence that PBL students were better than NPBL students (Berkson, 1993; Coliver, 2000)

Table 34—Continued

Key Findings (Queen, 2016)	Previous Research and Literature
Police Officer Perceptions PBL graduates had significantly higher levels of agreement on: • their academy instruction methods (PBL M=5.18; NPBL M=4.44 on 1-6 scale) • their critical thinking development (PBL M=5.22; NPBL M=4.51 on 1-6 scale) • their problem solving development (PBL M=5.29; NPBL M=4.58 on 1-6 scale) • their communication skill development (PBL M=5.42; NPBL M=4.24 on 1-6 scale) • their satisfaction of skill development (PBL M=5.39; NPBL M=4.23 on 1-6 scale) • their preparation for the job (PBL M=5.01; NPBL M=4.22 on 1-6 scale) • their overall academy satisfaction (PBL M=5.23; NPBL M=4.41 on 1-6 scale)	Affirms: • Students indicated PBL to be more satisfying, nurturing, preferred, and enjoyable (Albanese & Mitchell, 1993; Berkson, 1993; Strobel & van Barneveld, 2009; Vernon & Blake, 1993) • PBL students acquire deeper understanding of course material opposed to short-term memory from traditional classes (Berkson, 1993) • PBL students had greater results in clinical knowledge, performance, and skills (Strobel & van Barneveld, 2009) • PBL had a robust positive effect on students' skill development (Dochy et al., 2003) • Police academy students indicated that PBL enhanced their critical thinking skills, problem solving skills, their satisfaction with their curriculum, and they were being well prepared for the job (Vander Kooi, 2006) • PBL graduates appraised their interpersonal skills, problem solving, self-directed learning abilities, and information gathering skills higher than NPBL graduates (Schmidt et al., 2006) • PBL graduates assessed that they had better communications skills, better collaboration skills, better diagnostic abilities, better critical thinking skills, and better ability to deal with uncertainty (Antepohl et al., 2003; Koh et al., 2008) • PBL nursing graduates indicated PBL prepared them for the job, increased their critical thinking skills, self-directed learning, evidence-based practices, and teamwork skills (Applin et al., 2011) Disputes: • PBL methods were not found to develop problem solving skill greater than NPBL teaching methods (Berkson, 1993) • PBL students did not perform better than NPBL students in attaining clinical knowledge and performance (Colliver, 2000)

Table 34—Continued

	Previous Research and Literature
Police Officer Opinions – Open-Ended Questions • PBL academy graduates identified their academy learning methods as the most valuable aspect of their education (PBL=52%; NPBL=22%) • NPBL graduates listed individual courses as the most valuable facet while PBL academy graduates listed individual courses as least important (NPBL=55%; PBL=29%) • PBL graduates indicated that all academy instruction was valuable with NPBL graduates indicating the same at a much lower level (PBL=53%; NPBL=24%)	Affirms: • PBL is significantly more effective than NPBL instruction to train competent and skilled practitioners and to promote long-term retention of knowledge and skills (Strobel and van Barneveld, 2009) • PBL nursing graduates indicated PBL prepared them for the job, increased their critical thinking skills, self-directed learning, evidence-based practices, and teamwork skills (Applin et al., 2011)

Implications for Future Research

With the exception of one study (i.e., Vander Kooi, 2006), no empirical research exists comparing the perceived effectiveness of PBL with traditional instruction methods within a police academy environment. Previous research has been directed toward other educational disciplines resulting in PBL strategies showing some success, but little is known about whether PBL would augment the learning environment of police officers; thus, resulting in better police training and greater police officer licensing examination capabilities. The perspectives of police officers on the job who have attended both PBL and NPBL police academies have not been sought and compared to determine if one learning methodology might be better than the other. While a portion of my research focused on student perceptions of PBL in the police academy setting, the field still lacks substantial empirical evidence showing that PBL actually provides police academies with the tools to create a significantly better learning environment. In addition, no

comparative research or data exists studying whether differences exist between PBL and NPBL academies and the resulting police officer licensing examination scores until now.

