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The Influence of Higher Education on Promotional Outcomes in the New Jersey State Police

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THE INFLUENCE OF HIGHER EDUCATION ON PROMOTIONAL
OUTCOMES IN THE NEW JERSEY STATE POLICE

BY

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Submitted in partial fulfillment
of the requirements for the Degree
Doctor of Education
Seton Hall University

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2014

SETON HALL UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN SERVICES
OFFICE OF GRADUATE STUDIES


APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, **David Domenick Constantino**, has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Fall Semester 2014.**

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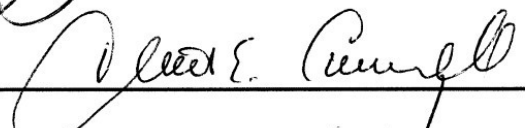
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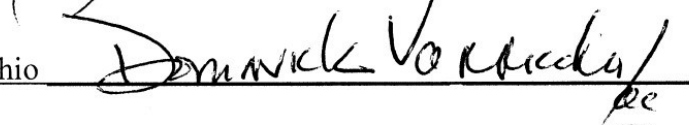
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ABSTRACT

THE INFLUENCE OF HIGHER EDUCATION ON PROMOTIONAL OUTCOMES IN THE NEW JERSEY STATE POLICE

This study examined the strength of four predictor variables (i.e., level of education, seniority, gender and race) found in the archival data provided by the New Jersey State Police to predict the likelihood of promotional outcomes for five separate and distinct participant groups (i.e., Sergeant, Sergeant First Class, Lieutenant, Captain, and Major). Five separate participant group analyses were conducted using binary logistic regression modelling. The participant data examined in this study, which represents a total population sample, pertained to 3,515 enlisted members of the New Jersey State Police considered for promotion during one, or both, of the promotional events held on September 14, 2012 and October 25, 2011 to one of the aforementioned ranks. For each participant group, with the exception of the Promotion to Major participant group, the results of this study revealed education, when controlling for other predictor variables in the binary logistic regression model, to be the strongest predictor of promotional outcomes, while seniority was the second strongest predictor of promotional outcomes. Gender and race were not statistically significant. As a result, the null hypotheses for these participant groups were rejected. The null hypothesis for the Promotion to Major group was retained due to the statistical insignificance of the chi square statistic and all four predictor variables in the binary logistic regression model.

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I would like to begin by acknowledging my family. My parents, Roxy and Jane, for their never ending support throughout my entire life. I cannot begin to thank them enough for all they have done for me over the years. I wouldn't be where I am in life without their love, support and encouragement...a few bucks here and there didn't hurt either ;) I know my three brothers; Rocky, Steve and Rob, echo my sentiments.

I would also like to thank my dissertation committee. To my mentor, Dr. Anthony Colella, whose calm yet steady demeanor served as a bedrock throughout this journey, I would like to say thank you. Thank you for seeing value in my study and for your patience...I'm sure most doctoral students finish Chapter II in under 14 months. You somehow knew when to intervene, offer advice, or just call to see how I was doing. Lastly, thank you for taking the time to recognize the academic potential of the New Jersey law enforcement community's best and brightest. The fact you mentored the rest of my dissertation committee is a testament to your longevity and dedication to higher education.

I would like to thank Dr. Denis Connell for being ever-present throughout. Your laser-sharp focus and gift of recall gives you the ability to identify problem areas and recommend solutions much faster, and with far more accuracy, than the average person. These talents, combined with your benevolent taskmaster style of keeping me on track, and our face-to-face meetings every few months benefitted me greatly and will always be appreciated.

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foundation for a successful dissertation than anyone, long before I was a doctoral student. I'll never forget taking your Qualitative Research class in the spring 2008 semester when you recommended I use your class as an opportunity to complete the pilot study for my dissertation, which I did. Fast forward two years later and Chapter I and most of Chapter II were already completed thanks to your foresight. The dread of having to drive from Cape May County to PANYNJ Building #1 on a weekly basis paled in comparison to how much I looked forward to your classes. Your advice and insight throughout this process is equally appreciated.

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Lastly, I would like to thank Lieutenant Colonel Louis P. Klock #4459, Deputy Superintendent of Administration (DSA) (retired), and Beth Larkin, NJSP PMIU (retired). I submitted a request for data through the DSA's office. I would like to thank Lt. Col Klock for appreciating the potential value of my study and approving my request. I would like to thank Beth for retrieving the data and ensuring its completeness and accuracy.

DEDICATION

This academic endeavor began in January 2002, two months after meeting the woman who would eventually become my wife. To say this journey tested the limits of our relationship and stressed the importance of open communication would be an understatement but, ultimately, it served to strengthen the bond between us.

Earning my doctorate entailed many nights, alone, in my office reading, thinking, typing, researching, etc. As a result Jude spent many evenings by herself, going to bed alone, particularly over the past three or four years. It is for these and many other reasons I dedicate this study to my wife, Jude, and thank her for the sacrifices she made and her unselfishness throughout this seemingly-unending process. Hey Baby...I'm DONE!

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CHAPTER I

INTRODUCTION

The goal of any professional police organization is to recruit the best possible personnel, given the complexity of policing services in a modern, democratic society. Attracting top quality candidates, however, has been an extremely difficult task primarily due to the complex nature of police work and the expansion of the police role beyond that of traditional crime-fighting responsibilities. To meet their needs law enforcement administrators have continually changed both the recruiting techniques and selection criteria necessary to attract the best candidates. The New York City Police Department (NYPD), for example, values higher education and, as such, includes institutions of higher learning among their recruitment stops.

Endorsements for higher levels of education have appeared in several reform movements in policing, and have been present since the very beginnings of policing as a profession. In 1916, August Vollmer, Police Chief, Berkeley, California founded the first school of Criminology at the University of California. He was responsible for initiating the relationship between education and law enforcement. Vollmer (1936) indicated that too often men found on police forces were lacking in intelligence and moral strength. Vollmer's ideas regarding police education and training have made their way into numerous recommendations by law enforcement commissions. While Vollmer did not explicitly argue for college level education for police officers, his ideas and reforms were instrumental in placing college education on the agenda of several law enforcement commissions for years to come. Vollmer, who is regarded as the father of modern policing, recognized the importance of higher education and in-service training because

the nature of police work dictated having an educated officer. In response to Vollmer's request, the University of California at Berkeley began offering law enforcement-related courses the very same year (Eskridge, 1999).

Beginning in the 1960s, Presidential Commissions, National Associations, and Research Institutes would study this issue. One of the recommendations of the President's Commission on Law Enforcement and the Administration of Justice, established in 1967, was "that all police personnel with general enforcement powers have baccalaureate degrees" (Jacoby, 1979). The commission recommended that "some" years of college be required for appointment; that higher requirements be set for promotion; that education programs be a matter of formal policy; and that higher education be viewed as an occupational necessity. The Law Enforcement Education Program (LEEP) provided the funding that began to make the recommendations of the President's Commission a reality.

Numerous national bodies have also cited the need for better-educated police officers. The Wickersham Commission in 1931 (The National Commission on Law Observance and Enforcement) recommended that all police officers should have college degrees. In addition, the National Advisory Commission on Civil Disorders (1968), the National Commission on the Causes and Prevention of Violence (1969), the American Bar Association on Standards for Criminal Justice (1972), the National Advisory Commission on Criminal Justice Standards and Goals (1973), and the Police Foundation's Advisory Commission on Higher Education for Police Officers (1978), all communicated the need for higher levels of education for law enforcement officers.

If higher education is as important to law enforcement as research indicates, why isn't it applied to promotional requirements? If entry-level educational requirements are raised, shouldn't the educational requirements for promotion also be increased? As more highly educated officers enter law enforcement, more highly educated supervisors, managers, and police executives will be needed (Carter & Sapp, 1992). The NYPD, for example, has a policy linking promotion to educational achievement, and offers in-service training through a series of incentives. The officer receives credits that make him or her eligible for promotion. One cannot be promoted to sergeant without two years of college, lieutenant without three years, and to captain without four years (Travis, 1995).

The New Jersey State Police was established on March 29, 1921 and recorded in Chapter 102, Laws of New Jersey, Page 167 (State of New Jersey, 1922). Title 53 of New Jersey State Statutes enumerates the powers of the New Jersey State Police and establishes an organizational framework. Governor Edwards appointed Herbert Norman Schwarzkoph, a twenty-five year old West Point graduate, as the first Colonel and Superintendent of the NJSP. Colonel Schwarzkoph was sworn in on July 21, 1921. On December 5, 1921, New Jersey State Police Class #1 completed training at Sea Girt, New Jersey.

The New Jersey State Police began implementing changes with the advent of the selection process for the second New Jersey State Police class. A professionally prepared written examination, for example, replaced the exam designed by Colonel Schwarzkoph. Although the New Jersey State Police's core training curriculum supporting the founding principles of duty, honor and fidelity has remained unchanged, the years since the formation of the New Jersey State Police have seen societal changes that compelled the

NJSP to adapt and expand training curriculums to ensure that Troopers are uniquely qualified to meet contemporary policing needs.

The New Jersey State Police is steeped in tradition. The culture is one of self-sacrifice and excellence. There is a marked intolerance for sub-standard performance due to a lack of effort. Troopers are kept mindful of the high standards set by those who came before and their responsibility to meet or exceed those standards. It is incumbent upon every member, from the Colonel down, to constantly strive for excellence and never settle for 'good enough.' The New Jersey State Police strongly encourages enlisted members to apply this mantra to every area of their lives, on and off duty. Members are expected to maintain a high level of fitness, demonstrate tenacity in the face of adversity, and self-improvement through education.

During the 1960's, the Presidential Commissions, National Associations, and Research Institutes studying the issue of higher education in policing caught the attention of the New Jersey State Police's seventh Superintendent, Colonel David B Kelly. Colonel Kelly, in conjunction with Trenton State College, supervised the formation of the State Police College of Criminal Justice. This partnership afforded troopers the opportunity to earn a Bachelor of Arts degree in criminal justice.

In the 1980's, the combined efforts of Colonel Clinton L. Pagano and Reverend Father Robert F. Grady would provide troopers the opportunity to further their education and earn a graduate degree through Seton Hall College. Most of the classes were taught at satellite locations, which resulted in considerably lower tuition costs. Members of the New Jersey State Police were also eligible for tuition reimbursement, in many higher education programs, at a rate of 90%.

In the 1990's, the New Jersey State Police continued to stress the importance of higher education by revamping their entrance educational standard. The initial educational criteria required that an applicant have a high school diploma. Beginning in 1993, and starting with the 114th Class, the State Police instituted a new educational requirement for applicants for State Trooper, namely, either (1) a four-year college degree from an accredited college or university or (2) sixty college credits and two years of military or two years prior police (Culloo, 1994). The current educational standards are as follows: A candidate must have: (1) a bachelor's degree; OR (2) possess a minimum of 90 credits and complete their degree by a specified date prior to the written examination. The deadline for completing a bachelor's degree under option 2 and remaining eligible will be announced at the time of initial application; (3) OR a candidate must have an associate's degree or 60 college credits, PLUS at least 24 months of satisfactory employment or military experience; OR (4) 30 college credits, PLUS at least 24 months of active duty military service with an honorable discharge. All college degrees/credits must be from an accredited college or university (Fuentes, 2010).

In 1996, the New Jersey State Police continued to stress the importance of higher education to enlisted members by drafting SOP C-58, which codified new educational standards for promotion. The new SOP would apply to all enlisted members whose enlistment date was greater than, or equal to, 1975. The rationale behind SOP C-58 was that since the New Jersey State Police had established a college requirement as a prerequisite for employment, an extension of this initiative, an educational standard for promotion, would justify the college requirement. The latest revision of SOP C-58, dated

April 01, 2012, establishes the following requirements for promotion under Section II:
Educational Standards:

- A. A minimum of 60 credits will be required as of September 1, 1996, for consideration of promotional eligibility to the ranks of sergeant/detective sergeant and sergeant first class/detective sergeant first class;
- B. A minimum of 120 credits will be required as of September 1, 2006, for consideration of promotional eligibility to the rank of lieutenant;
- C. A minimum of a Bachelor's Degree from an accredited institution will be required as of September 1, 2004, for consideration of promotional eligibility to the rank of captain and above;
- D. A minimum of a Master's Degree from an accredited institution will be required as of September 1, 2006, for consideration of promotional eligibility to the rank of major and above (Fuentes, 2006).

Statement of the Problem

College preparation as a Bona Fide Occupational Qualification (BFOQ) emerged as a contentious issue in the 1980's. Two barriers to implementation – civil service commissions and civil litigation – impeded the arbitrary enhancement of educational standards for hiring and promotion within many agencies throughout the country (New Jersey Civil Service Commission, 1979).

In 1986, the decision in *Davis v. City of Dallas* made it easier for police departments to add higher education as a prerequisite for employment. In *Davis*, the federal courts recognized college education as a bona fide occupational qualification for police, noting that a college education develops and imparts the requisite level of

knowledge (Davis v. City of Dallas, 1986). A college education was found to provide the foundation for better judgment, critical thinking, and analytical ability, and these traits were found to be essential in a high risk profession such as law enforcement, both for the officers' and the public's safety. The ruling here made it clear that the addition of stricter educational requirements is advantageous to the public welfare. As such, it is a legitimate hiring criterion (Carter & Sapp, 1991).

Seven years after the Davis decision, the New Jersey State Police became only the nation's second state police organization to require a bachelor's degree for employment. In a press conference announcing the new requirement, New Jersey Attorney General Robert Del Tufo emphasized the addition of the college requirement as beneficial to both the State Police and the citizenry. Del Tufo maintained that the new stipulation would bring recruits to the State Police who would be older, wiser, and more tolerant of the citizens of New Jersey (Davis, 1993).

In implementing SOP C-58 - Educational Standards for Promotion, Colonel Carl Williams maintained the state police would benefit by filling supervisory positions with goal-oriented personnel. Colonel Williams also stressed that higher education would benefit the state police by giving supervisors more experience in dealing with a diversity of people and belief systems (Hester, 1995).

The higher ordered thinking skills developed and refined through completion of a graduate degree program, transition from luxury to necessity as one ascends to mid- and upper-management. The importance of being able to assess, analyze, synthesize, rationalize and communicate interpersonally increases in magnitude with a person's rank and responsibility (Scott, 1986).

Considering the prior research and the purported benefits of higher education for New Jersey State Police supervisors and commanders, as stated by numerous NJSP superintendents, this study will examine the influence of higher education on promotional outcomes in the New Jersey State Police. Current state police supervisors' and commander's level of higher educational attainment and promotional outcomes will be analyzed. In order to determine the best course of action for Troopers who aspire to supervisory positions, additional research on the topic is required. Studies regarding career advancement in the New Jersey State Police have thus far been limited to Trooper's perceptions. There is a conspicuous absence of thorough quantitative research on the topic. From a career advancement perspective, further inquiry is necessary to address the lingering question of what effect, if any, does compliance with SOP C-58 have on promotional outcomes within the New Jersey State Police?

Purpose of the Study

Since the days of Sir Robert Peel and August Vollmer, research regarding the need for higher education standards in law enforcement has provided answers to the question of whether earning a college degree contributes to the likelihood of being promoted in select municipal and county-level agencies. Sorely lacking, however, are studies specific to state police agencies. While commonalities exist across all police departments, state police agencies are characterized by seniority systems, rigid paramilitary structure and strict adherence to a vertically hierarchical chain of command.

The purpose of this study is to examine the influence of higher educational attainment on promotional outcomes in the New Jersey State Police. This study is designed to be a significant contribution to the body of knowledge regarding the

relationship between higher education and law enforcement, and to inform Troopers who aspire to supervisory and command positions.

Significance of the Study

Attaining a college degree requires a considerable investment of time, effort, and financial resources. To assist members regarding the decision to pursue a college degree for purposes of promotion, it is necessary to examine the factors that influence promotional outcomes. An extensive examination of the research and literature reveals much about the relationship between higher education and law enforcement entrance requirements, but little is known about the influence of higher education on promotions. As a result, an enlisted member may dedicate considerable time and financial resources toward completion of a college degree without knowing if it will improve their chances of being promoted.

Much of the research regarding higher education and law enforcement is centered upon whether implementation of higher education standards results in a superior police officer, while the debate regarding the necessity of imposing such standards encompasses a significant portion of the research as well. New Jersey State Trooper's perceptions of higher education regarding career advancement were also examined. The relationship between higher education and promotional examination outcomes was studied by Thomas Whetstone (2000); however, the New Jersey State Police no longer administers a promotional examination.

This study differs significantly in that it serves to explain the influence of higher education on promotional outcomes from a quantitative perspective, which has yet to be explained through prior research. Since most Troopers enter the State Police with at least

an Associate Degree and possess an intense desire to excel, it is essential to analyze and explain the influence of higher education on promotions to inform stakeholders.

This study will provide unique insight regarding the decision to return to school. Troopers who desire supervisory positions will have a greater understanding of the potential influence pursuing higher education may have on their chances of being promoted. Such understanding may have an acute impact on an individual's decision to commit the time and resources necessary to further their education.

From a public policy perspective, this study was intended to provide much needed information to New Jersey State Police upper management regarding SOP C-58. Much of the existing research focuses on the need to implement compulsory higher education entrance requirements as well as investigating the correlation between higher education and performance in the field. The extent to which higher education has an influence on promotional outcomes may influence the Superintendent regarding the re-instatement of SOP C-58, "Educational Standards for Promotion."

Theoretical Foundation

Informally, human capital corresponds to "any stock of knowledge or characteristics the [individual] has (either innate or acquired) that contributes to his or her productivity" (Pischke, 2012). The concept of human capital first appeared in *A Wealth of Nations*, wherein the author identifies the "mechanisms of capitalism" (Smith A. , 1776). Human capital could refer to any sort of training or human competency to do something but, for purposes of this discussion, human capital refers to higher education. Education alludes to "a body of knowledge that a person has underlying their physical functions that informs what they do and how they do it" (Fitzsimons, 2013).

The human capital theory, simply stated, implies that human capital is the most valuable commodity. In any industry, coordinating human capital is essential to maximizing workforce potential. When people work together; pooling their talents, skills, etc., the combined output is greater than what they would have produced individually. The group is more than the sum of its parts. Human capital theory, however, assumes “productive people with high morale” (Richter & Ennen, 2010).

Building upon human capital theory, product function theories introduce the concepts of inputs and outputs. Strictly defined, a production function describes the maximum level of outcome possible from alternative combinations of inputs. It summarizes technical relationships between and among inputs and outcomes, commonly referred to as an input-to-output ratio. The production function tells what is currently possible. It provides a standard against which practice can be evaluated on productivity grounds (Monk, 1989).

In the above example, the worker’s skills, talents, etc. represent input, or product, with the results of their efforts representing the output, or function. In the field of education, common inputs are things like “school resources, teacher quality, and family attributes. The outcome is student achievement” (Hanushek, 2007). Product function theories originated for application in the field of economics but are increasingly being used in the educational arena in an attempt to discover which combination of inputs results in the greatest output.

Theoretically, the basis of the analyses in this study is derived from Adams’ equity theory on job motivation (Adams, 1965). Just as product function theory builds upon human capital theory, so does Adams’ equity theory on job motivation build upon

product function theory. As with production function theories, Adams' theory also involves inputs and outputs. According to Adams (1965), "Inputs are logically what we give or put into our work. Outputs are everything we take out in return." These terms help emphasize that what people put into their work includes many factors besides working hours, and that what people receive from their work includes many things aside from money.

Applied to law enforcement, both theories might look at higher education as an input and gaining employment as a police officer as the output. A study based on production function theory, for example, might examine whether the time, effort, and resources dedicated to earning a college degree effectively translate to a greater degree of success on police entrance examinations (Paprotka, 2012). This perspective addresses only the individual's input to output ratio, while Adams' theory extends beyond the individual self, and incorporates influence and comparison of other people's situations, thus enabling one to form a comparative view and awareness of equity, or fairness.

Adams asserted that employees seek to maintain equity between the inputs that they bring to a job and the outcomes that they receive from it against the perceived inputs and outcomes of others. This important distinction makes Adams' theory especially suited for studying the impact of higher education on promotional outcomes in the New Jersey State Police. Motivation is not dependent on the extent to which a trooper believes reward exceeds effort, but whether his or her reward/investment ratio is comparable with the ratio enjoyed by other Troopers in a similar situation. Adams used the term 'referent' others to describe the reference points or people with whom we compare our own situation (Adams, 1965).

The product in this analysis (higher education) relates directly to the function (promotional outcomes). Additionally, a trooper's motivation is greatly affected by their perception of equity, i.e., what is fair and what is not fair.

The function or output of this study is ultimately being assessed against what would be interpreted as the cumulative effect of higher education on the knowledge, skills, abilities, and personal characteristics enhanced or gained through the associated years of college, while being mindful of trooper morale.

This study, from the theoretical basis of equity and job motivation, will provide valuable insight regarding the influence higher educational has on promotional outcomes.

Research Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion in the New Jersey State Police.

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not increase participant's likelihood of promotion in the New Jersey State Police.

$$H_0 = \beta_1 = \beta_2 = \dots = \beta_k = 0$$

Research Questions

The main focus of this study is to ascertain the likelihood promotional outcomes for each participant group are predicted by participants' compliance with SOP C-58. To that end, this study will address the following research question:

1. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Sergeant in the New Jersey State Police?
2. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Sergeant First Class in the New Jersey State Police?
3. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Lieutenant in the New Jersey State Police?
4. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Captain in the New Jersey State Police?
5. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Major in the New Jersey State Police?

Outcome/Predictor Variables

The outcome variable in this study is promotion to one of the aforementioned ranks in the New Jersey State Police. The dichotomous outcome variable is coded (0, 1) to represent not promoted/promoted.

The predictor variables are a mix of continuous and categorical. Seniority and age, expressed in years, were entered directly while gender, race, and level of education, required binomial, dichotomous coding. The categorical predictor variables were coded as follows: Level of Education - Less than 60 College Credits / 60 College Credits (0,1),

Less than 120 College Credits / 120 College Credits (0,1), Less than a Bachelor's Degree / Bachelor's Degree (0, 1), and Less than a Master's Degree / Master's Degree (0, 1); Gender - Female/Male (0,1); and Race – Nonwhite/White (0,1).

Definition of Terms

The following terms are relative to this study:

Active member. a member of the New Jersey State Police who is presently employed as an enlisted member, a noncommissioned officer or a superior officer.

β . Standardized regression coefficient. Used to indicate the effect a statistically significant independent, or predictor, variable has on the dependent, or outcome, variable. The larger the value, the greater the effect on the outcome variable.

Colonel. Appointed by the Governor, the Colonel is the commanding officer of the Division of State Police.

Command staff. Those active members of the New Jersey State Police holding the rank of Major, Lieutenant Colonel, or Colonel.

Detective. Non-uniformed personnel who conduct investigative activities. Some detectives' investigative functions are broad based while others specialize in certain areas, e.g., arson, narcotics, counter-terrorism, etc.

Enlisted member. A sworn member of the New Jersey State Police.

Final report of the state police review Team. Summary Report of an internal review team which examined allegations of injustice involving the New Jersey State Police, completed on July 2, 1999.

General duty road trooper. Uniformed personnel who perform general policing duties, e.g., motor vehicle aids and accidents, issuance of summonses and warnings,

simple assaults, etc. All Troopers, regardless of background or education, begin their careers as road Troopers.

Graduate degree program. A program leading to a master's degree, educational specialist degree, or doctoral degree; advanced study generally following a bachelor's degree.

Higher education. Study beyond the level of secondary education. Institutions of higher education include not only colleges and universities but also professional schools in such fields as law, theology, medicine, business, music, and art. They also include teacher-training schools, community colleges, and institutes of technology. At the end of a prescribed course of study, a degree, diploma, or certificate is awarded.

Law Enforcement Education Program (LEEP). A program of the federal government. LEEP made tuition reimbursement available for law enforcement personnel enrolled in college courses.

New Jersey State Police (NJSP). A division of state government under the Department of Law and Public Safety, responsible for enforcement of state law and protection of the citizenry of the State of New Jersey.

New Jersey State Police Graduate Studies Program (NJSPGSP). Administered through the College of Education and Human Services (CEHS) at Seton Hall University, NJSPGSP is an accredited off-campus graduate program offering a Master's degree in Human Resources Training & Development, and an Educational Specialist degree in Education Leadership Management & Policy. Upon completion of either program, students may formally apply for acceptance into the traditional Doctor of Education in ELMP program.

Non-commissioned Officer (NCO). Enlisted personnel holding one of the following ranks: Sergeant, Detective Sergeant, Staff Sergeant, Sergeant First Class, Detective Sergeant First Class, and Sergeant Major.

Organizational structure. The New Jersey State Police is a Division of state government under the Department of Law and Public Safety. The following is the organizational structure of the Division of New Jersey State Police:

1. *Sections.* The nine principal functions of the New Jersey State Police. Sections are comprised of bureaus. The lone exception is the Field Operations Section, which is comprised of Troops. Section / Troop Commanders hold the rank of Major.
2. *Bureaus.* The largest functions within a section, bureaus are comprised of units, grouped by area of specialization. Bureau Chiefs hold the rank of Captain, while Unit Heads are Lieutenants.
3. *Troops.* The principle established functions within the Field Operations section, Troops are comprised of stations, and are arranged geographically, i.e., Troop A - South Jersey, Troop B - North Jersey, Troop D – NJ Turnpike, etc. Stations are divided into squads of uniformed general duty road troopers. Station Commanders hold the rank of Lieutenant, while Squad Leaders are Staff Sergeants.

Superior officer. Enlisted personnel holding one of the following ranks: Lieutenant, Captain, Major, and Lieutenant Colonel. Commonly referred to as “officers.”

Promotion. Advancement in rank.

Promotional system. The process utilized by the New Jersey State Police in selecting personnel for advancement to higher rank.

Rank. A grade of official standing in the New Jersey State Police. A member's rank delineates their responsibilities, number of subordinates, etc. and is denoted by a rank insignia consisting of chevrons, bars, oak leaves, or colonel's eagles.

Recruit. A candidate accepted into the New Jersey State Police Academy for training. Unlike New Jersey municipal police departments, recruits aren't sworn in as troopers until graduation.

Retired member. A former enlisted member of the New Jersey State Police who is no longer an active member.

Satellite location. An off-campus location offering graduate level courses.

SOP C-58 "Educational Standards for Promotion." Regulations promulgated by the Superintendent establishing educational standards for promotion in the New Jersey State Police.

Standing operating procedures (SOP). Orders which govern policies and procedures, delineate day-to-day operations, or establish organizational structure.

State troopers fraternal association (STFA). The bargaining unit for non-supervisory members, i.e., Trooper, Detective, Trooper II, Detective II, Trooper I and Detective I.

State troopers non-commissioned officers association (STNCOA). The bargaining unit for first-line and mid-level supervisors, i.e., Sergeant, Detective Sergeant, Staff Sergeant, Sergeant First Class, Detective Sergeant First Class, and Sergeant Major.

Superintendent. See Colonel.

Superior officers association (SOA). The bargaining unit for Lieutenants.

Supervisory ranks. Those active members of the New Jersey State Police holding the rank of Sergeant / Detective Sergeant, Lieutenant, or Captain.

Trooper. The lowest ranking member of the New Jersey State Police.

Trooper II. A member with seven years of creditable service in the NJSP.

Trooper I. A member with nine and one half years of creditable service in the NJSP.

Tuition reimbursement. Qualified members of the New Jersey State Police used to be reimbursed for 90% of their tuition bill, as delineated in SOP C30.

Undergraduate degree program. A program leading to an associate (2-year) or a bachelor's (4-year) degree; generally following high/secondary school.

Limitations of the Study

This study relied upon current data encompassing a total population sample of enlisted members between the ranks of Trooper II and Major, without consideration for assignment or duty-status. With respect to the ability to generalize and replicate the findings in this study; results may not be generalized beyond the New Jersey State Police, while the likelihood of replicating the results is high save for the re-instatement of SOP C-58.

The total population sample in this study represents enlisted members who, during the last round of promotions, were eligible for one of the following ranks:

Sergeant/Detective Sergeant; Sergeant First Class/Detective Sergeant First Class;

Lieutenant; Captain; and Major (N=3515). The ranks of Colonel, Lieutenant Colonel and

Trooper are not subject to the provisions of SOP C-58 and, therefore, are excluded from this study.

SOP C-58 contains the following caveat, “All enlisted personnel subject to these educational standards receive 60 imputed credits which can be applied toward the [education] requirements [for promotion]” (Fuentes, 2006). Bearing in mind the educational requirement for promotion to any of the Sergeant ranks is 60 credits, it stands to reason the data supplied by the NJSP would report member’s level of education as 60 credits, at a minimum. For unknown reasons, however, this was not the case as numerous member’s education was listed as ‘HS’ for high school diploma. As a result, members eligible for promotion to Sergeant and Sergeant First Class will be included in this study and analyzed as two separate groups.

Lastly, any and all references to Sergeant and Sergeant First Class are inclusive of their companion detective ranks, Detective Sergeant and Detective Sergeant First Class, respectively.

CHAPTER II

REVIEW OF LITERATURE

The purpose of this study was to determine the strength and the direction of the relationship between higher education and promotional outcomes in the New Jersey State Police.

The relationship between, higher education and law enforcement has been the focus of considerable research and literature from the late 19th century to the present day. As such, the volume of literature available for review was overwhelming. The task of reviewing the literature required a careful and extensive review to determine which works capture the essence of higher education in law enforcement. This review will focus primarily on the past twenty years of peer-reviewed research, along with the seminal literature on the topic regardless of age.

For the purpose of providing a comprehensive and cogent literature review on the broad topic of higher education in law enforcement--more specifically, higher education as it relates to career advancement in law enforcement--this review consists of six sections beyond this introduction. The first section establishes the historical foundation of the endeavor to bring higher education standards to law enforcement. The second section examines professionalism. The third section explores the impact of higher education on law enforcement officer behavior. The fourth section examines the impact of higher education on career advancement, while the fifth section explores the concept of seniority rights. The sixth and final section is the conclusion.

Throughout this review of the related research and literature, the term “higher education” is referenced in a broad sense. While generally relating to the conferment of a

two-year associate degree or four-year bachelor's degree by an accredited public or private institution of higher education, it can also be used to refer to the attainment of any number of college credits that satisfies a law enforcement agency requirement. This broad application is indicative of the variation of how "higher education" has been defined in the research and literature. Such ambiguities in terminology and variations across studies will be clarified as needed.

Literature Search Procedures

The literature reviewed for this chapter was accessed via online databases including EBSCOhost, ProQuest, ERIC, Sage Publications, JSTOR, Academic Search Premier, the Seton Hall University website, Walsh Library, e-journal student resource, and online and print editions of peer-reviewed law enforcement & educational journals. The search techniques employed during this literature review also included a comprehensive physical review of the graduate level textbooks utilized over the past eleven years during a course of study in human resources training and development & educational leadership, management, and policy, as well as study in New Jersey State Police first-line supervision and standard operating procedures (SOPs). I followed the framework for scholarly literature reviews developed by Boote and Beile (2005).

Historical Foundation

To fully appreciate the impact higher education has had on the field of law-enforcement, it is essential to familiarize oneself with the origins of law enforcement in the United Kingdom and United States, and the early efforts to prioritize higher education for officers.

The modern policing model originated in the mid 1800's in London, England. Sir Robert Peel identified problems such as abuse of force, violation of rights, bribery, discrimination, and racial profiling (Johnston & Cheurprakobkit, 2002). Peel made reference to the need for a professionally trained police force in 1829 (Travis, 1995) and placed an emphasis on the training and education that would be necessary in order to have the right kind of officers working the streets. He sought to remove the abuses of policing by reorganizing the London Metropolitan Police (Johnston & Cheurprakobkit, 2002). Peel established quasi-military features that have dominated modern policing to the present day (Walker, p. 53).

The model was ultimately expanded through the work of August Vollmer in the early twentieth century (Kelling & Moore, 1988). In 1905, August Vollmer was elected as the town marshal for Berkeley, California, and served until 1909 when Berkeley established a formal police force with Vollmer serving as the town's first chief of police. Vollmer, who later served as Chief of the Los Angeles Police Department and as a professor of police studies at the University of California at Berkeley, has been credited with establishing the first standards for the training of law enforcement personnel (Brandstatter, 1967). Vollmer was further credited with introducing intelligence and psychological testing to the hiring process (Dailey, 2002), establishing the first police academy, and also for recruiting from college campuses (p. 2). Vollmer introduced police science as a course of study while serving as a professor at the University of California at Berkeley and developed the first Police Administration degree program.

The majority of the literature examining higher education in law enforcement recognizes Vollmer for his efforts. As such, he is often referred to as the "father of

modern policing” (Holland, 2013). Prior to Vollmer, there was no connection between higher education and the field of law enforcement. Vollmer’s contribution to the professionalization of law enforcement persisted over the years due to the profound influence he had on others, including his protégé, Orlando W. Wilson (Kelling & Moore, 1988).

Wilson graduated from the University of California at Berkeley in 1924 and continued in the traditions of his mentor by promoting higher education and training standards for law enforcement. Wilson is credited with being a “brilliant expositor” of the central elements of police reform (p. 2). Wilson observed J. Edgar Hoover transform the corrupt and discredited Bureau of Investigation into the honest and prestigious Federal Bureau of Investigation. Wilson authored numerous texts on police administration and helped shape an organizational strategy for municipal police analogous to the one pursued by the FBI (p. 5). Wilson also pioneered the use of patrol cars as an anticrime tactic. He theorized that if police drove conspicuously marked cars randomly through city streets and gave special attention to certain areas, a feeling of police omnipresence would be developed (p. 7).

Despite Vollmer and Wilson’s endorsement of higher education for police officers, such standards were usually lacking in the early part of the twentieth century. A high school diploma as an entry-level requirement, however, had become common. In an era when a large portion of society failed to complete high school, requiring a diploma elevated the societal status of police officers.

The early recognition of the complexity and vast authority of the position, combined with the efforts of Vollmer and Wilson, lead one to believe this would have

been a logical starting point for a progression toward higher education standards in law enforcement. One would certainly have expected educational requirements to have increased in direct proportion to the increase in the complexity of the occupation (Strecher, 1988). History demonstrates that progress has been very slow in this respect.

In the years that followed, recognition of the need for higher education in law enforcement continued. In 1929 President Herbert Hoover appointed George Wickersham to chair the National Committee on Law Observation and Enforcement, which became popularly known as the Wickersham Commission (p. 1). The Commission's final report, which Vollmer largely wrote, asserted rampant misconduct in policing was largely a result of poorly educated and trained patrol officers and Chiefs. The report addressed areas consistent with professionalization of law enforcement in the United States.

Strecher notes, however, the Commission and August Vollmer did not specifically cite education as one of the ten Wickersham Commission recommendations, yet Vollmer and the Commission did emphasize higher education repeatedly in the report. In one instance, the report made reference to the fact that over half of the Los Angeles Police Department (LAPD) hadn't graduated high school (Wickersham Commission, 1931). The report stated that only through education will police officers be able to deal with current and future crime trends (Strecher, 1988). O. W. Wilson also served with his mentor, August Vollmer, as a member of the Wickersham Commission. Wilson became closely aligned with Federal Bureau of Investigation Director J. Edgar Hoover, who himself was a very strong advocate of professionalism through higher education in law enforcement (Bopp, 1977). Collectively, these advocates for higher education had a profound influence on the advancement of training and education in law enforcement from 1905 through 1972.

The 1960s and early 1970s saw an increase in crime rates and increasingly aggressive police tactics employed during times of civil unrest. This heavy-handedness began a steady erosion of police-community relations, particularly in African-American communities. The legitimacy of police was questioned: students resisted police, minorities rioted against them, and the public, observing police via live television for the first time, questioned their tactics (Kelling & Moore, 1988). This unprecedented scrutiny served as the catalyst for a concerted effort to investigate and promote higher education in law enforcement through the empanelling of several governmental commissions and research studies.

The studies and commissions formed through the United States Government from 1967 through 1978 included: The President's Commission on Law Enforcement and Administration of Justice (1967), the National Advisory Commission on Civil Disorders (1968), the National Commission on the Causes and Prevention of Violence (1969), the President's Commission on Campus Unrest (1971), the National Advisory Commission on Criminal Justice Standards and Goals (1973), and the National Advisory Commission on Higher Education for Police Officers (1978). The recommendations of each of these commissions were consistent in asserting the quality of police service would not significantly improve until higher educational requirements were established for its personnel. The studies revealed police officers who were college educated tended to have better interactions with people in the communities they served as well as better ratings of their performance by supervisors (Cascio, 1977).

In response to The President's Commission on Law Enforcement and Administration of Justice (1967), the United States Congress passed The Omnibus Crime

Control and Safe Streets Act of 1968, which established the Law Enforcement Assistance Administration (LEAA). The LEAA administered federal funding to state and local law enforcement agencies and established the Law Enforcement Education Program, known as "LEEP." The Commission expressed the belief that a college education would provide substantive knowledge and interpersonal skills that would significantly enhance an officer's ability to provide high quality, as well as equitable and efficient service to the public (Carter & Sapp, *College Education and Policing: Coming of Age*, 1992). LEEP was designed to stimulate criminal justice personnel to attend college and result in a better educated police force. LEAA members were hopeful that, as college educated officers promoted through the ranks, they would explore new approaches, exhibit creativity and focus on assessing needs prior to implementing new policies (Carter, Sapp, & Stephens, 1989). Foster, Magers, & Mullikin, 2007 reported the LEEP program provided grants and loans to serving law enforcement officers, and established certain conditions which needed to be met by institutions that accepted the funds. In order to participate, the institutions were required to offer criminal justice related courses.

It was believed that, through LEEP, college educated police officers would eventually move into leadership positions and their enhanced educational achievements and experiences would ultimately lead law enforcement in a more progressive direction (Carter & Sapp, *College Education and Policing: Coming of Age*, 1992).

The number of police education programs skyrocketed after the creation of LEEP, 485 institutions accepted students and the associated funds in the first year alone, but the Commission found the initial offerings lacking, particularly in the liberal arts. Sherman expressed disappointment at the quality of these programs and found that LEEP funding

was inadequate for a residential liberal arts college experience. Instead, police education at the collegiate level was too specialized and focused on police science courses vastly similar to the offerings at police training academies (Sherman, 1978).

The Commission ultimately recommended moving from “educating the recruited” to “recruiting the educated.” For education to have a positive impact on policing, they believed officers needed to be college educated prior to being hired (Sherman, 1978).

Despite the initial growing pains, the LEEP program ultimately contributed to the progression of higher education in law enforcement through the infusion of sorely needed funding and improvements in criminal justice programs. Yet, despite its positive influence, the LEEP program was not without controversy. During the Carter administration, LEEP controversy erupted among some police executives. The United States Justice Department instituted several requirements for eligibility to obtain agency assistance grants. One of the requirements included giving hiring preference to college graduates. Another requirement involved ensuring proportionality in the hiring of African Americans based on the census records for the respective jurisdiction.

According to Carter and Sapp (1990), President Carter was reportedly upset with some of the mandates within the LEEP program and hastily defunded the program. Distinguished authors discussed President Carter’s termination of a visionary program deemed by many to be an important step in promoting professionalism in law enforcement (Foster, Magers, & Mullikin, 2007; Polk & Armstrong, 2001).

The implementation of LEEP resulted in a substantial increase in the number and quality of criminal justice programs available to officers and, as a result, was considered a success by many (Foster, Magers, & Mullikin, 2007). According to Carter et al. (1990),

LEEP also resulted in an increase in the number of active police officers with college degrees, and the end of the LEEP program did not adversely affect the expansion of criminal justice education in the United States. Similarly, according to Foster et al. (2007), the LEEP program brought needed attention to entry-level minimum education requirements in many states that survived well beyond the life-span of the program. Although most of the minimum requirements related only to high school diplomas and GEDs, LEEP's influence on education in law enforcement cannot be over-emphasized.