Additional research should be replicated in other states directed toward the perceptions of police officers on PBL teaching strategies to provide a higher level of generalization to be discussed. Further, the perceptions of academy instructors, trainers, and administrators, as well as the graduating recruits' first field trainers would provide valuable insight on the comparative value of PBL to the police recruits. The thoughts and perspectives of these partners within the environment of police officer training and development are critical for future advancements.

Future research should be replicated and enhanced involving the observations and perspectives of the police recruits while still attending the academy, similar to the research conducted by Vander Kooi (2006). The students' perspectives who are currently in the police academy would be insightful.

My study has begun the process to assist in the understanding and explanation toward whether or not PBL strategies in police academies will enhance the students' problem solving, critical thinking, and communication skills, along with their overall satisfaction with being prepared for the streets. This would start to provide evidence toward whether or not PBL should be incorporated in all Michigan police academies.

A logical next step for future research would include police executives who are hiring the academy recruits and their perceptions on whether or not PBL academy trained recruits are found to be better raw material for the training processes immediately after their employment begins. It would be interesting to have aware of the true perspectives of

these executives who actually employ the final products, the recruits, of the police academies. These executives would provide valuable insight for the consideration of police academy administrators and trainers.

Limitations and Delimitations

My study was directed toward determining whether or not PBL would have any effect on police officer licensing examination scores in Michigan. I also explored the perceptions of police academy graduates who had attended either a PBL or NPBL police academy in Michigan. Within my study, I intentionally eliminated the Michigan State Police and the Michigan Department of Natural Resources as many of their academy recruits have previously attended another academy in Michigan. Having research participants who attended more than one Michigan police academy would have possibly confounded the results. In doing so, I eliminated a large number of potential participants for this study. I have also limited the research sample to only State of Michigan police officers. The inclusion of other states' police academy would have been interesting and could have different results.

The amount of participants for my study was adequate at 231 participants, but the sample of respondents might have been larger if I had made personal contact with police agencies or used a U.S. Mail survey distribution method. The electronic distribution of my survey instrument was focused on any police officer who had attended a Michigan police academy within the last eight years. The actual distribution list was not equal for every police department in Michigan, but the surveys were directed to those officers that an active email address could be obtained providing some sense of randomness. Many

email addresses for police officers that qualified for this were not available due to a public and social environment of heighten personal security for police officers and their families. This limited the number of police officers who could have been contacted in less concerning times.

This study also did not take into account the differences between the PBL academy and the other NPBL academies. Within any teaching and education environment many factors play a part in student learning. The Michigan PBL academy (FSU) since 2006 was 35 weeks long; other academies were 16-18 weeks long. The total hours of instruction at the PBL academy were just over 1100 compared to approximately 600-700 hours at the other academies. My study did not control for the differences in the amount of academy training hours, and it is recommended that any future research explore this topic. In addition, analysis exploring the factor of differences in education levels was not conducted. FSU students were entering their fourth year of college when the academy started and the other academy's students may have completed only two years of college which may be a factor in their academic development. Future consideration of education levels at the end of their academy training would be interesting.

Recommendations for Future Practice

The results of this research can assist police academy administrators, trainers, instructors and regulating bodies of police training. Clear evidence was provided to show that PBL teaching strategies in Michigan can assist in greater licensing examination scores, enhanced classroom environments, greater overall student satisfaction, and

increased student perceptions of their problem solving skills, critical thinking skills, communication abilities, preparation for the job of police officer. To address these findings, police academy personnel responsible for teaching and training police officers should embark on a path to create a better trained and more prepared police officer by implementing the foundations of PBL within their curriculum.

Based upon the findings of my study, I provide the following nine recommendations for consideration and implementation:

1. All police academy instructors should be required to attend training on the foundational elements of PBL and be allowed to explore the implementation and multifaceted approach to this teaching strategy. The academy instructors are most likely outstanding police officers, investigators, supervisors, or administrators, but may have never receive formal training on how develop their teaching skills. A police academy teaching certification process should be considered.
2. The MCOLES should strongly consider requiring the addition of PBL to the curriculum of all Michigan police academies. MCOLES currently provides hundreds of teaching and training objectives providing the baseline for all required academy class content. They provide *what* must be taught, but do not suggest or guide *how* the material should be taught.
3. Police academy curriculum developers must remain focused on criminal law and procedure courses as police academy graduates, now officers, have identified this as one of the most valuable aspects of their academy experience.

4. Police academy instructors and administrators should consider doubling the number practical scenarios and the amount of tactical training used during training as the police officers have indicated that much more of these areas need to added to the curriculum.
5. The MCOLES should consider reviewing their mandated training objectives on the topics of first aid and defensive tactics with numerous subject matter experts to determine the development of new content. The police officers in this study found little value in these academy training topics.
6. The MCOLES should also review their training objectives related to police report writing. Police officers in this study reported significant importance is this topic of instruction, yet MCOLES requires only five reports be written and recorded during the police academy session.
7. Police academy curriculum developers and trainers should incorporate teaching strategies and learning outcomes directed to the development of problem solving and critical thinking as these characteristics are important for future police officers.
8. Police academy trainers and administrators should develop criteria directed toward developing greater communications skills for their academy recruits. This was the topic with the largest level of agreement difference between PBL and NPBL officers indicating communication skill develop was important.

9. Police academy instructors should consider a reduction of time spent using the lecture-based teaching strategy as NPBL police officers rejected this method of instruction in favor of other methodologies.

Closing Thoughts

The classroom environment within police academies is under scrutiny as the public is concerned with how police officers are being trained based upon some recent events in the community with both good and bad results. In general, Michigan police academies are doing a good job in preparing police officers for their future careers based the perceptions of officers in my study. But, are all of the academies truly providing an education infused with problem solving or critical thinking skill development? Are all of the police academies focused on developing their recruits' ability to communicate well with their community partners and clients? My research finds that these characteristics are important to police academy students where they want even more out their academy education experiences. Perhaps academy instructors should work hard toward attempting to deliver and teach these valuable aspects.

No teaching environment is perfect and police academies are no exception. Closing the gaps between the objectives of the regulating agencies and needs of the students should be strongly considered in future police academy training curriculum development. This study provides some information to assist in the guidance of that process.

Clearly, additional research to expand on the findings discovered in my study is necessary. It is very important for the future of police officer training and the needs of

the citizenry of our communities that we develop educational curricula pertinent to those stakeholders. It is critically important for police officers to depart from their academy experience satisfied and well prepared for the job ahead which will not get easier over time. Those academy recruits need instructors that they trust will teach them using the proper methods and guide them in the right direction for their much need success. Strobel and van Barneveld (2009) argued that, ". . . PBL for preparation for the workplace indicate, however, that PBL is significantly more effective than traditional instruction to train competent and skilled practitioners and to promote long-term retention of knowledge and skills acquired during the learning experience or training session" (p. 55). My research findings support their statement and I concur.

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Appendix A

Survey Instrument
Police Academy Preparation Survey

Please read this consent information before you begin the survey.

You are invited to participate in a survey "Police Academy Preparation Survey," which is part of Cecil Queen's dissertation research.

The survey will only take 7-8 minutes of your time. Your responses are important as it will provide academy directors and other administrators with the opportunity to learn about academy training methods.

Your responses will be anonymous at all times and they will not be connected to you in the data analysis or results section of the survey.

When you begin the survey, you are consenting to participate in the study. If you do not consent, simply exit now. If, after beginning the survey, you decide that you do not wish to continue, you may stop at any time. You may choose to not respond to some questions for any reason. There are no right or wrong answers, only your opinions. What is important is that you respond to each question as accurately as possible.