The National Advisory Commission on Criminal Justice Standards and Goals (NACCJS) highlighted law enforcement's low educational standards and failure to actively recruit candidates with college degrees. This was in spite of the 1967 Commission's recommendation "that all police personnel with general enforcement powers have baccalaureate degrees" (Jacoby, 1979). The NACCJS built upon this recommendation by adding specific educational requirements, with deadlines, for new hires. The Commission recommended new police hires have a minimum of two years of college by 1975, three years by 1978, and a bachelor's degree by 1982. This aggressive time-line was never universally implemented and remains the subject of much debate even today. Two notable exceptions, however, were the Federal Bureau of Investigation under J. Edgar Hoover and the United States Secret Service (USSS). Both agencies set entry-level educational requirements at a bachelor's degree.

Few agencies at the state and local level implemented higher education standards pursuant to the NACCJS report and during the period LEEP funding was available. One such agency, however, was the Tulsa, OK Police Department which established an 18 college credit requirement for entry. According to Carter, Sapp, & Stephens (1988), Tulsa

PD's policy was a direct result of the President's Commission on Law Enforcement and Administration of Justice (1967) and the National Advisory Commission on Criminal Justice Standards and Goals (1973). The Tulsa policy provided a graduated scale from the base of 18 college credits along a specified time-line with the intent of imposing a four-year bachelor's degree requirement by 1985. Tulsa PD's current entry-level education requirements are "a Bachelor's degree with a C+ average or better [from] an accredited college" (City of Tulsa, Oklahoma, 2013).

Of particular concern to police departments considering entry-level higher education requirements was the potential of such a policy to shrink the applicant pool and open the department to litigation regarding disparate treatment of applicants. Such concerns were addressed in a 2004 National Institute of Justice (NIJ) report. The United States Department of Justice commissioned the National Institute of Justice to perform a study addressing the hiring practices of police agencies. The report, entitled, "Research for Practice--Hiring and Keeping Police Officers," addressed the issue of higher education in the context of hiring standards by stating, "In the current environment, some agencies may feel pressure to lower standards. Although higher recruiting standards, such as requiring a college degree, may contribute to applicant shortages, agencies must consider the demands of contemporary policing" (National Institute of Justice, 2004).

In a report titled "The State of Police Education: Policy Direction for the 21st Century," Carter et al. surveyed 699 State, County, and municipal law enforcement agencies nationwide (1989). The following were included in the author's analysis: college recruitment procedures, education related policies, tuition reimbursement practices, retention rates, degree incentive pay, and the effect any minimum education

requirements had on minority recruitment. Consistently reported as a positive factor was educational achievement. The agencies had educational requirements spanning from 18 college credits to a bachelor's degree.

Carter and Sapp (1990) conducted a retrospective study comparing data from three separate studies, conducted in 1960, 1970, and 1974, to the results of their 1989 study. The purpose of the study was to determine the progression of higher education attainment by America's police officers, current policies in support of college education, and the effect of higher education on policing. They found, in 1960, only 2.7% of police officers had earned a bachelor's degree. In 1989, the percentage of officers holding the same degree had risen to 22.6%. Their findings in 1989 also included 42.6% of officers having "some college" through the completion of an associate degree. By 1990, the percentage of active law enforcement officers reported having attained college credits had risen to 65.2% (1990).

According to Hilal and Densley (2013), only 9 percent of police departments nationwide require a 2-year college degree, while less than 1 % of U.S. police agencies have a four-year degree requirement. An increasing number of agencies, however, now require some degree of higher education in order to enter the police ranks. They note that many law enforcement agencies are offering incentives for officers with college education. According to their research, most of the incentive programs include a graduated scale reward system based on the accrual of credit hours and/or eligibility for promotion. The New Jersey State Police, for example, awards \$500 to Troopers with an Associate degree, \$1000 for a Bachelor's degree, and \$1500 for a Master's degree (Fuentes, Standard Operating Procedure C58, 2006).

The Bureau of Justice Statistics' Census of State and Local Law Enforcement Agencies (CSLLEA) was established in 1992. The CSLLEA survey is sent to every operating state and local law enforcement agency in the country every four years for the purpose of collecting data on the number of sworn and civilian personnel by state and type of agency, and functions performed by each agency. The two page survey questionnaire consisted of 13 questions.

Data from the most recent census indicates there are over 18,000 state and local law enforcement agencies in the United States employing approximately 765,000 sworn police officers. This equates to approximately one sworn officer for every 280 citizens (Reaves, 2008). Between 2004 and 2008, the number of sworn police officers increased by approximately 33,000.

The 2004 CSLLEA survey revealed 98% of the local police departments surveyed reported having a high school diploma or GED educational requirement, 18% required having 'some college' (college credits but no degree), 9% required an associate degree and 1% required a bachelor's degree. The 2008 CSLLEA survey revealed almost no change in entry-level higher education requirements, with the percentage of local police agencies requiring a bachelor's degree remaining at 1% (Hickman & Reaves, 2004). A 2008 IACP study revealed 16% of state police agencies require applicants to possess an associate degree, and 8% require a bachelor's degree

It is perplexing that so few agencies require a bachelor's degree for hiring today, given the findings of presidential commissions and myriad benefits noted by scholars and law enforcement administrators alike. As the literature suggests, police administrators do prefer officers to hold a bachelor's degree but do not require it.

Bruns conducted an exploratory qualitative study in 2010 to attempt to understand why only 1 % of the local police departments in the United States require a bachelor's degree. Bruns discovered 60 police departments requiring a bachelor's degree for new hires. Of the 60 departments, 23 will waive the bachelor's degree requirement if the applicant has prior military or police experience or, in some cases, 2 to 4 years of full-time work experience. The population for Bruns' study was the 37 police agencies that will not waive their educational requirement on any grounds. A survey instrument was mailed to the 37 departments, thirty-six agencies responded (97% response rate). The survey instrument contained 30 open- and closed-ended questions, in a mixed methods design (Bruns, 2010).

Two primary questions were the focus of the study: why does their department have a mandatory degree requirement; and why do so few departments actually require a degree? This study provided descriptive statistics regarding the mean department size and population patrolled. The qualitative component centered on the perception of the police chiefs in the respective agencies. Collectively, several consistent themes evolved from the study. The police chiefs indicated the college degree requirement was part of their organizational culture, carried with it knowledge and expertise, mirrored the education level of the community served, was supported by a belief in excellence and quality in performance, promoted professionalism, and resulted in officers who tended to be more mature and possess stronger goal-reaching abilities (Bruns, 2010).

Of the qualitative research on higher education in law enforcement, this was one of the most contemporary studies. Bruns attempts to answer the question of why only 1 % of the local police departments in the United States have a four-year college degree

requirement. The police chiefs surveyed offered a multitude of reasons, the most common responses were as follows: political correctness; depletion of the applicant pool; decreased minority representation; belief that education is under-valued in policing; concern that many current police leaders do not have degrees; concern of losing officers to higher paying jobs in other fields; perception that better educated citizens aren't interested in becoming police officers; eventual officer dissatisfaction with the position; and the belief that the traits needed for effective policing cannot be learned at a college.

From the early 20th century and the efforts of August Vollmer and O.W. Wilson to the modern efforts of researchers like Hilal and Densley, history demonstrates that progress is being made, albeit slowly. Future research examining the relationship between higher education and law enforcement will likely continue for as long as the two entities exist in an effort to determine higher education's worth to law enforcement agencies and the communities they serve.

Professionalism

A profession is defined as a body of knowledge; ethical guidelines; and a professional organization with best practices" (Cox, 2010). Professionalization is characterized as arising "when an occupation transforms itself through the development of formal qualification based upon education, apprenticeship, and examinations, the emergence of regulatory bodies with powers to admit and discipline members, and some degree of monopoly rights" (Bullock & Trombley, 1999)

Hughes (1971) believes a testament to the importance of professions in American society is when occupations try to change themselves or their image in an effort to

become “professionalized.” According to Hughes, the societal benefits of professionalizing include prestige and respect for the occupation and its members.

Hughes states the reasons for professionalizing are many but usually center around an attempt to change: an occupation’s societal status in relation to its own past; public perception; and separation from similar occupations. Changes sought include: independence; increased recognition; elevated societal status; and increased autonomy.

The offering of profession-centric courses in institutions of higher learning is a necessary validation for modern professions. This may manifest itself as an undergraduate program leading to a bachelor’s degree, with a major in the theory and practice of the professional occupation, or the establishment of a standard professional qualification, such as a masters or doctoral degree (1971).

Generally speaking, the licensing of professions in the United States falls under the purview of individual states, which often lack standardized criteria. For example, absent a reciprocity agreement, a law school graduate who passes the bar exam in one state is prohibited from practicing law in other states until passing that state’s respective exam.

Qualified candidates who successfully complete an established course of study and practicum at an accredited professional institution earn a degree or certification, often after passing a cumulative examination. These programs are developed in collaboration with, and must be approved by, private professional organizations. Degree-granting, or certifying, institutions must also be accredited by private associations recognized in their respective fields of expertise. This resembles the accreditation of higher education in both the public and private sectors. Again, the requirement of completion of a formal

education program lends itself to professional credentialing, but what exactly constitutes an accredited institution of higher education? An accrediting body makes this determination with recognized standards established by an association under the law (Freidson, 1986).

Flexner (1915) defines a conceptual framework to distinguish between a profession and a vocation in his article, "Is Social Work a Profession?" Flexner's six criteria of a profession are as follows: it involves intellectual operations with large individual responsibility; it is derived from science and learning; it works up to a practical and definite end; it possesses an educationally communicable technique; it tends toward self-organization; and it is increasingly altruistic in motivation. Flexner's article is noteworthy in that many of his conclusions regarding social work could also be applied to police work.

Houle (1980) theorizes that questioning whether or not an occupation is a profession is an incorrect approach. Houle defines professionalism along a continuum, listing several characteristics occupations should strive for on the path to professionalization: having a central mission; mastery of theoretical knowledge; self-enhancement; formal training; provisions for credentialing; creation of a subculture; legal reinforcement; public acceptance; ethical practice; establishment and enforcement of penalties; maintaining a close relationship with related occupations; and a well-defined provider-client relationship.

The Movement to Professionalize Policing

Mosher (1968) described professionalization as a necessary step in the development of a career civil service, wherein "high level occupational specialists

develop standards, coalesce, and become recognized –that is, professionalize.” To achieve goals of this nature, police administrators moved away from the attitude that police work is only a job and, instead, have embarked on a movement toward professionalization (Feuille & Juris, 1976).

The movement to professionalize law enforcement is rooted in the works of Vollmer and his contemporaries and was documented for the first time in the conclusions and recommendations section of the Wickersham Commission’s final report, authored by Vollmer. The commission’s report recognized the need for professionalism in policing, and recommended this be achieved by requiring a college degree as a criteria for hiring, and developing ongoing training for current and future police officers. The various governmental studies and commissions that followed echoed the recommendations, with one National Institute of Health (NIH) study even recommending a “goal of a master’s degree for entering officers” (Bittner, 1975).

This movement, however, has always had its share of problems, which persist to this day. Specifically, there are two opposing schools of thought regarding how to professionalize law enforcement. One faction has set out to attain professional status for law enforcement much like that of medicine and law (Carter D. L., Issues and trends in higher education for police officers, 1978). Another group intent upon professionalization through improving the overall effectiveness of law enforcement contend that a profession is not formed through a predetermined set of attributes, but through key elements on a continuum; the professional school, and the ability to provide an education for its members (LeDoux, Tully, Chronister, & Gansneder, 1984; Minnesota Board of Peace Officer Standards, 1991).

Those interested in turning the police occupation into a traditional profession must overcome many obstacles before attaining such status. For instance, occupations that want professional status must take on the structural attributes of a profession. These attributes include the implementation of a full time occupation, the establishment of a training school, the building of professional associations, and the establishment of a code of ethics. The members of the established professions also hold distinct attitudinal traits which include strong beliefs in public service and self-regulation, a sense of dedication, autonomy, and the use of the occupation as an arena in which to discuss ideas and judge the work of others (Wilensky, 1964).

Researchers have remained unconvinced that police work can reach the type of status afforded the more traditional professions. Law enforcement as an occupation does not appear ready to meet either all of the attitudinal characteristics or the structural attributes of the established professions (Feuille & Juris, 1976). Policing has not come close to attaining the ideals of “altruistic service, commitment to public service, and self-autonomy” (Khoury & Khoury, 1981). Police are civil servants and, therefore, are accountable to the public. Thus, it is nearly impossible for police to become self-autonomous.

Law enforcement in the U.S. also lacks standardized entry requirements, an indispensable condition of transition from an occupation to a profession.

Lastly, law enforcement lacks a national association that mandates national standards, enforces them, and speaks for the entire profession. Law enforcement agencies wishing to professionalize can apply for accreditation through The Commission on Accreditation for Law Enforcement Agencies (CALEA). CALEA, founded in 1979, is a

credentialing authority through the joint efforts of law enforcement's major executive associations: International Association of Chiefs of Police (IACP); National Organization of Black Law Enforcement Executives (NOBLE); National Sheriffs' Association (NSA); and the Police Executive Research Forum (PERF).

The purpose of CALEA's Accreditation Programs is to improve the delivery of public safety services, primarily by: maintaining a body of 460 standards, developed by public safety practitioners, covering a wide range of up-to-date public safety initiatives; establishing and administering an accreditation process; and recognizing professional excellence (Daughtry Jr., 2013).

The purpose and function of CALEA is identical to other professional associations such as the American Medical Association (AMA) and American Bar Association (ABA), with one notable exception: participation in the CALEA accreditation process is voluntary and, unfortunately, most police departments decline to participate.

The Minnesota Board of Police Officer Standards and Training (POST) embodies the alternate view of law enforcement professionalism. The POST board endorses improving the overall effectiveness of law enforcement in line with the continuum model of professionalism. The board holds that a profession is not formed through a predetermined set of attributes or traits, but along a continuum. In fact, the POST board has contended that law enforcement does possess the key elements in this continuum, including a professional school and the ability to educate its members (Minnesota Board of Peace Officer Standards, 1991).

The professionalization movement that has tried to improve the overall effectiveness of law enforcement has had more success than their counterparts who seek professional status (LeDoux, et al., 1984). Both groups have focused upon education, educational requirements, and educational qualifications, however, only the former has sought improvement in training methods and performance while acknowledging deficiencies (Regoli, 1976).

Professionalization and Higher Education

Senna (1974) submitted the most compelling argument for raising educational standards for police is to keep pace with the rising level of education in the overall population. The initial requirement of a high school diploma to enter the field of policing was established when most of America's population did not finish high school. At that time, a requirement of a high school education actually identified individuals with an above-average level of education (Roberg & Bonn, 1974).

Today, the high school diploma and General Educational Development (GED) high school equivalency credential have essentially been replaced by a college degree as the above-average level of educational attainment in the USA (Roberg & Bonn, 1974). In fact, recent statistics indicate nearly 56% of the population has "some college, but no degree," 20% possess a Bachelor's degree, and 10% hold an advanced degree (United States Census Bureau, 2013). Police departments that do not require a college degree have failed to keep up with the tradition of hiring people with an above-average education (Roberg & Bonn, 1974). Taking this into account, a baccalaureate degree should be the minimum entrance requirement for policing.

It has been suggested only the best, professionally qualified, person should have the ultimate, and awesome, police power of summarily depriving a person of liberty or even life. A college degree...is the mark of professional qualification (Mayo, 2006).

If the topic of higher education and law enforcement is put into proper perspective, can law enforcement personnel who receive between approximately 400 to 1000 hours of basic academy training be realistically compared to doctors who receive more than eleven thousand hours of instruction and attorneys who receive more than nine thousand hours of instruction? It is interesting to note two lower-profile occupations, embalmers and barbers, both require more than four thousand hours of training prior to employment (Wood, 2008).

When considering policing in comparison to these professions, law enforcement agencies requiring a high school diploma or GED for employment are ineligible for professional status. Therefore, higher education for law enforcement personnel should be encouraged and promoted at every operational level (Hynes, 2007).

Progressive law enforcement executives understand professionalism will not occur without requiring police officers to have a college degree (Maggard, 2001). Despite their reluctance to adopt stricter educational requirements through the establishment of formal policies, many command-level police executives admit to having a preference for college graduates and note this favorably when reviewing applications.

In New Jersey, however, the decision to adopt college education as a condition of employment doesn't always lie with the Chief, Sheriff, etc. In 1979, the New Jersey Civil Service Commission conducted a public hearing to solicit testimony regarding the establishment of statewide standards for eligibility for admission to the entry level law

enforcement examination, and eligibility for promotion to Sergeant (New Jersey Civil Service Commission, 1979). According to the written order issued on July 17, 1979, by the Civil Service Commission, testimony primarily favored requiring at least one year of college for entry level law enforcement officers (p. 2). The New Jersey Civil Service Commission, however, ruled contrary to the panel's recommendations. Specifically, the 1979 Commission ordered, "the current requirement of a high school degree or its equivalent be continued as a statewide standard for admission to Civil Service Police Officer examinations" (p. 4). The decision had a devastating effect on the movement to professionalize law enforcement in New Jersey for two reasons. First, it failed to endorse the panel's recommendations of at least one year of college for new officers. Second, the ruling stripped agencies regulated by the New Jersey Civil Service Commission of the power to set their own educational standards. Progressive departments mandating college credit as a condition of employment, e.g. Clark, Clifton, Hillside and Millburn, were forced to abandon their policies. The decision remains in effect to the present day.

Applicants for a position with a police department are usually very serious about becoming a police officer and most will do 'whatever it takes' to increase their odds of being selected. Earning a degree in a criminal justice-related field is thought to improve one's chances greatly. Demand for such programs is high, institutions of higher learning throughout the country have responded to this demand. To date, there are over 1800 colleges and universities offering programs in criminal justice, law enforcement, or criminology (Campus Explorer, Inc., 2013).

The criminal justice discipline, however, continues to fight for legitimacy within the higher education community, seeking to shed the stigma of degree programs lacking

academic rigor. Many criminal justice programs have addressed this perception by replicating the methods and standards of criminal justice's parent disciplines; sociology, psychology, and political science. Emphasis on quantitative and qualitative research methods and applied statistical analysis in college-level criminal justice instructional programs validates the curriculum on a par with other academic disciplines (Buerger, 2004).

While there is an abundance of qualitative research available regarding higher education and law enforcement in general, there are no quantitative studies which measure the optimal amount of education for law enforcement personnel. Parker (1992) observed that for decades a presumptive correlation existed relating law enforcement professionalism with high educational attainment.

The Impact of Higher Education on Law Enforcement Behavior

Prior to examining higher education's impact on law enforcement officer behavior, there is a more general question to consider: What impact does higher education have on those who graduate from college? This is an area that has been studied for the past several decades. Regardless of the methodology employed, the findings have been consistent.

The body of research in the United States seeking to identify the skills, abilities, and attributes that result from higher education can be divided into two broad categories: cognitive and affective. Cognitive attributes refer to students' knowledge, logic, or information processing abilities. Affective attributes pertain to students' attitudes, values, and beliefs (Bloom, 1976).

Pascarella and Terenzini (1991) conducted exhaustive research on the subject of how college affects students. In over fifty years of research, their constant message is still true; college students make statistically significant gains in subject matter knowledge and academic skills, particularly verbal communication, and writing skills. There is a smaller, albeit statistically significant, gain in mathematics. Regardless of whether students attended a community college or a selective research university, significant gains in reading, writing, scientific reasoning, and social studies were observed.

Interaction with a multi-national and/or multi-ethnic student body over a four-year period enhances cognitive development during college and, as an independent variable (institutional diversity), has shown to have a statistically significant positive impact on critical thinking skills of college students. (Pascarella, Palmer, Moye, & Pierson, 2001). In fact, research has proven the greater the ethnic diversity of the college classroom, the greater the cognitive gains among students (Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001).

Research further indicates that college has a positive influence on students' affective development as well. Chickering and Reiser (1993) point out the impact college has on students' orientation toward self and others, their recognition and acceptance of the interdependence of human beings, how they fit into the larger society and their sense of responsibility in it. Feldman and Newcomb (1996) synthesized the findings of more than 1,500 studies, conducted over four decades, and found that college graduates do have a greater awareness of their interdependence, how their actions influence others, and how they may be influenced by the actions of others.

Empirical evidence points to the conclusions that, on average, higher education significantly increases the level of knowledge, the intellectual disposition, and the cognitive powers of its students (Bowen, 1997).