This study has been approved by the Western Michigan University Human Subjects Institutional Review Board (HSIRB) on February 9, 2015. Please do not participate in this study after February 9, 2016.

Should you have any questions prior to or during the study, you may contact the primary investigator, Dr. Louann Bierlein Palmer, at Western Michigan University Department of Educational Leadership, Research and Technology at (269) 387-3596 or l.bierleinpalmer@wmich.edu, or the student investigator, Cecil Queen, at (231) 591-5865 or cecil.queen@wmich.edu. You may also contact the Chair, Human Subjects Institutional Review Board at (269) 387-8293 or the Vice President for research at (269) 387-8298 if questions or problems arise during the course of the study.

Thank you for your participation.

Police Academy Preparation Survey - Electronic

Please indicate your level of agreement with each statement.

Q1 My police academy:

	Strongly Disagree	Moderately Disagree	Disagree	Agree	Moderately Agree	Strongly Agree
Allowed the students to have a strong leadership role during classes every day.	○	○	○	○	○	○
Required multiple teamwork or group projects on a regular basis.	○	○	○	○	○	○
Provided daily small group work where we had to solve problems.	○	○	○	○	○	○
Required me to regularly assess the impact of resolutions for many problems.	○	○	○	○	○	○
Required me to make and justify difficult decisions nearly every day.	○	○	○	○	○	○
Primarily used problem-based learning teaching strategies.	○	○	○	○	○	○
Primarily used lecture-based teaching strategies.	○	○	○	○	○	○

Q2 Because of my police training, I learned to:

	Strongly Disagree	Moderately Disagree	Disagree	Agree	Moderately Agree	Strongly Agree
Critically analyze many current issues related to law enforcement.	○	○	○	○	○	○
Apply critical thinking skills, such as analysis, evaluation, and inference.	○	○	○	○	○	○
Research and consider multiple sources in my search for resolutions.	○	○	○	○	○	○
Defend my decisions with justification.	○	○	○	○	○	○
Conduct in-depth research into numerous areas of policing.	○	○	○	○	○	○
Define the scope of very complex problems related to policing.	○	○	○	○	○	○
Analyze problem and make quick decisions toward solutions.	○	○	○	○	○	○
Develop and use various problem solving models.	○	○	○	○	○	○
Evaluate problems from a variety of perspectives.	○	○	○	○	○	○

Develop my decision making skills.	○	○	○	○	○	○
Develop and provided many group presentations during the academy.	○	○	○	○	○	○
How to collaborate and work in groups.	○	○	○	○	○	○
Improve my verbal communication skills.	○	○	○	○	○	○
Defend and explain my position on complex issues on a daily basis.	○	○	○	○	○	○
Communicate very well verbally.	○	○	○	○	○	○

Q3 I am very satisfied that my academy helped me to develop:

	Strongly Disagree	Moderately Disagree	Disagree	Agree	Moderately Agree	Strongly Agree
Strong critical thinking skills.	○	○	○	○	○	○
Strong problem solving skills.	○	○	○	○	○	○
Strong communication skills.	○	○	○	○	○	○
Strong research skills and the ability to report findings.	○	○	○	○	○	○
Strong oral and written communication abilities.	○	○	○	○	○	○
Strong public presentation skills.	○	○	○	○	○	○

Q4 After being on the job, I believe that my police academy experiences:

	Strongly Disagree	Moderately Disagree	Disagree	Agree	Moderately Agree	Strongly Agree
Provided me with outstanding abilities in all areas of law enforcement.	○	○	○	○	○	○
Prepared me with much more than just the basics of policing.	○	○	○	○	○	○
Taught me the value of community involvement and service.	○	○	○	○	○	○
Prepared me well for most aspects of law enforcement.	○	○	○	○	○	○
Were easily applied to my job as police officer from the first day.	○	○	○	○	○	○
Prepared me extremely well for the field training process once I was hired.	○	○	○	○	○	○

Provided me with an outstanding ability to analyze and apply the laws of Michigan.	○	○	○	○	○	○
Prepared me to function at high levels as a Michigan police officer.	○	○	○	○	○	○

Q5 Overall, my police academy:

	Strongly Disagree	Moderately Disagree	Disagree	Agree	Moderately Agree	Strongly Agree
Provided me with top notch training that has been very valuable.	○	○	○	○	○	○
Offered many experiences that were extremely rewarding and satisfying.	○	○	○	○	○	○
Worked well and needs little change to develop better police officers.	○	○	○	○	○	○
Was extremely valuable and worth every dollar that it cost.	○	○	○	○	○	○

Open-Ended Questions

Q6 What aspects of your police academy education do you consider the most valuable to your police career now?

Q7 What aspects of your police academy education do you consider the least valuable to your police career now?

Q8 How, if at all, would you recommend your police academy change to better prepare future police officers?

Demographic Questions

Q9 My job can best be described as:

- ◯ Road Patrol
- ◯ First Line Supervision
- ◯ Investigative
- ◯ Administrative

Q10 My gender is:

- ◯ Male
- ◯ Female

Q11 My race/ethnicity is:

- ◯ African-American/Black
- ◯ Asian
- ◯ Hispanic
- ◯ Native American
- ◯ White/Non-Hispanic
- ◯ Other

Q12 My education level is:

- ◯ High School/GED-No college
- ◯ Two years of college or less
- ◯ Associate's degree
- ◯ More than two years of college, but no degree yet
- ◯ Bachelor's degree
- ◯ Some graduate courses
- ◯ Graduate degree
- ◯ Post Graduate education

Q13 I have __ years of experience in police work. (Please round to the nearest 0.5 year)

Q14 My police agency has ___full time sworn police officers.

Q15 My current age is ___ years old.

Q16 I graduated from the ___ Police Academy in Michigan.

Thank you for participating in this study.

Appendix B

Email Messages to Participants

Initial Email Invitation to Potential Participants

Dear Michigan Law Enforcement Officer:

I am a fellow police officer (now retired) requesting your participation in a short **Police Academy Preparation** survey intended to study how police officers perceive the effectiveness of their academy training on certain skill development, and how well they believe that their training prepared them to function as a police officer. I am asking only sworn police officers who have graduated from a Michigan police academy since 2008 to participate.

Please click on the link below or copy and paste the link into your browser.
https://www.snapsurveys.edu/SelectSurvey/Takesurvey.aspx?SurveyID=12345mm

There are no right or wrong answers, only your opinions. Your honest response is a key way to study the nature of the academy training that you received. Your participation will involve indicating the amount of agreement that you have with a series of academy training-related statements and should take approximately 7-8 minutes to complete.

All of your responses will remain confidential at all times. The results of this survey will be reported only as aggregate data so that no one can be personally identified. Your participation is obviously voluntary, and all of your responses will be confidential. No personally identifiable information will be associated with your responses in the reporting of this data.

Thank you for participating in this important research.

As a fellow police officer (retired), I thank you very much for your time and consideration.

Lt. Cecil R. Queen (ret.)

Stay Safe!!

Follow-up Email #1

Michigan Police Officer:

I recently sent you an email requesting that you respond to a very short confidential survey about your Michigan police academy training. Your response to this survey is important as police officer opinions matter.

If you were unable to then, please take 7-8 minutes to complete this short survey. To complete the survey, please click on the link below or copy and paste the link into your browser.

https://www.snapsurveys.edu/SelectSurvey/Takesurvey.aspx?SurveyID=12345mm

Your opinions about police academy training matter. Direct feedback from police officers will help academy directors in Michigan make better decisions on teaching methods.

Your participation is voluntary, and all of your responses will be confidential. No personally identifiable information will be associated with your responses in the reporting of this data.

As a fellow police officer (retired), I thank you very much for your time and consideration.

Lt. Cecil R. Queen (ret.)

Stay Safe!!