The Superintendent of the New Jersey State Police, Acting Colonel Robert Dunlop, was interviewed in 1999 regarding the relationship between higher education and the New Jersey State Police (NJSP). A/Colonel Dunlop stated that higher education has had a tremendous impact within the New Jersey State Police. He believes college educated Troopers write better reports, offer better testimony in court, perform better under pressure, and are generally more capable of “handling situations” than non-college educated Troopers. The Superintendent advised he attributes this to the “broad-based knowledge” one gains by pursuing a degree rooted in “sociology, politics, and political science.” A/Colonel Dunlop concluded his comments by saying the ability to articulate facts in court is one of the most critical aspects of police work and, he believes, is one of the “prime assets of a college education” (Varricchio, 1999).

A study consisting of role-playing scenarios involving police recruits, wherein the recruits were given full discretion regarding enforcement, was conducted to compare the responses from college-educated and non-college-educated recruits. College educated recruits were more likely to choose an approach that diffused the situation and did not result in an arrest or detainment (Finkenauer, 1975). This is consistent with other researchers’ findings that college educated police officers were less authoritarian and rigid.

In a longitudinal study between 1967 and 1992, Fullerton (2002) identified the following traits common to college educated police officers: less cynicism, less

authoritarianism, less attrition, fewer disciplinary problems, more local pride in the police department, fewer sick days, and higher academic performance. Fullerton also found that college educated officers achieved more awards, made more felony arrests, had higher performance evaluations, were better decision makers, were flexible in problem solving, and demonstrated greater empathy toward minorities.

In their longitudinal quantitative study of a sample of New York Police Department (NYPD) Officers (N = 1600), Cohen and Chaiken (1972) utilized linear regression to determine which variable was the strongest predictor of civilian complaints against officers. They found the independent variable 'education' emerged as the most powerful predictor. They also found inverse relationships existed for college educated officers, as compared to non-college educated officers, and citizen complaints. The dependent variable, citizen complaints, encompassed allegations of abuse, inappropriate demeanor, ethnic slurs, and unnecessary use of force.

In *The State of Police Education: Policy Direction for the 21st Century*, the authors examined policy issues facing law enforcement administrators. Data was collected via: a comprehensive literature review; a survey of 699 State, County, and municipal law enforcement agencies nationwide; and site visits to selected police departments. The authors identified patterns of behavior related to police performance and higher education. College educated officers were better communicators, more flexible and adaptive, and performed better in several key areas. Several consistent themes emerged from the comprehensive literature review:

- College-educated officers perform the tasks of policing better than their non-college counterparts;

- College-educated officers were generally better communicators, whether with a citizen, in court, or as part of a written police report;
- The college-educated officer was more flexible in dealing with difficult situations and in dealing with persons of diverse cultures, life-styles, races, and ethnicity;
- Officers with higher education were more “professional” and more dedicated to police as a career rather than as a job;
- Educated officers adapted better to organizational change and were more responsive to alternative approaches to policing;
- College-educated officers were more likely to see the role of police in relationship to the broader picture of the criminal justice system, rather than to view police more provincially as an exclusive group;
- Law enforcement agencies had fewer administrative and personnel problems with the college-educated officers compared with the non-college officer (Carter, Sapp, & Stephens, 1989).

Palombo examined the relationships between education, officer performance, and professionalism in the Los Angeles Police Department (N = 397). Palombo attempted to determine whether an officer’s educational level (some college vs. no college) influenced the probationary performance levels and subsequent professional attitudes of Los Angeles Police Department (LAPD) officers assigned to patrol. In addition, a determination was made as to whether the “educational or academic status of the officer assists in interpreting the relationship between education level, probationary performance, and professional attitudes” (Palombo, 1995). Utilizing advanced statistical methods, Palombo

developed a model to examine the relationships between higher education and professionalism. Links between officer pre-service educational level, early performance indicators, subsequent educational attainment or academic status, and the professional values of patrol officers were examined. Palumbo found as pre-service education levels increased, early performance and professional values of police officers increased as well. Upon conclusion of an extensive literature review, Palombo concluded the overwhelming majority of research conducted over the past 20 years showed that higher educational attainment by police officers did have a positive impact on their performance, values, and attitudes when compared with non-college educated officers.

In his study, Shemock (1992) analyzed police officer perceptions and professional attitudes. He produced and distributed a survey to police officers (N = 177) from both New York State and the New England region. Shemock found that higher education had a positive impact on law enforcement as officers who completed a degree were “less likely to be authoritarian, cynical, prejudiced, and intolerant.” (p. 73).

Smith and Aamodt (1997) examined the relationship between police education and performance. Police officers (N = 299) from various police departments throughout Virginia were evaluated to examine the relationship. Specifically, supervisor evaluations were used to assess each police officer’s overall performance, communication skills, public relations skills, report-writing skills, decision-making ability, response to new training, and commitment to the police agency. Results revealed significant correlations between education and most measures of performance. The only variables not significantly related to education were objective measures of the volume of arrests, the number of times the officer required discipline, and the number of accidents they were

involved in. These contemporary findings were consistent with previous research supporting the relationship between higher education and police performance. Interestingly, it was also revealed that the benefits of a college education did not become apparent until the police officers gained experience. College educated officers with at least five years of experience demonstrated the greatest competency. The opposite was true for officers with only a high school diploma, whose performance decreased after five years of experience.

Michals and Higgins (1997) examined the relationship between higher education and the performance of campus police officers. The population selected for this study included campus police officers from throughout Virginia (N = 165). The authors distributed surveys to sixteen police chiefs to assess officers' report-writing proficiency, communication skills, frequency of discipline problems, overall performance, as well as years of service and the highest level of education completed. Results revealed a positive correlation between education and supervisor ratings of report-writing proficiency and communication skills. Similar to Smith and Aamodt's findings, Michals and Higgins found five or more years of seniority and higher education to be positively correlated, however, education was not found to be a predictor of better report writing ability in police officers with less than five years of experience.

In 2007, Paoline and Terrill conducted a quantitative analysis of data collected as part of the Project on Policing Neighborhoods (POPAN) during the period of 1996-1997 (Paoline, Myers, & Worden, Police culture, individualism, and community policing: Evidence from two departments, 2000).

The POPN involved extensive data collection funded by the United States Department of Justice ten years prior to the 2007 quantitative analyses of the data by Paoline and Terrill. The purpose of the (POPN) was to provide an in-depth description of how the police and the community interact with each other in a community policing environment. Research was conducted in Indianapolis, Indiana, in 1996 and in St. Petersburg, Florida, in 1997. Several research methods were employed: systematic observation of patrol officers and patrol supervisors, in-person interviews with patrol officers and supervisors, and telephone surveys of residents in selected neighborhoods. Field researchers consisted of students from both Michigan State University and the State University of New York, who took a semester-long course in SSO and participated in ride-alongs with officers at local police departments prior to beginning observations. Field researchers participated in a ride-along program with officers and supervisors and were present during all activities and encounters with the public during the shift. Field researchers noted when various activities and encounters with the public occurred, who was involved, and what happened (Mastrofski, Parks, Worden, & Reiss, 2002).

Paoline and Terrill's study focused on encounters ($N = 3,356$) between police officers and citizens who were classified as suspects. The observational data and respective coding utilized the basic descriptors--wrongdoers, peace disturbers, or persons about whom complaints were received--to classify a citizen as a "suspect" (2007). "Verbal force" is defined in the study as verbal commands or threats, while "physical force" is defined as acts that threaten or inflict physical harm on citizens. The outcome variable, officer use of coercion (the routine use of coercion in day-to-day encounters with citizens, as opposed to the inappropriate application of force), is a multi-level

variable and defined as: no use of force; use of verbal force; or use of physical force.

Only the highest level of force used during the citizen encounter was recorded, making an analysis of the *progression* of force impossible.

McElvain and Kposowa (2008) conducted a study of officer involved shootings at the Riverside County Sheriff's Department (RCSD). RCSD is the 2nd largest Sheriff's department in California, employing over 4000 people. 74% of the deputies are assigned to patrol duties, which includes 13 cities ranging in population from 4,514 to 157,865" (Sniff, 2013). The study reviewed 186 officer-involved shootings from 1990 through 2004.

The dependent variable for this study is officer-involved shootings, defined as "those incidents wherein the deputy discharged his or her firearm while apprehending a citizen or in self-defense of another person." Multiple independent variables were examined: officer's gender; race; age; and rank. The primary independent variable, however, is officer's education level, which was divided into two categories: high school and college (McElvain & Kposowa, 2008).

McElvain and Kposowa found "college-educated officers (associate degrees or higher) were much less likely to shoot than those without college education" (p. 514). The results also conclude that "college-educated officers were more than 41% less likely to shoot than those without college education, and in general, the higher the age, the lower the risk of shooting."

In 2010, Rydberg and Terrill examined the POPN data using logistic regression. Rydberg et al. (2010) assessed the dichotomous outcome (dependent) variables of arrest/no arrest, search/no search, and use of force/no force. The primary independent

variable is the level of higher education. The researchers hypothesized that ‘level of higher education’ is inversely proportional to the probability that officers would resort to ‘arrest, search, or use of force’ during officer-suspect encounters. Rydberg et al. (2010) established three regression models and utilized a stepwise approach for the analysis. The first model included the following variables: measures of officer experience, gender, and race. The second model included: age, race, gender, and socioeconomic status, while the third model included: number of officers on scene, number of citizens on scene, whether the officer initiated the encounter with the suspect, and whether the encounter occurred in St. Petersburg or Indianapolis.

As noted by Rydberg et al. (2010), “previous examinations of the relationship between higher education and police behavior have focused on a single outcome, thereby impeding the comparability of education’s potentially differential impact on a variety of officer behavioral outcomes.” This research is distinctly different, as multivariate analyses are utilized to evaluate the influence of each dependent variable in the regression equation. Logistic regression analysis is statistically appropriate because it establishes the probability of outcomes, using combinations of dependent and independent variables.

The findings from Rydberg and Terrill’s study point out that “in contrast to arrest and search behavior, officer education level and the use of force are related at the bivariate level...” The findings also state that the probability of an officer using force in an encounter is significantly related to an officer’s education level, even when all variables are held constant. Thus more precisely, “officers with some college exposure or

a 4-year degree are significantly less likely to use force relative to non-college-educated officers.”

The Impact of Higher Education on Career Advancement

Researchers have expended a great deal of effort examining the legitimacy of higher education as an entry-level requirement for police officers. They have paid comparatively less attention to the desirability or necessity of higher education as a prerequisite for career advancement (Whetstone, 2000).

Higher education as a criteria for promotion has been a hotly contested topic among sworn law enforcement officers for decades. Some officers perceive higher education as an unnecessary threat to their career advancement, while some administrators publicize the educational achievements of their officers to improve the public image of their department. The true purpose, however, of higher education in law enforcement is to promote individuals capable of critical thought and informed decision making. To facilitate such a shift in the promotional paradigm, all departmental stakeholders must support higher education as a requirement for promotion.

Decision making is a primary function of supervisors and command staff. A college education affords an individual the ability to make better informed and more conclusive decisions. Encouraging and rewarding police officers who strive to better themselves via higher education professionalizes the officer and department.

Officer Morale

Hawley (1998) finds police officers perceive that administrators do not support increased educational attainment. Several studies examine the connection between higher education and career advancement, e.g., promotions. The consensus is that police

departments have done a poor job of valuing college education and providing promotion-based incentives for obtaining a degree (Bishop, 1993; Boesel & Fredland, 1999; Fischer, Golden, & Heininger, 1985; Molder, 1991; Rodriguez, 1995).

College-educated officers must compete with non-college educated officers for a finite number of promotional vacancies. Research has shown that promoting those without higher education, especially where organizational standards are in place, creates an atmosphere that undermines the organization and lowers morale. Compounding the problem is the common perception among college-educated police officers that less educated, less qualified individuals are prematurely transferred to premium assignments or promoted over others that are more deserving. Officers perceive such moves as being motivated by affirmative action, nepotism, favoritism or politics (Beaver, 2014).

A study conducted by Sherman and Bennis (1977) illustrates the severity of the problem. They found college educated officers' rate of absenteeism increased sharply upon being passed over for promotion in favor of their non-college educated counterparts. In extreme cases, some officers resigned altogether (Repetto, 1979).

Other scholars, however, contend that education can be counterproductive to success for different reasons (Buracker, 1979; Dale, 1994; Dantzker, 1993; Tafoya, 1990; Varricchio, 1998). They suggest a better-educated police department may experience a higher turnover rate due to the autocratic nature of the occupation, conflicts with management, relatively low pay, and lack of intellectual stimulation (Whetstone, 2001). This negative relationship between education level and attitudes also causes many dissatisfied officers to leave policing (Kakar, 1998). Another factor contributing to the high turnover rate is departmental indifference to higher education, manifest primarily as

a lack of promotion-based incentives for obtaining a degree. Research indicates that a potential approach to lessen the high turnover rate and enhance job satisfaction among officers involves demonstrating a greater commitment to college-educated officers by providing accelerated promotional and lateral transfer opportunities, advanced training opportunities, annual lump-sum payments, and tuition reimbursement (Whetstone, 2001; Dantzker, 1993; Swanson, 1977).

The intangible nature of morale often makes it difficult to identify. While scores of researchers have examined the concept of morale, it remains a rather ambiguous term. Merriam-Webster defines morale as “the level of individual psychological well-being based on such factors as a sense of purpose and confidence in the future.” In other words, Morale is defined as a state of mind in which men and women voluntarily seek to develop and apply their full powers to the task in which they are engaged (Whetstone, 2000). Other scholars contend that morale is a state of mind existing among the members of a group, stimulating them to the highest achievement in the attainment of a worthy objective. For purposes of this study, “highest achievement” is synonymous with being promoted.

Kakar (1998) examined the relationship between morale and college-educated officers in his case study of police departments in Metropolitan Dade County (greater Miami area). The participating police officers (n = 134) were given a self-report survey that determined officer performance and satisfaction. These surveys revealed college-educated officers rated themselves significantly higher on several categories involving stress, changing work conditions, and acceptance of criticism. These college educated officers, however, rated the lowest when asked about attitudes toward their assignment

and the department. This finding supports earlier research and suggests that officers with higher education do not feel their education is appreciated.

Varricchio (1998) also found “college-educated officers [working for departments that failed to incentivize higher education] will quickly tire of the irregular hours, constant pressures, and relatively low pay of policing” (p. 19).

While it is difficult to argue against the benefit of creating a more educated police department, many scholars caution that such a policy would produce a new set of challenges that could affect individual morale. Dantzker’s (1993) study focusing on job satisfaction supports the suggestion that college educated patrol officers become less satisfied with their assignments after five years on the job, noting an inverse relationship between job satisfaction and level of education.

It is interesting to note the population sampled in this study, the New Jersey State Police, requires a minimum of seven years of service before Troopers are eligible for promotion. It should also be noted that all Troopers begin their careers on the road (patrol).

The value of a college educated police officer on the municipal or state level continues to provoke spirited discussion. However, on the federal level, the value of a college educated officer was made clear decades ago when the Federal Bureau of Investigation and the United States Secret Service began requiring a baccalaureate degree for entry as a Special Agent (Saunders, 2001). Almost all federal law-enforcement agencies currently require a bachelor’s degree for entry, including: the Drug Enforcement Administration; Federal Bureau of Investigation; US Secret Service; Bureau of Alcohol Tobacco Firearms and Explosives; Central Intelligence Agency; Federal Bureau of

Prisons; and the US Marshals Service (U.S. Office of Personnel Management, 2014).

This list is not all-inclusive.

A 1985 study examining the value of education as it relates to the progress educated officers have made within the ranks of police departments in the state of Illinois indicated that the majority of veteran police officers, particularly those with a college education, strive for promotion but are frustrated when they are not able to achieve it (Fischer, Golden, & Heininger, 1985). This may be a factor in another finding, which indicates that a sizable group of subjects reported the strong opinion that promotion within the police service is based on politics, not on merit, proficiency, or education. In “surprisingly bitter and angry comments,” dozens and dozens of officers conveyed that perception, leading the researchers to the conclusion that, however objective and impersonal police evaluation and promotion processes may be, they have a built-in perception problem that seems to be capable of causing morale problems of enormous proportions (p. 331).

In her study of the Oakland, California and Detroit, Michigan police departments, Buzawa’s (1984) findings were consistent with similar studies. She found lack of promotional opportunity was consistently associated with dissatisfaction among college-educated police officers. Numerous officers expressed the belief that apathetic management and the rigid nature of their departments prevented them from advancing their careers.

Forsyth and Copes (1994) also found that advancement had a significant impact on police officer morale. Perhaps not surprisingly, their research showed that officers

who were dissatisfied at their present rank often quickly changed their attitudes as advancement took place.

Despite the lack of promotional opportunity, Swanson (1977) discovered college-educated police officers often find great intrinsic satisfaction with the job early in their careers. It is in the lack of status associated with uniformed (patrol) work that the principal source of dissatisfaction is to be found. Officers opined “to work in the uniformed division is to labor in the pit with the failures, who will never be promoted” (p. 317). To help alleviate this problem, departments lacking promotional vacancies or experiencing budgetary shortfalls can still demonstrate their commitment to higher education by offering college-educated officers a streamlined path to plain clothes assignments with Monday to Friday, 9 to 5 schedules.

In addition to low morale, college-educated officers expressed contempt towards supervisors and the chain of command. Hudzick (1978) posited that degreed officers tended to minimize obedience to less educated supervisors, adhere less frequently to the chain of command, and tended to express less satisfaction with their careers.

Officer Motivation

Officers who participate in the promotional process generally do so to fulfill a personal goal or to avail themselves of further career opportunities. These exam participants resemble the high achievers (n-ach) McClelland (1988) described in his theory of achievement motivation. Achievement oriented people are driven to set challenging goals for themselves, assume personal responsibility for accomplishment and take calculated risks for achieving these goals. They are very effective in leading task oriented groups and thrive in situations where the task and their role are clearly defined.

The more specific the task, the better the result. High achievers also love instant feedback and incorporate same in fine-tuning themselves and their performance. Simply put, they love to achieve and to measure their achievement (Leverington, 2012).

The notion of job satisfaction has been linked not only to police officers' overall satisfaction with their job functions but also to whether or not higher education is a predictive factor in promotion. The literature suggests that higher education is not necessarily a 'straight shot' to promotion. Carter, Sapp and Stephens (1989) suggest that education may be a consideration in some promotions but there are few guarantees.

Focusing on police chief promotions, Penegor and Peak (1992) discovered education may be more of a predictive factor when police chiefs are appointed from outside the department, but not when chiefs are promoted from within. Buckley, McGinnis and Petrunik (1992) found that education was more related to the perception of promotion practices and that officers with higher education placed a higher value on education as a promotional factor. In addition, those with college degrees expected to retire at a higher rank than those without. Furthermore, they found that the primary motivation for taking college courses was for promotion.

Truxillo, Bennett, and Collins (1998) conducted a ten-year study of officers from a "southern, metropolitan police department" (p. 271), originally hired between 1980 and 1982, and who remained employed for at least ten years. They found statistical relationships between college education and promotion, and college education and performance evaluations. They suggest that education and promotion could be related in several possible ways. First, the individual motivation for educational achievement may be the same as for promotions. Second, skills such as studying and test-taking may be

more finely-tuned in officers with a college background. Third, the authors argue that “college education instills a higher degree of professionalism and maturity that is needed and valued at higher organizational levels” (p. 275).

Polk and Armstrong (2001) found that higher education reduces the time required for movement in rank and assignment to specialized positions, and was positively correlated to promotion. Their findings imply that higher education will enhance an officer’s probability of rising to the top regardless of whether the agency requires a college degree as a precondition of employment.

Truxillo et al. (1998), also sought to find a correlation between education and job performance for a period when education was achieved after commencing police employment. It was done that way so it could “measure criteria such as promotion” (p. 269). Education measures studied included “grade point average, degree achieved, and college major ... [with consideration given to] supervisory performance ratings, promotion, and salary” (p. 269). They concluded “although empirical relationships have been found between education and police job performance, these relationships have generally been weak” (p. 270). With the exception of “grade point average no clear pattern of relationship emerged between education measures and job performance” (p. 269). Statistically significant positive correlations ($P \leq .05$), however, were found between three of the four measures of educational background and rank (promotion).