Follow-up Email #2

Michigan Police Officer:

I recently sent you an email requesting that respond to a brief anonymous survey about your perceptions of your Michigan police academy training. Your response to this survey is important and I know that your time is valuable.

If you have been unable to previously, please take 7-8 minutes to complete this short survey. To complete the survey, please click on the link below or copy and paste the link into your browser.

https://www.snapsurveys.edu/SelectSurvey/Takesurvey.aspx?SurveyID=12345mm

Your opinions about police academy training matter. Direct feedback from police officers like yourself will help academy directors in Michigan make better decisions on teaching methods.

Your participation is voluntary, and all of your responses will be confidential. No personally identifiable information will be associated with your responses in the reporting of this data.

As a fellow police officer (retired), I thank you very much for your time and consideration.

Lt. Cecil R. Queen (ret.)

Stay Safe!!

Appendix C

HSRIB Approval Letter and Continuing Review Approval Form

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: February 9, 2015

To: Louann Bierlien Palmer, Principal Investigator
Cecil Queen, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair Amy Naugle

Re: HSIRB Project Number 15-01-22

This letter will serve as confirmation that your research project titled "Assessing the Perceived Effectiveness of Problem-Based Learning Strategies within Police Training Academies and Analyzing the Correlates with Licensing Exam Outcomes" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may **only** be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., ***you must request a post approval change to enroll subjects beyond the number stated in your application under "Number of subjects you want to complete the study***)." Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

Reapproval of the project is required if it extends beyond the termination date stated below.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: February 8, 2016

251 W. Walwood Hall, Kalamazoo, MI 49008-5456
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WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board
WMU Mail Stop: 5456 Phone: (269) 387-8293

APPLICATION FOR CONTINUING REVIEW OR FINAL REPORT FORM

In compliance with Western Michigan University's policy that "the HSIRB's review of research will be conducted at appropriate intervals but not less than once per year," the HSIRB requests the following information:

PROJECT INFORMATION

PROJECT TITLE: Assessing the Perceived Effectiveness of Problem-Based Learning Strategies within Police Training Academies and Analyzing the Correlates with Licensing Exam Outcomes"
HSIRB Project Number: 15-01-22 Date of Last Approval (Initial or Continuing Review): 02/08/15

Previous level of review: ☒ Full Board Review ☐ Expedited Review ☐ Administrative (Exempt) Review

INVESTIGATOR INFORMATION

PRINCIPAL INVESTIGATOR OR ADVISOR
Name: Louann Bierlein Palmer
Department: EDUC Mail Stop: Electronic Mail Address: l.bierleinpalmer@wmich.edu

CO-PRINCIPAL OR STUDENT INVESTIGATOR
Name: Cecil Queen
Department: EDUC Mail Stop: Electronic Mail Address: queenc@ferris.edu

CO-PRINCIPAL OR STUDENT INVESTIGATOR
Name:
Department: Mail Stop: Electronic Mail Address:

CURRENT STATUS OF RESEARCH PROJECT

Please answer questions 1-5 to determine if this project requires continuing review by the HSIRB.

1. Has subject recruitment begun? If no, please provide an explanation ☒Yes ☐ No
2. Is the project closed to recruitment of new subjects?
   ☒Yes (Date of last enrollment:) ☐No (Project must be reviewed for renewal.)
3. Have all subjects completed research related interventions?
   ☐Yes ☒ Not Applicable ☐No (Project must be reviewed for renewal.)
4. Has long-term follow-up of subjects been completed?
   ☐Yes ☒ Not Applicable ☐No (Project must be reviewed for renewal.)
5. Has analysis of data been completed?
   ☐Yes ☒No (Project must be reviewed for renewal.)

- If you have answered "No" to ANY of the questions above, you must apply for **Continuing Review**.
- ***If you need to make changes in your protocol, please submit a separate memo detailing the changes that you are requesting.***
- If you have answered "Yes" or "Not Applicable" to ALL of the above questions, the project may be closed. If the project is closed please use this form for the "Final Report."

☒ Application for Continuing Review ☐ Final Report

HSIRB Project Number: **15-01-22**

6. Are there any changes in study personnel (add or remove investigators) not previously reported to the HSIRB? ☐Yes ☒No
   If you need to add an investigator, provide details on an "Additional Investigator(s) Form" (available at http://www.wmich.edu/research/forms/complianceforms.html).
   To remove an investigator submit a memo to the HSIRB detailing the change.

7. Since the last approval (initial or continuing review) has there been any modifications or additions to the protocol, not previously reported to the HSIRB to with respect to the following?
   a. Procedures ☐Yes ☒No
   b. Subjects ☐Yes ☒No
   c. Design ☐Yes ☒No
   d. Data collection ☐Yes ☒No

8. Has any instrumentation been modified or added to the protocol that has not already been approved by the HSIRB? ☐Yes ☒No
   If **yes**, attach new instrumentation and a memo indicating the modifications made.

9. Are there changes to the consent/assent form not previously reported to the HSIRB? ☐Yes ☒No
   If **yes**, attach new consent/assent form and a memo indicating changes made.

Verification of Consent Procedure: *Provide copies of the whole consent documents signed by the last two subjects enrolled in the project. Cover the signature in such a way that the name is not clear but there is evidence of signature. If subjects are not required to sign the consent document, provide a copy of the most current consent document being used.*

SUMMARY OF THE RESEARCH

10. Have there been any adverse events, unexpected or unanticipated study-related problems which have not previously been reported to HSIRB? If **yes**, provide details on an attached sheet. ☐Yes ☒No

11. Is there new risk or benefit information not previously reported to the IRB? ☐Yes ☒No
    If **yes**, attach a memo indicating the risk or benefit information.

12. Summarize progress of the research using non-technical language that can be easily understood by a reviewer outside the discipline. Please use complete sentences to briefly summarize the research since the last review (initial or continuing). **The research data has been fully collected with no new data collection planned. Data analysis is in progress, is close to completion, and is the only component still not completed.**

13. List and describe any complaints about the research study since the last HSIRB review (initial or continuing review); include action taken to resolve the complaints (If not applicable, type NA). **NA**

14. List any voluntary withdrawals by participants from the study since the last HSIRB review (initial or continuing review); include action taken as a result of the withdrawals. (If not applicable, type NA). **NA**

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SUBJECT RECRUITMENT

15. Have research subjects been enrolled (or subject records, specimens, etc. obtained)? ☒Yes ☐No
Provide a letter of explanation if no research subjects have been enrolled (or subject records, specimens, etc. obtained).

16. Total number of subjects approved in original protocol: **900**

17. Total number of subjects enrolled so far: **231**
If applicable: Number of subjects in experimental group: **123** Number in control group: **108**

18. Estimated number of subjects yet to be enrolled: **0**

Please remember to include a clean original of the consent documents to receive a renewed approval stamp.

INVESTIGATOR'S ASSURANCE

I certify that the information contained in this HSIRB Application for Continuing Review and all attachments are true and correct. I certify that the research has been and will continue to be conducted according to the protocol as approved by Human Subjects Institutional Review Board.
I agree that I will not implement any changes in the protocol until such changes have been reviewed and approved by HSIRB. If, during the course of the research, unanticipated risks or harm to subjects are discovered, I will report them to HSIRB immediately. I agree to follow all applicable federal regulations, guidance, state and local laws, and university policies related to the protection of human subjects in research, as well as professional practice standards and generally accepted good research practices for investigators

If this is a FINAL REPORT you may return the form electronically (signature is not required).

Principal Investigator/Faculty Advisor Signature — Date: 2-1-16

Co-Principal or Student Investigator Signature — Date: 1-28-16

Co-Principal or Student Investigator Signature — Date

Approved for a one-year extension by the HSIRB:

HSIRB Chair Signature — Date: 2/2/16

Revised 06/2013 WMU HSIRB (all other copies obsolete).