The value of higher education in the promotional process was also examined by Dezelan (1994), showing its subjective components and its relationship to promotional exam results. He found that higher education had a statistically significant positive relationship ($P \leq .05$) with exam results, seniority, and attendance. Dezelan (1994) also

suggested that if police officers knew that educational pursuits would be credited toward promotions, they would be more likely to return to college.

Promotion Policy

Despite research indicating the significance of higher education in police service, relatively few agencies link promotion and education. In a study sponsored by the Police Executive Research Forum (PERF; Carter, Sapp, & Stephens, 1989), 74.3% of departments surveyed lacked policies requiring college education for promotion. Only 8% of the agencies had formal written policies for college hours, 4.7% had a written policy for college degrees, 4.3% had early promotion eligibility, 2.9% had an informal policy for college hours, and 1.2% had an informal policy for college degrees. Even though many departments indicated there was no informal policy, their promotional practices indicated otherwise. Officers lacking college credits were promoted at a much lower rate. Carter et al. remarked on how difficult it was to explain the difference between the opinions of various national commissions that higher-education is critical to the law enforcement profession, and the low number of agencies that have a formal policy requiring college education for entry or promotion. They suggested one explanation may be administrative reluctance to put concrete promotional requirements in place that will restrict the ability to advance less-educated officers.

A recent study of law enforcement agencies in Minnesota and Arizona indicate little progress has been made in the 24 years since the PERF-sponsored study. Hilal and Densley (2013) found 48 percent of respondents identified career advancement as the main reason for obtaining a college degree, yet only 13 percent acknowledged that their agencies required at least a bachelor's degree to be promoted to sergeant, 18 percent

stated it was essential for lieutenant, 21 percent for captain or commander, and 23 percent indicated that the degree was necessary for chief or sheriff.

The PERF study made several policy recommendations linking higher education to promotion in the field of law enforcement:

1. “Policies should be developed to establish higher education requirements for promotion within police departments. Promotion to the rank of sergeant should initially require a minimum of 60 credits, promotion to middle-management positions [SFC, LT, Captain] should require a four year degree, and promotion to command level positions [Major, LTC, Colonel] should require a graduate degree;
2. Credits should have a minimum grade average of a C and be awarded from a college or university that is fully accredited by a regional accrediting organization. All college credit should be in pursuit of a degree and consistent with a valid degree plan at the institution attended;
3. Graduate degrees for command personnel should have substantive course work reflecting management issues and skills” (Carter, Sapp, & Stephens, 1989, p. xxv).

Seniority Rights

Seniority. Seniority is defined as:

1. The quality or state of being senior;
2. A privileged status attained by length of continuous service;
3. The state of having a higher rank than another person;

4. The amount of time you have worked at a job or for a company compared to other employees (Merriam-Webster).

The definitions associate seniority with enhanced status and elevated rank.

Typically applied in the workplace, seniority entails a system of employment preference based on length of service. Seniority may play a role in an employee's job security, career advancement (promotions), shift preference, fringe benefits, etc.

According to Block (2014), there are two basic types of seniority: competitive status seniority; and benefits seniority. Competitive status seniority refers to "an employee grouping that corresponds to all or part of the employer organization that is the basis for applying length of service" (p. 6). For example, an individual who became a police officer in 1997 and was transferred to the detective bureau in 2010 would have sixteen years of seniority with the department but only four years seniority in the detective bureau. Competitive status seniority can affect an employee's job security in the face of layoffs, likelihood of promotion and transfer, shift selection, training opportunities, and "entitlement to other scarce benefits among competing employees" (Zimmer, 1980, p. 80).

Benefits seniority generally applies to the accrual of leave, time towards retirement and longevity pay, if applicable. Benefits seniority is calculated based strictly on the total number of continuous service hours of an employee, without regard to the status of other employees (p. 80).

The existing research on workplace seniority utilizes the terms 'seniority' and 'competitive status seniority' interchangeably. I was unable to locate any studies examining benefits seniority, most likely due to the fact it is calculated independent of

co-workers. As a result, the term 'seniority' in this study will refer only to competitive status seniority.

Seniority systems. On July 2, 1964, President Lyndon B. Johnson signed Public Law 88-352 (78 Stat. 241), cited as the Civil Rights Act of 1964. The Civil Rights Act of 1964 is the nation's benchmark civil rights legislation, prohibiting discrimination on the basis of race, color, religion, sex or national origin. Title VII of the Civil Rights Act prohibits employment discrimination based on race, color, religion, sex and national origin, yet provides a special exemption for seniority systems. The prevalence of seniority systems in the United States makes the interpretation of the seniority exemption very important to those who support their use. The inclusion of the seniority exemption also served to validate seniority systems and their place in the American workforce.

One of the most effective ways of managing and controlling employee morale is through the allocation of rewards and resources (Schein, 1992). Seniority is one of the most salient characteristics of employees that organizations use to discriminate and differentiate among its members (Montepare & Zebrowitz, 1998). As a result, organizations are likely to factor seniority into their reward allocation process (Rusbult, Insko, & Lin, 1995).

Insko et al. (1982) were the first to demonstrate the importance of seniority effects in organizational settings. They found three reasons why seniority rules in organizations might develop:

1. First, seniority ensures that the most experienced members will be selected and retained;

2. Second, rewarding seniority ensures tenured members with a high degree of social familiarity are retained;
3. Third, seniority is likely to reduce conflict because it allows all members potential access to higher positions (p. 561).

According to Fischer, public organizations are more likely to consider seniority. “Rewarding seniority is likely to reinforce and maintain organizational cultures and structure in traditionally bureaucratic public sector organizations. Organizations concerned with maintaining stability and reducing anxiety and uncertainty are more likely to use seniority when deciding over pay raises, promotions and dismissals” (2004, p. 10). The desire to maintain organizational stability and predictability, however, by rewarding seniority might not provide a competitive advantage in environments that require initiative and innovation.

Seniority systems were borne out of early collective bargaining efforts. They were implemented to negate capricious management practices and to protect workers from being treated in an arbitrary fashion. As it stands today, however, law enforcement seniority systems are controversial and can have a negative effect on officer performance and morale (Walleman, 2010). Recent collective bargaining efforts have resulted in officer seniority becoming the dominant factor affecting pay increases, shift selection, vacation selection, specialist assignments, and promotions.

Adams’ Equity Theory states that a perceived inequity can develop when workers feel the rewards they receive for their efforts are not equal to others’ performance and rewards (Adams, 1965). A seniority-based environment has the potential to effectively homogenize a police department, sending the message one need not perform at a high

level to be promoted, one simply has to “remain in the group long enough to eventually reap the benefits accruing to senior members” (Rusbult, Insko, & Lin, 1995, p. 26). This can create the perception of inequity between junior and senior officers which, in turn, can result in junior officers decreasing their efforts to equalize the perceived inequity. Bearing in mind the overwhelming majority of police officers are self-motivated, ideal-driven, Type-A personalities this is especially troubling.

Seniority systems are interwoven into the very fabric of police culture. These practices have become a part of the occupation’s traditions and customs and their acceptance, particularly among senior non-supervisory members, remains high. To move away from seniority systems as the chief measure of an officer’s worth would require a high degree of trust and cooperation from all levels of the organization. Soliciting input from officers and keeping them ‘in the loop’ will hasten their acceptance of significant changes (Gaines, Southerland, & Angell, 1991). On the reticence of police departments to tackle such a formidable task, Walleman states, “It is much easier to live with the inadequacies of the status quo than it is to embark on change that is new to all concerned. Individuals are inclined to resist change out of fear of the unknown, even when the changes may be beneficial to everyone. Law enforcement is particularly susceptible to this phenomenon” (pp. 34,35).

An alternative to seniority systems are those based on merit. Merit-based systems can provide motivation leading to increased productivity. Officers who observe their college-educated, high-performing counterparts being promoted may put forth the extra effort they believe it takes to receive similar treatment.

All officers possess varying levels of skills and abilities, and a merit-based program rewards those who may have the most to offer the organization in the long run. While senior officers possess greater experience, which is extremely important on the job and is not to be diminished, it does not necessarily equate with supervisory ability. A college-educated junior officer possessing a greater ability to analyze, assess, and think critically under pressure may be more likely to emerge as an effective supervisor than a less-educated senior officer (Joseph, 2014).

Empirical Research

Polk and Armstrong (2001) analyzed data from the Texas Career Paths in Law Enforcement Research Project to determine the effects higher education has had on the career paths of those Texas law enforcement officers holding advanced or specialized positions ($n = 5323$). Their quantitative study examined historical data in an attempt to determine if career progression is patterned and influenced by higher education.

It was determined, through multiple linear regression, in the larger agencies, education ($\beta = 0.33$) was a stronger indicator of rank than experience ($\beta = 0.28$). Overall, however, the current level of education was the second best predictor of rank in the regression analysis with experience being the best.

The strongest measure of association was between rank and experience, with the current level of education having the next highest measure. Those respondents completing college or graduate work were much more likely to hold positions as commanders or supervisors while those currently with high school or less were much more likely to hold an officer position.

The analysis of rank categories showed that those respondents holding the highest (current education) and lowest (education at time of employment) levels of education were most likely to hold command rank while those in the middle were more likely to hold supervisory positions. Of those respondents who had completed some graduate work, 31.4 percent held command positions. Of those who had completed the bachelor's degree, 44.4 percent held supervisory positions.

An anomaly observed in the data analysis is that of those who held a high school education or less at the time of employment, 15.0 percent held command positions compared to only 16.0 percent of those who had completed graduate work. The effect of the anomaly is lessened by the observation that 31.4% of those respondents who entered employment with an education of high school or less eventually earned graduate degrees.

The above findings were corroborated by the regression analysis of rank which showed current level of education to be a statistically significant indicator of rank ($p < .01$). The analysis of means also showed respondents moving through their career paths at an accelerated pace as their level of current education increased through the category of 'having completed some graduate work.'

In his qualitative study of Michigan police officers ($n = 660$), Walleman (2010) examined the relationship between police seniority practices and the effect these practices have on morale and police officer performance, via the administration of a 34-question survey.

The purpose of the study was to investigate officer perceptions regarding seniority-rights practices as the dominant factor affecting departmental operations and career advancement.

Walleman asked three research questions:

1. What are officers' personal feelings and attitudes towards seniority rights;
2. Do officers prefer to advance their careers through personal efforts or have advancement based on their seniority;
3. Would officers be in favor of changing from seniority rights to a merit-based system? (p. 33).

The author advised the data obtained in his study were analyzed through the use of descriptive statistics, however, he fails to report the exact methods used and their outcomes i.e., Beta values, statistical significance, etc. The author presented his findings in narrative form.

This study shows seniority rights remain an integral component at the police agencies surveyed. The author believes the data acquired are indicative of other police agencies that operate under a similar paradigm.

Each one of the eight participating departments indicated seniority was a major determinant for pay scale, shift and vacation selection, lateral transfers, and promotional outcomes.

The responses to the questions indicate the officers surveyed are willing to concede pay scale and shift and vacation selection to seniority rights. When asked if a superior-performing junior officer should be paid more than a sub-performing senior officer, 75.2 percent answered "no." In addition, the same was asked for shift and vacation selection, with the respondents answering "no" at 85.9 percent and 91.7 percent, respectively. These percentages indicate a high level of acceptance for seniority rights with regard to these concerns.

When asked about career advancement through lateral transfer and promotional opportunities, 86.5 percent of the officers stated they would prefer their performance to be more influential than their seniority. Officers were also asked to determine what lengths the respondents would go to in order to benefit their careers if they knew their efforts would have a positive effect on their goals. The majority, 66.1 percent, indicated that they would voluntarily increase their levels of productivity; 80.7 percent, their education; 86.9 percent, their training; and 55 percent, their community-volunteer involvement. These results illustrate the importance police officers place on the ability to exercise some measure of control over their careers.

Seniority rights remain a dominant standard for the determination of officer pay scale, shift selection, vacation selection, lateral transfer, and promotional ranking within the eight police departments that participated in this research. Overall, 78.6 percent of the responding officers stated they felt the seniority practices of their department were fair, indicating tacit acceptance.

As the questions asked became more specific, however, the data revealed areas (e.g., career advancement) in which the majority of the respondents did not favor seniority over performance.

A large number of the respondents indicated frustration over seniority rights, and a majority felt that resentment over these rights had developed between junior and senior officers. Also, in certain cases, a lack of trust was uncovered between management and line officers. A number of officers felt unequal treatment existed and that management did not have their best interests at heart (Walleman, 2010).

Fischer and Smith (2004) investigated whether employees in organizations in former East Germany (n = 184) and the United Kingdom (n = 150) preferred allocation of rewards (e.g., promotions) based on either the performance of the individual or their seniority.

The study is based on Schwartz's theory of basic human value, in which he identifies "ten motivationally distinct types of values":

1. Self-Direction;
2. Stimulation;
3. Hedonism;
4. Achievement;
5. Power;
6. Security;
7. Conformity;
8. Tradition;
9. Benevolence;
10. Universalism (Schwartz, 2012, pp. 3-7).

Values are defined as "desirable, trans-situational goals, varying in importance that serves as guiding principles in people's lives" (Schwartz, 2005, p. 1).

Schwartz's theory suggests that there is an organization of human motivations that spans all cultures but, although the nature of these values and their structure may be universal, individuals and groups differ substantially in the relative importance they attribute to the values. That is, individuals and groups have different value "priorities" or "hierarchies."

In addition to identifying ten basic values, Schwartz's theory explicates the structure of dynamic relations among them. One basis of the value structure is the fact that actions in pursuit of any value have consequences that conflict with some values but are congruent with others (Fischer & Smith, Values and Organizational Justice: Performance- and Seniority-Based Allocation Criteria in the United Kingdom and Germany, 2004). For example, pursuing achievement values typically conflicts with pursuing benevolence values. Seeking success for self tends to obstruct actions aimed at enhancing the welfare of others who need one's help. Pursuing both achievement and power values, however, is usually compatible. Seeking personal success for oneself tends to strengthen and to be strengthened by actions aimed at enhancing one's own social position and authority over others. Schwartz illustrates the conflict and congruence among the basic values by organizing them along two bipolar dimensions: openness to change vs. conservation values; and self-enhancement vs. self-transcendence values (see Figure 1).

Tyler and Lind's relational model of authority proposes that individuals care about justice because experienced justice communicates information about the relationship between individuals and the authorities in charge. Authorities decide which criteria will be used to allocate rewards in organizations. Individuals will evaluate these criteria in terms of their perceived fairness and the implications for their standing and recognition within their work group. The criteria that are used, therefore, communicate to individuals what value individual employees have within their organization. Depending on their own value structure and their related aspirations and goals, individuals will arrive at different conclusions about their recognition, standing, and trust by management. Thus,

the perception of justice is an interaction between the actions of authorities and individuals' values (Tyler & Lind, 1992).

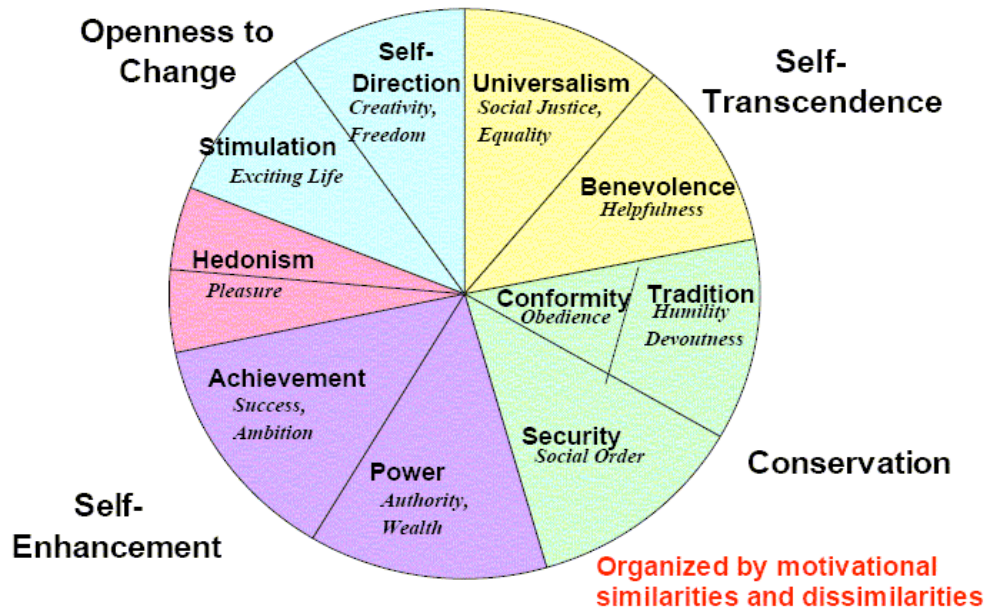


Figure 1. Conflict and congruence among values. From *Basic Human Values: An Overview* (p. 3), by S. H. Schwartz, 2005, Jerusalem: The University of Jerusalem.

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Self-Enhancement Versus Self-Transcendence

Employees valuing self-enhancement would try to advance fast and on their own merit. Rewarding productive employees indicates that an organization values those who contribute to organizational success, and reinforces the notion that recognition within the organization is achieved by showing higher performance. Because self-enhancement values emphasize striving for success and recognition, people emphasizing such values are also likely to favor performance-related allocation principles. These highly motivated employees “see seniority-based allocation as a slow and frustrating way of achieving superiority, and as less just because it does not serve their goal of achieving success by

demonstrating superior performance” (Fischer & Smith, Values and Organizational Justice: Performance- and Seniority-Based Allocation Criteria in the United Kingdom and Germany, 2004, p. 672).

Openness to Change Versus Conservation

Conservation values focus on concerns about tradition, security, and conformity. Openness to change entails a preference for hedonism, stimulation, and self-direction. Individuals endorsing traditional values are not concerned with justice and, therefore, would not attend to allocation procedures to evaluate their standing and recognition within their group (Fischer & Smith, Values and Organizational Justice: Performance- and Seniority-Based Allocation Criteria in the United Kingdom and Germany, 2004; Lind, Tyler, & Huo, 1997). As a result, openness values could lead to a stronger emphasis on justice in general. Openness to change is closely related to modernity, whereas conservation is opposed to it. Therefore, it could be that the relationship between work performance and perceived fairness is weaker for those with conservation values and stronger for those endorsing openness to change.

The authors performed separate moderated multiple regressions for each possible moderation effect for each justice principle, resulting in a total of four regressions.

One of the author’s hypotheses stated that self-enhancement would strengthen the link between work performance and justice. The corresponding interaction effect was significant and in line with the hypothesis. Individuals who valued self-enhancement more than self-transcendence reported higher fairness scores and reacted more positively if their organization allocated rewards according to work performance.

Peer-Reviewed New Jersey State Police Population Studies

Throughout the course of this literature review, I was unsuccessful in locating quantitative research whose design, methodology and population sampling were sufficiently equivalent to this study to enable a direct comparison. I did, however, locate six studies in the ProQuest Dissertations & Theses Full Text database examining the role of “Higher Education” in the New Jersey State Police. Each study selected enlisted members of the New Jersey State Police as the population sample. The largest population sample among the six studies, $n = 997$, accounted for approximately 17.74% of the total enlisted population at the time (Hoptay Jr, 2007). Researchers selected participants via one of the following methods: probability sampling; non-probability sampling, through the use of archival data provided by the New Jersey State Police; or accessed via publicly available databases. Research questions, conclusions and findings pertinent to this study are also highlighted.

Gerding’s quantitative study ($n = 89$) utilized data acquired from the New Jersey State Police’s internal affairs entity, the Office of Professional Standards (OPS), and examined the relationship between higher education and police misconduct via analysis of OPS records (Gerding, 2007). Gerding hypothesized “the number of sustained allegations of acts of police misconduct, both criminal and egregious administrative, will be less for those officers possessing higher levels of education at the time of the commission of the act” (p. 11).

Gerding’s findings led him to retain the null hypothesis, concluding “there were no statistically significant differences in the rates of substantiated allegations between officers having a baccalaureate degree or higher and those without a degree (p. 91).

Hoptay's quantitative study (n = 997) also utilized data acquired from the Office of Professional Standards (Hoptay Jr, 2007). The purpose of Hoptay's study was to explore "the influence of the 1999 Consent Decree on the level of professionalism demonstrated by enlisted members of the New Jersey State Police in the performance of their respective duties, as related to the number of OPS investigations classified as substantiated" (p. 59).

On December 30, 1999 the New Jersey State Police and United States Department of Justice entered into a Consent Decree based on allegations "that State Police troopers engage in a pattern or practice of conduct that deprives persons of rights, privileges, or immunities secured or protected by the Constitution and laws of the United States...by improperly using race to target minority drivers and passengers" (Joint Application for Entry of Consent Decree, 1999, p. 1).

Hoptay ultimately concluded "the increase in the number of substantiated OPS complaints is not statistically significant, [therefore] the 1999 Consent Decree had no significant influence on the number of substantiated internal affairs complaints/reportable incidents" (pp. 78,79). He further concluded "The overall influence, impact, and implications of higher education on levels of professionalism in the New Jersey State Police are clearly positive (p. 86).

Royster stated research goal was "to determine to what extent the New Jersey State Police education promotion policy has affected the attitudes of retired African-American State Troopers (p. 10). Utilizing qualitative data analysis software, Royster analyzed the responses of retired African-American (n = 10) and Caucasian (n = 4) State

Troopers regarding the New Jersey State Police education promotion policy, SOP C-58: Educational Standards for Promotion (Royster, 2007).

The retired African-American State Troopers reported SOP C-58 had a significant impact on their careers in different ways. All respondents reported valuing higher education on a personal and professional level. Six of the ten retired African-American State Troopers advised untimely implementation of the policy was most problematic for them.

Ultimately, all ten of the retired African-American State Troopers stated SOP C-58 would have a disparate impact on their careers, however, six of the ten retired African-American State Troopers viewed the education promotion policy as a path to professionalizing the New Jersey State Police (p. 123). All respondents advised their educational credentials were not recognized while they were in the New Jersey State Police, but were acknowledged once they retired.

Lynskey examined the relationship between higher education and organizational rewards via survey research and statistical analysis (n = 344; Lynskey, 2001). Lynskey defined organizational rewards as specialist selection and promotion.

The purpose of Lynskey's mixed-methods study was to "investigate" the perceptions of New Jersey State Police college graduates of the following topics: "the relationship between higher education and specialist selection inside of the organization; the relationship between higher education and promotion inside of the organization; the relationship between higher education and early retirement from the active ranks of the organization; and the relationship between higher education and other variables, such as

pension, training and experience, and early retirement from the ranks of the organization” (p. 14).

Lynskey’s sample population ranged in seniority from 18 months to 33 years ($M = 14.0$, $SD = 7.9$). 56.1% of the sample were non-supervisory personnel (Troopers, Trooper II/I), 32.6% represented NCOs (Sergeant, Sergeant First Class), and 11.3% were commissioned officers (Lieutenant, Captain, and Major). Respondent’s ages ranged from 25 to 54 years of age ($M = 39.32$, $SD = 6.72$).

Using a five-level Likert scale as a guide, participants were asked to respond to the following statements:

1. “When I became a member of the New Jersey State Police, my perception was that higher education was very important to the organization when selecting individuals for Promotions”;
2. “Now that I have been a member of the New Jersey State Police for a number of years, my perception is that higher education is very important to the organization when selecting individuals for promotions” (pp. 67,68).

61.6% of respondents to statement one disagreed/strongly disagreed with the statement, while 32% agreed/strongly agreed education was important to the organization as a qualification for promotions (6.4% undecided; p. 67).

The importance of higher education as a requirement for promotion increased as respondents’ gained more time on the job. 49.7% disagreed with statement two, a decrease of 11.2% over initial perceptions, and those supporting higher education totaled 39.5% of the sample, an increase of 7.5%. Interestingly, undecided respondents increased by 4.4%, to 10.8% (p. 68). Lynskey also analyzed survey responses via one-way analysis

of variance (ANOVA) by age and discovered a statistically significant difference between groups ($F(29, 314) = 1.622, p = .025$). A majority of respondents in their mid-twenties mostly agreed, while respondents in their thirties, forties and fifties generally disagree with statement #2 (p. 82).

Lynskey concluded active members of the New Jersey State Police believed higher education was important as a promotional consideration, although most members voicing this opinion were low-ranking junior members.

The purpose of Cipolla's quantitative study was to determine the extent to which a relationship exists between the education of New Jersey State Police enlisted members and job satisfaction ($n = 468$). Cipolla hypothesized "No significant differences in job satisfaction (facets and overall job satisfaction) exist between New Jersey State Police enlisted members with different education levels (high school diplomas, associate degrees, bachelor degrees, and graduate degrees) and different ranks (Troopers and Detectives including grades I and II, non-commissioned officers, and superior officers) when controlling for the effects of age and tenure (Cipolla, 1996, pp. 4,5).

Cipolla collected data from the sample population via two testing instruments that "possess good content validity, impressive construct validity, and adequate reliability" (Mitchell Jr., 1985, p. 755); the Job Descriptive Index (JDI) and the Job in General (JIG) scales. The JDI is comprised of 72 items and measures five distinct dimensions, or facets, of job satisfaction independently. The purpose behind analyzing each facet separately was to enable researchers to pinpoint more easily and more effectively both strong and weak areas within organizations (Ironson, Smith, Brannick, Gibson, & Paul, 1989). The five facets measured by the JDI are: satisfaction with work itself, satisfaction with pay,

satisfaction with promotions, satisfaction with supervision, and satisfaction with coworkers (Cipolla, 1996).

The JIG, which is to be administered directly after the JDI, measures overall job satisfaction and is not limited to the five areas measured by the JDI. According to Ironson et al., the JIG can be utilized by researchers who attempt to determine the overall effectiveness of an organization (1989).

Cipolla initially examined participant's responses via univariate analysis of covariance (ANCOVA), which is the preferred statistical method for explaining the effect of independent variable(s) on a single dependent variable while allowing for the statistical control of one or more extraneous variables, known as covariates (Hinkle, Wiersma, & Jurs, 2003). Statistically controlling for the variation attributed to the covariate increases precision by reducing the error variance (p. 497). Cipolla then examined the data via multivariate analysis of covariance (MANCOVA), which is the preferred statistical method for explaining the effect of independent variable(s) on multiple dependent variables that are correlated at a "low or moderate level" (Leech, Barrett, & Morgan, 2011, p. 194).

The covariate analyses indicated age did not covary with education level and rank, but did covary with tenure. As a result, the MANCOVA analysis was conducted controlling for the effects of tenure.

Cipolla's analysis revealed the main effect of rank demonstrated statistically significant group differences on: satisfaction with work ($F(2, 456) = 29.73, p = .001$); satisfaction with promotional opportunities ($F(2, 456) = 8.80, p < .001$); satisfaction with

supervision ($F(2, 456) = 3.53, p < .03$); satisfaction with people ($F(2, 456) = 6.22, p < .002$); and satisfaction with the job in general ($F(2, 456) = 8.80, p < .001$; Cipolla, 1996).

Cipolla concluded “college educated New Jersey State Police enlisted members appeared to be satisfied with their jobs” (p. 100) Statistical analysis revealed statistically significant differences in the levels of job satisfaction when grouping subjects by rank. Cipolla also concluded Troopers who were dissatisfied while occupying the lower ranks in the organization changed their views as they ascended in rank.

Heinrich examined the relationship between higher education and career advancement via survey research and statistical analysis ($n = 166$; Heinrich III, 2000). Heinrich defined career advancement as promotion to the next higher rank.

The purpose of Heinrich’s mixed-methods study was to “identify perceptions of active New Jersey State Police members regarding the relationship between participation in higher education programs and career advancement” (Heinrich III, 2000, p. 10).

Heinrich’s sample population ranged in seniority from 18 months to just under 32 years ($M = 18.3, SD = 6.43$). 27.7% of the sample were non-supervisory personnel (Troopers, Trooper II/I), 44.6% represented NCOs (Sergeant, Sergeant First Class), and 27.7% were commissioned officers (Lieutenant, Captain, and Major). Respondents ranged in age from 29 to 54 years old ($M = 42.55, SD = 5.59$).

Using a five-level Likert scale as a guide, participants were asked to respond to the following statements:

1. “Before I began my advanced degree program, my perception was that it would help me get promoted”;

2. “After I completed my advanced degree program, my perception was that it would still help me get promoted” (p. 9).

Prior to beginning an advanced degree program, 19.2% of respondents to statement one disagree/strongly disagree, while 68.1% agree/strongly agree (12.7% undecided). A sizeable majority felt an advanced degree would enhance the likelihood of being promoted.

Upon completion of an advanced degree program, 57.9% still believed their degree would increase the likelihood of being promoted, a decrease of 10.2%, while 24.1% disagreed, an increase of 4.9%. The percentage of undecided respondents increased to 18.1%.

Answers to the following subsidiary questions were provided via statistical analysis:

1. Is there a statistical significance regarding age and its relationship to advancement and higher education?
2. Is there a statistical significance regarding tenure and its relationship to advancement and higher education?
3. Is there a statistical significance regarding rank and its relationship to advancement and higher education?
4. Is there a statistical significance regarding longevity and its relationship to advancement and higher education? (p. 9).

Heinrich also analyzed survey responses via one-way analysis of variance (ANOVA) by seniority, age, rank, and longevity. Out of 56 possible combinations, only three statistically significant results were observed. Two statistically significant

relationships existed between rank and: “knowledge gained that will help subjects throughout their careers” ($F(5, 160) = 2.295, p = .048$); and “increased job satisfaction within the organization” ($F(5, 160) = 5.995, p < .001$). One statistically significant relationship existed between longevity and “obtaining a better second career after completing the advanced degree program” ($F(74, 91) = 1.645, p = .012$; pp. 84, 86).

Heinrich concluded enlisted members of the New Jersey State Police believe an advanced degree is important for obtaining information that will assist them in life, obtaining a better second career, and benefiting the organization. Advancement through the ranks of the organization appeared to be a secondary reason for obtaining an advanced degree in that the respondents, as in Lynskey’s study, perceived politics as the major factor in promotions (p. 94).

Conclusion

The movement to professionalize law enforcement, and require higher education for police officers, is rooted in the works of August Vollmer and his contemporaries and has been recommended by every government sanctioned panel assembled since the Wickersham Commission (Strecher, 1988). A National Institute of Health (NIH) study even recommended a master’s degree for new police officers (Bittner, 1975).

Decades of empirical research on the value of higher education in law enforcement have been inconclusive but the overwhelming majority of studies lean in favor of college having a positive impact on sworn personnel. Empirical evidence points to the conclusions that, on average, college educated police officers display the following traits: less cynicism; less authoritarianism; less attrition; fewer disciplinary problems;

more local pride in the police department; fewer sick days; and higher academic performance (Fullerton, 2002).

The high school diploma and GED have essentially been replaced by a college degree as the above-average level of educational attainment in the United States and, as many authorities have pointed out, is the mark of professional qualification (Roberg & Bonn, 1974; Mayo, 2006). It is reasonable to assume, then, an occupation purporting to be a profession would mandate a college degree as a minimum qualification.

The measure of success in most traditional professions can be defined in several ways; salary, status, a bonus, a personal secretary, a company car, or an office with a view. In law enforcement the trappings of success are tied to an officer's rank and time in grade. Some of the benefits of higher rank include; higher salary, take home car, straight shift with weekends and holidays off, and elite assignments. Promotions, therefore, are very competitive and highly sought after.

Despite several studies indicating there is a clear-cut relationship between higher education and promotions (Cohen and Chaiken (1972), Weiner (1974), Sanderson (1977), Polk and Armstrong (2001), Fischer and Smith (2004), Walleman (2010), Dezelan (1994)), most police departments place more weight on seniority when considering who to promote. Seniority systems are interwoven into the very fabric of police culture and their acceptance, particularly among senior non-supervisory members, remains high.

Despite the prevalence of seniority systems, which take a one-size-fits-all approach, police officers are not a homogenous group. There are over 765,000 sworn law enforcement officers in the United States. It is incumbent upon management to ensure the most deserving among them are promoted.

Despite the urgings of several U.S. government commissions, the push to professionalize law enforcement, and a wealth of empirical research endorsing higher education in law enforcement, only 1% of local police agencies, and only 8% of state police agencies, require a bachelor's degree for entry (Hickman & Reaves, 2004).

Bruns' 2010 study attempted to explain this phenomenon. She surveyed those police chiefs whose departments lack a written policy requiring college credit. Some of the reasons given include: political correctness; belief that education is under-valued in policing; concern that many current police leaders do not have degrees; and the belief that the traits needed for effective policing cannot be learned in college (Bruns, 2010). Numerous police chiefs stated a college degree is still preferred for new hires and is noted during the applicant review process.

The population in this study, the New Jersey State Police, have had a formal, written standard operating procedure (SOP C-58 – Educational Standards for Promotion) mandating higher education for promotion since 1995. SOP C-58 delineates the educational requirements, and effective date, for each rank:

1. Sergeant/Detective Sergeant and Sergeant First Class/Detective Sergeant First Class (60 credits), effective 09/01/1996;
2. Lieutenant (120 credits), effective 09/01/2006;
3. Captain (bachelor's degree), effective 09/01/2004;
4. Major (master's degree), effective 09/01/2006 (Fuentes, Standard Operating Procedure C58, 2006).

SOP C-58 contains the following caveat, "All enlisted personnel subject to these educational standards receive 60 imputed credits which can be applied toward the

[education] requirements [for promotion]” (Fuentes, Standard Operating Procedure C58, 2006). In other words, everyone is eligible for promotion to Sergeant/Detective Sergeant and Sergeant First Class/Detective Sergeant First Class.

Regarding educational requirements for promotion to Lieutenant and Major, the superintendent revised SOP C-58 to read as follows, “As of August 31, 2006, the execution of any further provisions of S.O.P. C-58 will be held in abeyance until otherwise directed by the Superintendent” (Fuentes, Standard Operating Procedure C58, 2006). Therefore, the requirements never went into effect. The only provision of the SOP that ever went into effect was for the rank of Captain. A bachelor’s degree was required from 09/01/2004 to 04/01/2012, until that provision was also held in abeyance.

Troopers voiced concern over being encouraged by the NJSP to pursue higher education only to see tuition reimbursement end in 2001, and the provisions of SOP C-58 suspended indefinitely. There was concern regarding the lack of reward for the sacrifices made by those enlisted members who heeded the call for higher education. Colonel Fuentes reassured enlisted members, despite the lack of enforcement of the provisions of SOP C-58, higher education is still a major factor in promotional outcomes. He also reiterated the NJSP’s commitment to higher education, as evidenced by long-standing relationships with Seton Hall University and Fairleigh Dickinson University.

This study will examine the impact of higher educational attainment on promotional outcomes in the New Jersey State Police.

CHAPTER III

DESIGN AND METHODOLOGY

This study was conducted to assess whether compliance with Standard Operating Procedure C-58 – Educational Standards for Promotion (SOP C-58) significantly predicts promotional outcomes in the New Jersey State Police (NJSP).

Since the days of Sir Robert Peel and August Vollmer, research regarding the need for higher education standards in law enforcement has addressed the question of whether earning a college degree contributes to career advancement, however, the overwhelming majority of this research focuses on municipal and county police departments. Lacking are studies specific to state police agencies. While commonalities exist across all police departments, state police agencies are characterized by seniority systems, rigid para-military structure and strict adherence to a vertically hierarchical chain of command.

“The strongest proponents of the paramilitary training model are found within the nation’s 49 state police/highway patrol entities. Both the public and officers alike think of spit and polish troopers when images of rigid training are conjured up. Troopers, generally speaking, are fierce traditionalists” (Weinblatt, 2014).

Today’s New Jersey State Troopers are expected to be disciplined, exhibit military bearing, keep themselves, their uniforms, and their equipment in impeccable condition, and be ever mindful their actions reflect not only on themselves, but on the entire New Jersey State Police.

The absence of research specific to state police agencies in the area of higher education and promotional outcomes suggest the need for this study.

Problem and Purpose Overview

Although research supports the belief that college educated officers are better communicators; more flexible and adaptive in dealing with persons of diverse cultures, life-styles, races, and ethnicities; and more likely to see the role of police in relationship to the broader picture of the criminal justice system (Carter, Sapp, & Stephens, The state of police education: Policy direction for the 21st century, 1989), New Jersey State Troopers aspiring to supervisory and command positions have little guidance from the existing research as to the benefits they will likely derive from earning a college degree.

The New Jersey State Police have had a formal, written standard operating procedure (SOP C-58) mandating higher education for promotion since 1995. In designing and implementing SOP C-58, Colonel Carl Williams maintained the state police would benefit by filling supervisory positions with goal-oriented personnel. Colonel Williams also stressed that higher education would benefit the state police by giving supervisors more experience in dealing with a diversity of people and belief systems (Hester, 1995).

Troopers voiced concern over being encouraged by successive New Jersey Attorneys General and NJSP Colonels to pursue higher education only to see tuition reimbursement end in 2001, and the provisions of SOP C-58 suspended indefinitely. There was concern regarding the lack of reward for the sacrifices made by those enlisted members who heeded the call for higher education. Enlisted members have been reassured, despite the lack of enforcement of the provisions of SOP C-58, higher education is still a major factor in determining promotions, as evidenced by its mention in the current Operations Instructions governing the promotional recommendation process,

issued September 13, 2013 (Fuentes, 2013). The NJSP's commitment to higher education is also evidenced by long-standing relationships with the following institutions of higher learning:

1. Seton Hall University;
2. Fairleigh Dickinson University;
3. Aspen University;
4. Capella University;
5. Central Michigan University;
6. College of Saint Elizabeth;
7. DeVry University;
8. Excelsior College;
9. Georgian Court University;
10. Lincoln College of New England;
11. Monmouth University;
12. New Jersey Coastal Communiversitry;
13. New Jersey Institute of Technology;
14. Rutgers University – City College;
15. Thomas Edison State College;
16. University of Phoenix (New Jersey State Police, 2014).

Applying the theoretical rationale of Adam's equity theory (1965) to the New Jersey State Police, a trooper's sense of fairness on the job is dependent on the comparison they make between their reward/investment ratio and the ratio enjoyed by "referent" others considered to be in a similar situation (p. 271). Adams defines

referent others as “the reference points or people with whom we compare our own situation” (p. 272). In other words, if a college-educated trooper perceives higher education as a significant determining factor in the awarding of promotions, he or she may perceive a sense of equity in the organization and likely feel validated for the personal sacrifices made in pursuit of a college degree regardless of the official status of SOP C-58.

The purpose of this study is to examine the influence of higher educational attainment on promotional outcomes in the New Jersey State Police. This study is designed to be a significant contribution to the body of knowledge regarding the relationship between higher education and law enforcement, and to inform Troopers who aspire to supervisory and command positions.

Research Questions

The main focus of this study is to ascertain the likelihood promotional outcomes for each participant group are predicted by participants’ compliance with SOP C-58. To that end, this study will address the following research question:

1. To what extent does participants’ compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Sergeant in the New Jersey State Police?
2. To what extent does participants’ compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Sergeant First Class in the New Jersey State Police?

3. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Lieutenant in the New Jersey State Police?
4. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Captain in the New Jersey State Police?
5. To what extent does participants' compliance with Standard Operating Procedure C-58 increase the likelihood of being promoted to Major in the New Jersey State Police?

Research Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion in the New Jersey State Police.

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not increase participant's likelihood of promotion in the New Jersey State Police.

$$H_0 = \beta_1 = \beta_2 = \dots = \beta_k = 0$$

Population and Sample

At the time the archival data used in this study was provided, the New Jersey State Police's two most recent promotional events were September 14, 2012 and October 25, 2011. The data utilized in this population study were derived from three thousand, five-hundred fifteen ($N = 3515$) enlisted members considered for promotion during one,

or both, of these promotional events, to one the following ranks: Sergeant/Detective Sergeant (n = 1779); Sergeant First Class/Detective Sergeant First Class (n = 857); Lieutenant (n = 538), Captain (n = 278); and Major (n = 63). The data represent total population samples for each rank. Total population sampling is a type of purposive, or non-probability, sampling technique that involves examining the entire population (i.e., all enlisted members) that have a particular set of characteristics (e.g., eligible for promotion to the rank of Major, Lieutenant, etc.; Lund Research Ltd., 2014). The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable you to answer your research questions (2014).

Data Collection

A formal request was submitted to the Office of the Deputy Superintendent of Administration for demographic data of every enlisted member in the New Jersey State Police, specifically listing the member's rank and educational level but excluding all personally identifiable information (PII).

The data, provided by the New Jersey State Police Personnel Management and Information Unit (PMIU), as a Microsoft Excel spreadsheet, included demographic information beyond what was requested. Rank, level of education, seniority, gender, age, and race were included for every member of the NJSP, however, the PMIU took the appropriate steps to ensure the confidentiality and anonymity of all enlisted members by excluding all PII. The Colonel, Lieutenant Colonels, and all troopers below the rank of Trooper II/Detective II are not affected by the provisions of SOP C-58 and, therefore, are excluded from this study.

Promotion announcements are publicly available through the New Jersey Department of Law and Public Safety via the Open Public Records Act (OPRA), N.J.S.A. 47:1A-1 et seq, or on the New Jersey State Police website (<http://www.njsp.org>).

Research Design

A research design is methodically developed with the purpose of providing a defined structure for the research (Hinkle, Wiersma, & Jurs, 2003). While non-experimental in design, this explanatory probability study focuses on the influence of higher educational attainment on promotional outcomes in the NJSP.

The results of this study, as reported in Chapter IV, will focus on the relationship between the primary independent variable ‘level of education’ and the outcome variable ‘promotional outcome.’ Through a proper quantitative analysis, via binary logistic regression, the predictive value of the independent variable on the outcome variable can be determined. Because the dataset provided for this study included demographic information found in the extant literature (e.g., seniority, gender, age, race), binary logistic regression analysis will include these demographic variables as covariates, or control variables.

The statistical software application IBM SPSS Version 22 (SPSS) was used to perform all statistical analyses for this study. The design includes multiple linear regression to identify the strength of the relationship among the independent variables and identify any multicollinearity concerns, and binary logistic regression to generate regression coefficients, for each predictor variable, used to predict a logit transformation of the probability of being promoted (Pampel, 2000).

“Logistic regression is used to predict a categorical (usually dichotomous) variable from a set of predictor variables. With a categorical dependent variable, discriminant function analysis is usually employed if all of the predictors are continuous and nicely distributed; logit analysis is usually employed if all of the predictors are categorical; and logistic regression is often chosen if the predictor variables are a mix of continuous and categorical variables” (Wuensch, 2014). The dependent, or outcome, variable is categorical, while the independent, or predictor, variables are a mix of continuous and categorical, therefore logistic regression is the appropriate statistical method for data analysis.

For a logistic regression, the predicted dependent variable is a function of the probability that a particular subject will be in one of the dichotomous outcome variable’s categories (Wuensch, 2014). Applied to this study, for example, logistic regression might explain the probability ‘Lieutenant Smith will be promoted to Captain, given his attainment of a Bachelor’s degree.’

Outcome/Predictor Variables

The independent variables included:

1. SENIORITY;
2. GENDER;
3. AGE;
4. RACE;
5. EDUCATION

Due to the categorical nature of the outcome variable and the predictor variables ‘gender,’ ‘race,’ and ‘level of education,’ dichotomous coding was necessary for the

development of a logistic regression model. The outcome variable was coded (0, 1) to represent ‘Not Promoted/Promoted,’ respectively. The independent variables, gender and race, were each coded (0, 1) to represent ‘Female/Male’ and ‘Nonwhite/White,’ respectively. The continuous predictor variables Age and Seniority were entered directly. Level of higher education required aggregation and dichotomous coding as distinct and separate variables within the model.

The levels of higher education were coded as follows: ‘Less than 60 College Credits/60 College Credits’ (0, 1); ‘Less than 120 College Credits/120 College Credits’ (0, 1); ‘Less than Bachelor’s Degree/Bachelor’s Degree’ (0, 1); ‘Less than Master’s Degree/Master’s Degree’ (0, 1). Numerous enlisted members were listed as having attained a high school diploma with zero college credits, while others attained advanced degrees beyond a Master’s degree, e.g., Educational Specialist, Juris Doctor, Doctor of Philosophy, Doctor of Education, etc. Given that SOP C-58 does not differentiate below 60 credits or beyond a Master’s degree, these levels of education have been aggregated as follows: high school diploma (0 college credits) as Less than 60 College Credits; and advanced degrees beyond a Master’s degree as Master’s Degree.

Data Analysis

The archival data was imported into SPSS via the ‘File; Open; Data’ menu option. Categorical variables were dichotomously coded using the ‘Transform; Recode into Same Variables’ menu option. This process was repeated for each of the ranks examined in this study, for a total of five separate SPSS data sets. A systematic verification of the accuracy and completeness of the data entry was conducted for each participant. Analysis

of the data began with basic descriptive statistics to review the frequencies of variables among the participants.

Multicollinearity

According to Menard, one can run OLS regression, and then look at the correlations of the predictor variables, the Tolerances, and Variance Inflation Factors (VIF) to assess multicollinearity (Menard, 2001). Similarly, the SPSS website informs readers, “The regression procedures for categorical dependent variables do not have collinearity diagnostics. However, you can use the linear Regression procedure for this purpose. Collinearity statistics in regression concern the relationships among the predictors, ignoring the dependent variable. So, you can run REGRESSION with the same list of predictors and dependent variable as you wish to use in LOGISTIC REGRESSION and request the collinearity diagnostics” (IBM, 2014). As a result, a review of the frequency distributions was followed by multiple linear regression analysis. A multiple linear regression analysis was conducted for each rank examined in this study, resulting in a total of five separate analyses. The review of the data within the Coefficients table was intended to identify multicollinearity issues. Multicollinearity “occurs when there are high intercorrelations among some set of the predictor variables” (Leech, Barrett, & Morgan, 2011, pp. 106,107). The existence of strong multicollinearity could result in the aggregation or omission of the offending predictor variable(s). Within the Coefficients table, Collinearity Statistics, specifically the Variance Inflation Factor and Tolerance were reported.

Tolerance is estimated as $(1 - R^2)$, where R^2 is calculated by regressing the independent variable of interest onto the remaining independent variables included in the multiple regression analysis. VIF, the reciprocal of Tolerance, is estimated as $1 / (1 - R^2)$.

A review of the extant literature revealed a lack of consensus among researchers and statisticians regarding an acceptable level of VIF. VIF values as high as 10 and as low as 2 have been used as rules of thumb to indicate excessive multicollinearity (O'Brien, 2007; Allison, 1998; Field, 2013). Tolerance, however, is straightforward. To rule out multicollinearity, the Tolerance value for each predictor variable must be greater than $1 - R^2$ (Leech, Barrett, & Morgan, 2011). As a result, Tolerance values will be used to detect the presence of multicollinearity.

Binary Logistic Regression

Subsequent to accounting for multicollinearity, development of the binary logistic regression model can begin. In SPSS the “enter” method was utilized to conduct binary logistic regression analysis. The development of the model includes simultaneous input of the outcome variable and predictor variables. A binary logistic regression analysis was conducted for each rank examined in this study, resulting in a total of five separate analyses. The alpha, or level of significance, for the analysis was set at .05 ($p < .05$).

In this study, the SPSS output for binary logistic regression is divided into three sections: Descriptive Information, Block 0, and Block 1. The first section includes the Case Processing Summary table, which lists the number of cases included in the analysis including any missing or unselected cases. Also included in this section are the Dependent Variable Encoding table and Categorical Variables Codings table, which illustrates the manner in which the outcome variable and categorical predictor variables

were dichotomously coded. Because the 'enter' method adds all of the independent variables at the same time, the SPSS output contained two blocks. Had a stepwise approach been used, the SPSS output would add one block for each step in the analysis. The first, Block 0, represents the 'null model' which contains zero predictor variables and just the intercept. Block 1 includes the 'full model' which contains all of the predictor variables and the outcome variable.

The Iteration History table reports the -2 Log likelihood ratio (-2 LL), which represents the unexplained variance in the outcome variable. The Omnibus Tests of Model Coefficients table reports the Chi-Square statistic and statistical significance associated with the full model (Pampel, 2000).

The Model Summary table displays the -2 LL, as found in the Iteration Table, and two pseudo- R^2 estimates, which are analogous to the R^2 in linear regression but carry different interpretations. The Nagelkerke and Cox & Snell R^2 estimates are interpreted as indicating model fit. A third pseudo- R^2 estimate, the Hosmer and Lemeshow Test of goodness-of-fit, an option in SPSS, also indicates the extent to which the fitted model provides better fit than the null model. It should be noted, however, many statisticians including Hosmer and Lemeshow themselves, consider the Hosmer-Lemeshow test for goodness-of-fit obsolete in light of the emergence of several statistically sound Pseudo R^2 measures, and recommend against its use (Allison, 1998; Wuensch, 2014). As a result, the Hosmer-Lemeshow Test of goodness-of-fit will not be reported in this study.

The Classification Table indicates how well the full model classifies cases via the value, expressed as a percentage, located in the lower right corner of the table, where the 'Overall Percentage' row and 'Percentage Correct' column intersect.

Provided the model has statistical significance as indicated in the Omnibus Tests of Model Coefficients table, the Variables in the Equation table is utilized to assess the regression coefficient (B) for each independent variable. B represents the odds of membership in the category with the numerically higher value which, in this study, is 1 (Promoted). Also included for each predictor variable in the table are the: Standard Error, S.E.; Wald chi-square test statistic, Wald; Degrees of Freedom, df; level of Statistical Significance, Sig.; Odds Ratio, Exp(B); and Confidence Interval, C.I., for Exp(B).

The Wald test statistic and statistical significance (p-value) are interpreted together for each predictor variable to test the null hypothesis that the regression coefficient (B) equals 0, relative to the other predictor variables in the model. If the p-level is below alpha, we can reject the null hypothesis and say that the coefficient is significantly different from 0 (UCLA Statistical Consulting Group, 2014).

The odds ratio, Exp(B), indicates the magnitude of change of the outcome variable based on each increment of the predictor variable. If the odds ratio is greater than 1, we expect the predictor variable to increase the odds of being promoted. If the odds ratio equals 1, the predictor variable has no effect on the outcome variable, while an odds ratio of less than 1 will decrease the odds of being promoted (Leech, Barrett, & Morgan, IBM SPSS for Intermediate Statistics - Use and Interpretation, 2011). The C.I. for Exp(B) provides a range of odds ratio values we can expect to encounter X% of the time, where X is a user supplied number selected based on the level of precision desired by the researcher. For this study, a 95% confidence interval was used.

Summary

New Jersey State Troopers aspiring to supervisory and command positions have little guidance from the existing research as to the benefits they will likely derive from earning a college degree.

Although the New Jersey State Police have had a formal, written standard operating procedure mandating higher education for promotion since 1995, only the educational requirement for Captain was ever enacted, from 2006 to 2012. The remaining provisions never went into effect and have been suspended indefinitely. Despite this fact, Colonel Fuentes reiterated the NJSP's commitment to higher education and reassured enlisted members higher education is still a major factor in promotional outcomes, as did Colonel Williams, A/Colonel Dunlop, and NJ Attorney General Del Tufo. Despite these reassurances, enlisted members wishing to advance their careers expressed concern regarding the apparent lack of reward for their sacrifices.

This study should serve as a basis for further inquiry and provide a substantial contribution to the existing body of knowledge by virtue of being the first study to specifically examine the relationship between higher educational attainment, i.e., compliance with SOP C-58, and promotional outcomes in the NJSP.

The data being utilized for this research, as well as salary and contact information, are publicly available through the New Jersey Department of Law and Public Safety via the Open Public Records Act (OPRA), N.J.S.A. 47:1A-1 et seq, or on the New Jersey State Police website (<http://www.njsp.org>).

CHAPTER IV

ANALYSIS OF THE DATA

The purpose of this study was to examine the influence of higher educational attainment on promotional outcomes in the New Jersey State Police. A quantitative study using binary logistic regression was conducted to analyze the relationship among the independent variables and their ability to predict the likelihood of being promoted.

Upon its implementation, New Jersey State Police SOP C-58, Educational Standards for Promotion, codified new educational standards for promotion to the following supervisory/command-level ranks: Sergeant; Sergeant First Class; Lieutenant, Captain; and Major.

Chapter IV is divided into seven sections: Introduction; Analysis Strategy; and five participant group sections, Sergeant, Sergeant First Class, Lieutenant, Captain, and Major. The Introduction re-states the purpose and design of the study and maps out the rest of Chapter IV. The Analysis Strategy section describes the specific statistical analyses performed for each participant group and the order in which they were performed. Each participant group section begins with a re-statement of the Research Question and Null Hypothesis, followed by a description of all statistical analyses performed, and concludes with a statement regarding the Null Hypothesis.

Analysis Strategy

The statistical software application IBM SPSS Version 22 (SPSS) was used to perform the following statistical analyses for each participant group in this study:

1. Descriptive statistics were run to identify missing cases, observe ‘Frequencies’ statistics for categorical variables, ‘Descriptives’ statistics for

continuous variables, and ‘Crosstabulations’ statistics to ensure a sufficient number of cases for each cross classified category;

2. Bivariate correlation and multiple linear regression were conducted to identify the strength of the relationship among the independent variables, address any multicollinearity concerns, generate coefficients of determination (R^2), and part and partial correlation coefficients;
3. Binary logistic regression modeling was performed to generate regression coefficients for each predictor variable used to predict a logit transformation of the probability of being promoted (Pampel, 2000).

For a logistic regression, the predicted dependent variable is a function of the probability that a particular subject will be in one of the dichotomous outcome variable’s categories (Wuensch, 2014). Applied to this study, for example, logistic regression might explain the probability ‘Lieutenant Smith will likely be promoted to Captain, given his attainment of a Bachelor’s degree.’

The outcome variable in this study is promotion to one of the aforementioned ranks in the New Jersey State Police. The dichotomous outcome variable is coded (0, 1) to represent not promoted/promoted. The predictor variables are a mix of continuous and categorical. Seniority and age, expressed in years, were entered directly while gender, race, and level of education, required binomial, dichotomous coding. The categorical predictor variables were coded as follows: Level of Education - Less than 60 College Credits / 60 College Credits (0,1), Less than 120 College Credits / 120 College Credits (0,1), Less than a Bachelor’s Degree / Bachelor’s Degree (0,1), and Less than a Master’s

Degree / Master's Degree (0,1); Gender - Female/Male (0,1); and Race – Nonwhite/White (0,1).

Sergeant

Research Question

To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Sergeant in the New Jersey State Police?

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not increase participant's likelihood of promotion to Sergeant in the New Jersey State Police.

Statistical Analysis

Descriptive statistics. Using the Descriptive Statistics / Descriptives function in SPSS, the following values were observed: AGE ($\mu = 37$, $SD = 5.859$); SENIORITY ($\mu = 10.5$, $SD = 4.411$). The age of the oldest participant in the population sample was 54, while the youngest was 24. The senior participant had been a trooper for 27 years, while the junior participant had 7 years of seniority. There were no missing cases (see Table 1).

Table 1

Descriptive Statistics for Continuous Predictor Variables: Promotion to Sergeant Group

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Age	1779	24	54	37.05	5.859
Seniority	1779	7	27	10.50	4.411
Valid <i>N</i> (listwise)	1779				

Frequency statistics. Among the categorical predictor variables, GENDER was the most skewed, with males comprising 95.5% of the population. Whites accounted for 81.8% of the population, while 82.9% of the population had earned at least 60 college credits (see Table 2).

Table 2

Frequency Statistics for Categorical Predictor Variables: Promotion to Sergeant Group

		<i>f</i>	%	Valid %	Cumulative %
Gender	Female	80	4.5	4.5	4.5
	Male	1,699	95.5	95.5	100.0
	Total	1,779	100.0	100.0	
Race	Nonwhite	324	18.2	18.2	18.2
	White	1,455	81.8	81.8	100.0
	Total	1,779	100.0	100.0	
Education	< 60 credits	305	17.1	17.1	17.1
	60 credits	1,474	82.9	82.9	100.0
	Total	1,779	100.0	100.0	

Crosstabulations. Using the Descriptive Statistics / Crosstabs function in SPSS, three separate crosstabulations analyses were run. Included in each analysis was the outcome variable and one of the three categorical predictor variables. The results are presented in a ‘contingency table’ used, for the purposes of this study, to observe the ‘expected counts’ value for every possible combination of variables included in the analysis. The Expected counts value represents the “frequencies that you would expect in each cell of the table, if you knew only the row and column totals, and if you assumed that the variables under comparison were independent” (Easton & McColl, 2014).

To ensure the statistical integrity of the binary logistic regression analysis, the ‘expected counts’ value must be greater than or equal to five in each cell (Leech, Barrett,

& Morgan, 2013). The results of the three SPSS crosstabulations analyses have been consolidated into a single contingency table. All Expected counts values met or exceeded the minimum standard (see Table 3).

Table 3

Crosstabulations for Categorical Variables: Promotion to Sergeant Group

			Promoted to sergeant		
			Not promoted	Promoted	Total
Trooper's gender	Female	Count	58.0	22.0	80
		Expected count	55.3	24.7	80
	Male	Count	1,172.0	527.0	1,699
		Expected count	1,174.7	524.3	1,699
Total		Count	1,230.0	549.0	1,779
		Expected count	1,230.0	549.0	1,779
Trooper's race	Nonwhite	Count	240.0	84.0	324
		Expected count	224.0	100.0	324
	White	Count	990.0	465.0	1,455
		Expected count	1,006.0	449.0	1,455
Total		Count	1,230.0	549.0	1,779
		Expected count	1,230.0	549.0	1,779
Level of education	< 60 credits	Count	256.0	49.0	305
		Expected count	210.9	94.1	305
	60 credits	Count	974.0	500.0	1,474
		Expected count	1,019.1	454.9	1,474
Total		Count	1,230.0	549.0	1,779
		Expected count	1,230.0	549.0	1,779

Multicollinearity. Multicollinearity “occurs when there are high intercorrelations among some set of the predictor variables” (Leech, Barrett, & Morgan, 2011, pp. 106,107). In other words, when two or more predictors essentially contain the same information, it is difficult to separate the impact of each variable on the outcome variable. The existence of strong Multicollinearity could result in the aggregation or omission of the offending predictor variable(s).

To address potential issues of multicollinearity, predictor variables were analyzed by examining the correlation matrix (see Table 4). A correlation between predictor variables of .8 or above infers the likely presence of multicollinearity (Gray & Bristow, 2014). When several variables exhibit a correlation of .7 or greater, the researcher should consider removing highly intercorrelated variables (Pallant, 2010).

Table 4

Correlation Matrix: Promotion to Sergeant Group

		Age	Seniority	Gender	Race	Education
Age	<i>r</i>	1	.812**	.033	-.020	-.073**
	Sig. (2-tailed)		.000	.166	.400	.002
	<i>N</i>	1,779	1,779	1,779	1,779	1,779
Seniority	<i>r</i>	.812**	1	.054*	.034	-.097**
	Sig. (2-tailed)	.000		.023	.149	.000
	<i>N</i>	1,779	1,779	1,779	1,779	1,779
Gender	<i>r_s</i>	.022	.034	1.000	-.004	-.056*
	Sig. (2-tailed)	.362	.154	.	.866	.019
	<i>N</i>	1,779	1,779	1,779	1,779	1,779
Race	<i>r_s</i>	-.017	.055*	-.004	1.000	.033
	Sig. (2-tailed)	.485	.021	.866	.	.169
	<i>N</i>	1,779	1,779	1,779	1,779	1,779
Education	<i>r_s</i>	-.039	-.012	-.056*	.033	1.000
	Sig. (2-tailed)	.103	.623	.019	.169	.
	<i>N</i>	1,779	1,779	1,779	1,779	1,779

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

As illustrated in Table 3, a statistically significant, high positive correlation was observed between SENIORITY and AGE ($r = .812, p < .001$) (Hinkle, Wiersma, & Jurs, 2003). As a result, further analysis is warranted to determine if a collinear relationship exists. The remaining predictor variables showed little, if any, correlation.

Pearson's correlation coefficient (r) assumes a linear, normally distributed relationship between two variables. Dichotomously coded, categorical variables violate these assumptions. Spearman's rho (ρ), also known as Spearman's rank correlation coefficient, is a nonparametric (distribution-free) rank statistic designed to measure the strength of an association between two binary variables (Hauke & Kossowski, 2011). Both correlation coefficients are interpreted in exactly the same manner and are included in Table 4.

When conducting linear (OLS) regression analysis in SPSS, the user is offered the option of having 'collinearity diagnostics' calculated for them. Selecting this option results in the inclusion of Tolerance and Variance Inflation Factor (VIF) statistics for each predictor variable in the 'Coefficients' table. Although logistic regression analysis is equally as prone to the biasing effect of collinearity (Field, 2013), SPSS fails to offer the same option. The SPSS online user manual advises: because collinearity statistics in SPSS concern the relationships among the predictor variables only, you can utilize OLS regression analysis for the purpose of calculating collinearity statistics for logistic regression modeling (IBM, 2014).

Tolerance and VIF, which is the reciprocal of Tolerance, are both widely used measures to detect for the presence of multicollinearity in regression modeling. A review of the extant literature revealed a lack of consensus among researchers and statisticians regarding an acceptable level of VIF. VIF values as high as 10 and as low as 2 have been used as rules of thumb to indicate multicollinearity (O'Brien, 2007)(Allison, 1998). Tolerance, however, is straightforward. To rule out multicollinearity, the Tolerance value for each predictor variable must be greater than $1-R^2$ (Leech, Barrett, & Morgan, IBM

SPSS for Introductory Statistics - Use and Interpretation, 2013). For the Promotion to Sergeant Group, Tolerance must be greater than .605(1 - .395).

Among the predictor variables for the group, the Tolerance values for AGE and SENIORITY were .338 and .336, respectively, indicating the presence of multicollinearity (see Table 4). Based on the linear relationship between AGE & SENIORITY and the redundant nature of the data represented by each variable, it is safe to assume omitting one of the variables will not have an adverse effect on the binary logistic regression analysis.

The semi-partial regression coefficient—also called the part correlation—is used to express the specific portion of variance explained by a given independent variable in a multiple linear regression analysis (Salkind & Rasmussen, 2007). When confronted with multicollinearity, one way to determine which variable to retain is by determining which variable explains the greater percentage of variance in the outcome variable. The variable with the higher semi-partial regression coefficient is retained. In this instance, SENIORITY ($r = .277$) is retained over AGE ($r = .092$; see Table 5).

Table 5

Collinearity Statistics: Promotion to Sergeant Group

Variable	Correlations			Collinearity statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Age	.531	.118	.092	.338	2.957
Seniority	.588	.336	.277	.336	2.977
Gender	.016	-.005	-.004	.994	1.006
Race	.050	.039	.030	.991	1.009
Education	.146	.251	.201	.987	1.014

Note. Dependent variable: Promoted to sergeant.

Binary logistic regression analysis (sergeant). Using the enter method, a mixed-methods binary logistic regression analysis was performed to assess the predictive impact of seniority, gender, race and education on promotional outcomes in the NJSP. The Omnibus Tests of Model Coefficients table displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant ($\chi^2(4) = 817.466, p < .001$), thus indicating the fitted model was able to distinguish between participants who were promoted and those who were not. The chi-square statistic represents the difference in log-likelihood (-2LL) values between the null and fitted models ($2198.759 - 1381.293 = 817.466$).

Goodness-of-fit tests are designed to determine the adequacy or inadequacy of the fitted logistic regression model. A poorly fitted model can give biased or invalid conclusions on the statistical inference based on the fitted model (Liu, 2007). Goodness-of-fit statistics are reported in the Model Summary table.

The Model Summary table displays the -2LL for the fitted model, 1381.293, and two pseudo R^2 values, the Cox & Snell R^2 and the Nagelkerke R^2 . The -2LL statistic is used to assess the overall fit of the full model and should be lower than the -2LL statistic for the null model (lower -2LL values indicate the fitted model is predicting the outcome variable more accurately) (Field, 2013). The Cox & Snell (.368) and Nagelkerke (.519) statistics attempt to replicate the coefficient of determination found in OLS regression and are interpreted in the same manner. Thus, we can say the fitted model explains between 36.8% and 51.9% of the variance in promotional outcomes (see Table 6 for goodness-of-fit statistics).

Table 6

Goodness-of-Fit Statistics: Promotion to Sergeant Group

Test	χ^2	<i>df</i>	Sig.
Omnibus Tests of Model Coefficients	817.466	4	.000
-2LL	1381.293		
Cox & Snell R ²	.368		
Nagelkerke R ²	.519		

The Hosmer-Lemeshow Test of goodness-of-fit, an option in SPSS, also indicates the extent to which the fitted model provides better fit than the null model. It should be noted, however, many statisticians including Hosmer and Lemeshow themselves, consider the Hosmer-Lemeshow test for goodness-of-fit obsolete in light of the emergence of several statistically sound Pseudo R² measures, and recommend against its use (Allison, 1998; Wuensch, 2014). As a result, the Hosmer-Lemeshow Test of goodness-of-fit will not be reported in this study.

The Block 0 Classification Table shows how well the null model (includes only the constant, no predictor variables) correctly classifies cases (69.1%). The Block 1 Classification Table shows how well the fitted/full model correctly classifies cases. The fitted model for Promotion to Sergeant correctly classified 82.5% of the cases (see Table 8), an improvement of 13.4% over the null model (see Table 7).

Table 9 presents the findings of the binary logistic regression analysis for the Promotion to Sergeant Group. Two predictor variables were found to be statistically significant ($p < .001$), EDUCATION and SENIORITY.

Table 7

Block 0 Classification Table: Promotion to Sergeant Group

Observed		Predicted		
		Promoted to sergeant		% Correct
		Not promoted	Promoted	
Promoted to sergeant	Not promoted	1,230	0	100.0
	promoted	549	0	0.0
Overall %				69.1

Note. Constant is included in the model. The cut value is .500.

Table 8

Block 1 Classification Table: Promotion to Sergeant Group

Observed		Predicted		
		Promoted to sergeant		% Correct
		Not promoted	Promoted	
Promoted to sergeant	Not promoted	1,130	100	91.9
	promoted	211	338	61.6
Overall %				82.5

Note. The cut value is .500.

Table 9

Logistic Regression Results: Promotion to Sergeant Group

	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	Sig.	Exp(B)	95% <i>CI</i> for EXP(B)	
							Lower	Upper
Seniority	.460	.023	383.638	1	.000	1.584	1.513	1.658
Gender(1)	-.047	.302	.024	1	.878	.954	.528	1.726
Race(1)	.175	.185	.890	1	.346	1.191	.829	1.711
Education(1)	3.388	.354	91.472	1	.000	29.604	14.785	59.276
Constant	-8.978	.614	214.056	1	.000	.000		

The strongest predictor of promotional outcome was EDUCATION, which had an odds ratio of 29.604 (95% CI between 14.785 & 59.276), which indicates the odds of promotion increase 29.604 times for each unit increase in EDUCATION. In other words, Troopers in compliance with SOP C-58 (60 college credits) were almost 30 times more likely to be promoted than non-compliant Troopers.

The odds ratio for SENIORITY was 1.584, with a 95% CI between 1.513 and 1.658. This indicates the odds of being promoted increase 1.5 times with each additional year of SENIORITY.

GENDER and RACE were not found to be statistically significant predictors in the binary logistic regression model.

Conclusion. In the Promotion to Sergeant Group, Troopers in compliance with SOP C-58 were almost 30 times more likely to be promoted. As a result, the null hypothesis is rejected.

Sergeant First Class

Research Question

To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Sergeant First Class in the New Jersey State Police?

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not significantly increase participant's likelihood of promotion to Sergeant First Class in the New Jersey State Police.

Statistical Analysis

Descriptive statistics. Using the Descriptive Statistics / Descriptives function in SPSS, the following values were observed: AGE ($\mu = 43$, $SD = 4.981$); SENIORITY ($\mu = 16.5$, $SD = 5.294$). The age of the oldest participant in the population sample was 55, while the youngest was 30. The senior participant had been a trooper for 31 years, the junior participant had 7 years of seniority. There were no missing cases (see Table 10).

Table 10

Descriptive Statistics for Continuous Predictor Variables: Promotion to Sergeant First

Class Group

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Age	857	30	55	43.33	4.981
Seniority	857	7	31	16.46	5.294
Valid <i>N</i> (listwise)	857				

Frequency statistics. Among the categorical predictor variables, GENDER was the most skewed. 96.0% of the population was male, 84.6% white and 82.9% of the population had earned at least 60 college credits (see Table 11).

Crosstabulations. Using the Descriptive Statistics / Crosstabs function in SPSS, three separate crosstabulations analyses were run. Included in each analysis was the outcome variable and one of the three categorical predictor variables. The results are presented in a ‘contingency table’ used, for the purposes of this study, to observe the ‘expected counts’ value for every possible combination of variables included in the analysis. The Expected counts value represents the “frequencies that you would expect in each cell of the table, if you knew only the row and column totals, and if you assumed that the variables under comparison were independent” (Easton & McColl, 2014).

Table 11

*Frequency Statistics for Categorical Predictor Variables: Promotion to Sergeant First**Class Group*

		<i>f</i>	%	Valid %	Cumulative %
Gender	Female	34	4.0	4.0	4.0
	Male	823	96.0	96.0	100.0
	Total	857	100.0	100.0	
Race	Nonwhite	132	15.4	15.4	15.4
	White	725	84.6	84.6	100.0
	Total	1779	100.0	100.0	
Education	< 60 Credits	90	10.5	10.5	10.5
	60 Credits	767	89.5	89.5	100.0
	Total	857	100.0	100.0	

To ensure the statistical integrity of the binary logistic regression analysis, the ‘expected counts’ value must be greater than or equal to five in each cell (Leech, Barrett, & Morgan, 2013). The results of the three SPSS crosstabulations analyses have been consolidated into a single contingency table. All Expected counts values met or exceeded the minimum standard (see Table 12).

Multicollinearity. As illustrated in Table 13, a statistically significant, high positive correlation was observed between SENIORITY and AGE ($r = .816, p < .001$) (Hinkle, Wiersma, & Jurs, 2003). As a result, further analysis is warranted to determine if a collinear relationship exists. The remaining predictor variables showed low, if any, correlation.

Table 12

Crosstabulations for Categorical Variables: Promotion to Sergeant First Class Group

			Promoted to sergeant first class		
			Not promoted	Promoted	Total
Trooper's gender	Female	Count	22.0	12.0	34
		Expected count	21.8	12.2	34
	Male	Count	527.0	296.0	823
		Expected count	527.2	295.8	823
Total		Count	549.0	308.0	857
		Expected count	549.0	308.0	857
Trooper's race	Nonwhite	Count	84.0	48.0	132
		Expected count	84.6	47.4	132
	White	Count	465.0	260.0	725
		Expected count	464.4	260.6	725
Total		Count	549.0	549.0	308
		Expected count	549.0	549.0	308
Level of education	< 60 Credits	Count	49	41	90
		Expected count	57.7	32.3	90
	60 Credits	Count	500	267	767
		Expected count	491.3	275.7	767
Total		Count	549	549	308
		Expected count	549.0	549.0	308

Table 13

Correlation Matrix: Promotion to Sergeant First Class Group

		Age	Seniority	Gender	Race	Education
Age	<i>r</i>	1	.816**	.042	-.074*	-.339**
	Sig. (2-tailed)		.000	.216	.031	.000
	<i>N</i>	857	857	857	857	857
Seniority	<i>r</i>	.816**	1	.068*	-.052	-.396**
	Sig. (2-tailed)	.000		.045	.130	.000
	<i>N</i>	857	857	857	857	857
Gender	<i>r_s</i>	.050	.071*	1.000	-.037	-.070*
	Sig. (2-tailed)	.146	.037	.	.279	.042
	<i>N</i>	857	857	857	857	857
Race	<i>r_s</i>	-.089**	-.031*	-.037	1.000	.054
	Sig. (2-tailed)	.009	.368	.279	.	.113
	<i>N</i>	857	857	857	857	857
Education	<i>r_s</i>	-.358**	-.367**	-.070*	.054	1.000
	Sig. (2-tailed)	.000	.000	.042	.113	.
	<i>N</i>	857	857	857	857	857

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

To rule out multicollinearity, the Tolerance value for each predictor variable must be greater than $1 - R^2$ (Leech, Barrett, & Morgan, IBM SPSS for Introductory Statistics - Use and Interpretation, 2013). For the Promotion to Sergeant First Class Group, Tolerance must be greater than $.705(1 - .295)$. Among the predictor variables for the group, the Tolerance values for AGE and SENIORITY were .333 and .317, respectively, indicating the presence of multicollinearity (see Table 14). The semi-partial correlation was used to determine which variable explains the greater percentage of variance in the outcome variable. The variable with the higher semi-partial regression coefficient is SENIORITY ($r = .319$), therefore, AGE ($r = .019$) is omitted.

Table 14

Collinearity Statistics: Promotion to Sergeant First Class Group

Model	Correlations			Collinearity Statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Age	.436	.022	.019	.333	3.005
Seniority	.525	.356	.319	.317	3.150
Gender	.003	-.030	-.025	.991	1.009
Race	-.004	.021	.018	.992	1.008
Education	-.069	.176	.150	.840	1.191

Note. Dependent Variable: Promoted to Sergeant First Class.

Binary logistic regression analysis (sergeant first class). Using the enter method, a mixed-methods binary logistic regression analysis was performed to assess the predictive impact of seniority, gender, race and education on promotion to Sergeant First Class. The Omnibus Tests of Model Coefficients table displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant ($\chi^2(4) = 284.617, p < .001$), thus indicating the fitted model was able to distinguish between participants who were promoted and those who were not. The

chi-square statistic represents the difference in log-likelihood (-2LL) values between the null and fitted models (1119.359-834.742 = 284.617).

Goodness-of-fit tests are designed to determine the adequacy or inadequacy of the fitted logistic regression model. A poorly fitted model can give biased or invalid conclusions on the statistical inference based on the fitted model (Liu, 2007). Goodness-of-fit statistics are reported in the Model Summary table.

The Model Summary table displays the -2LL for the fitted model, 834.742, and two pseudo R² values, the Cox & Snell R² and the Nagelkerke R². The -2LL statistic is used to assess the overall fit of the full model and should be lower than the -2LL statistic for the null model (lower -2LL values indicate the fitted model is predicting the outcome variable more accurately) (Field, 2013). The Cox & Snell (.283) and Nagelkerke (.388) statistics attempt to replicate the coefficient of determination found in OLS regression and are interpreted in the same manner. Thus, we can say the fitted model explains between 28.3% and 38.8% of the variance in promotional outcomes (see Table 15 for Goodness-of-Fit statistics).

Table 15

Goodness-of-Fit Statistics: Promotion to Sergeant First Class Group

Tests	χ^2	df	Sig.
Omnibus tests of model coefficients	284.617	4	.000
-2LL	834.742		
Cox & Snell R ²	.283		
Nagelkerke R ²	.388		

The Block 0 Classification Table shows how well the null model (includes only the constant, no predictor variables) correctly classifies cases (64.1%). The Block 1 Classification Table shows how well the fitted/full model correctly classifies cases. The

fitted model for Promotion to Sergeant First Class correctly classified 74.6% of the cases (see Table 17), an improvement of 10.5% over the null model (see Table 16).

Table 16

Block 0 Classification Table: Promotion to Sergeant First Class Group

		Predicted		
		Promoted to sergeant		% Correct
Observed		Not promoted	Promoted	
Promoted to sergeant	Not promoted	549	0	100.0
	promoted	308	0	0.0
Overall %				64.1

Note. Constant is included in the model. b. The cut value is .500.

Table 17

Block 1 Classification Table: Promotion to Sergeant First Class Group

		Predicted		
		Promoted to sergeant		% Correct
Observed		Not promoted	Promoted	
Promoted to sergeant	Not promoted	465	84	84.7
	promoted	134	174	56.5
Overall %				74.6

Note. The cut value is .500.

Table 18 presents the findings of the binary logistic regression analysis for the Promotion to Sergeant First Class Group. Two predictor variables were found to be statistically significant ($p < .001$), EDUCATION and SENIORITY.

Table 18

Logistic Regression Results: Promotion to Sergeant First Class Group

	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	Sig.	Exp(B)	95% <i>CI</i> for EXP(B)	
							Lower	Upper
Seniority	.303	.023	176.435	1	.000	1.354	1.295	1.416
Gender(1)	-.426	.429	.989	1	.320	.653	.282	1.513
Race(1)	.232	.250	.858	1	.354	1.261	.772	2.059
Education(1)	1.518	.297	26.067	1	.000	4.562	2.547	8.169
Constant	-6.895	.743	86.060	1	.000	.001		

The strongest predictor of promotional outcome was EDUCATION, which had an odds ratio of 4.562 (95% CI between 2.547 & 8.169), which indicates the odds of promotion increase 4.562 times for each unit increase in EDUCATION. In other words, Troopers in compliance with SOP C-58 (60 college credits) were 4.5 times more likely to be promoted than non-compliant Troopers.

The odds ratio for SENIORITY was 1.354, with a 95% CI between 1.295 and 1.416. This indicates the odds of being promoted increase 1.3 times with every additional year of SENIORITY.

GENDER and RACE were not found to be statistically significant predictors in the binary logistic regression model.

Conclusion. In the Promotion to Sergeant First Class Group, Troopers in compliance with SOP C-58 were 4.5 times more likely to be promoted. As a result, the null hypothesis is rejected.

Lieutenant

Research Question

To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Lieutenant in the New Jersey State Police?

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not significantly increase participant's likelihood of promotion to Lieutenant in the New Jersey State Police.

Statistical Analysis

Descriptive statistics. Using the Descriptive Statistics / Descriptives function in SPSS, the following values were observed: AGE ($\mu = 47$, $SD = 3.592$); SENIORITY ($\mu = 21.5$, $SD = 4.366$). The age of the oldest participant in the population sample was 55, while the youngest was 36. The senior participant had been a trooper for 32 years, while the junior participant had 12 years of seniority. There were no missing cases (see Table 19).

Table 19

Descriptive Statistics for Continuous Predictor Variables: Promotion to Lieutenant

Group

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Age	538	36	55	47.07	3.592
Seniority	538	12	32	21.51	4.366
Valid N (listwise)	538				

Frequency statistics. Among the categorical predictor variables, GENDER was the most skewed, with 96.7% male. 85.5% of the population was white and 74.2% were SOP C-58 compliant (see Table 20).

Table 20

Frequency Statistics for Categorical Predictor Variables: Promotion to Lieutenant

Group

		<i>f</i>	%	Valid %	Cumulative %
Gender	Female	18	3.3	3.3	3.3
	Male	520	96.7	96.7	100.0
	Total	538	100.0	100.0	
Race	Nonwhite	78	14.5	14.5	14.5
	White	460	85.5	85.5	100.0
	Total	538	100.0	100.0	
Education	< 120 Credits	139	25.8	25.8	25.8
	120 Credits	399	74.2	74.2	100.0
	Total	538	100.0	100.0	

Crosstabulations. Using the Descriptive Statistics / Crosstabs function in SPSS, three separate crosstabulations analyses were run. Included in each analysis was the outcome variable and one of the three categorical predictor variables. The results are presented in a ‘contingency table’ used, for the purposes of this study, to observe the ‘expected counts’ value for every possible combination of variables included in the analysis. The Expected counts value represents the “frequencies that you would expect in each cell of the table, if you knew only the row and column totals, and if you assumed that the variables under comparison were independent” (Easton & McColl, 2014).

To ensure the statistical integrity of the binary logistic regression analysis, the ‘expected counts’ value must be greater than or equal to five in each cell (Leech, Barrett,

& Morgan, 2013). The results of the three SPSS crosstabulations analyses have been consolidated into a single contingency table. All Expected counts values met or exceeded the minimum standard (see Table 21).

Table 21

Crosstabulations for Categorical Variables: Promotion to Lieutenant Group

			Promoted to sergeant			
			Not		Total	
			Promoted	Promoted		
Trooper's gender	Female	Count	12.0	6.0	18	
		Expected count	10.3	7.7	18	
	Male	Count	296.0	224.0	520	
		Expected count	297.7	222.3	520	
Total		Count	308.0	308.0	230	
		Expected count	308.0	308.0	230	
Trooper's race	Nonwhite	Count	48.0	30.0	78	
		Expected count	44.7	33.3	78	
	White	Count	260.0	200.0	460	
		Expected count	263.3	196.7	460	
	Total		Count	308.0	308.0	230
			Expected count	308.0	308.0	230
Level of education	< 120 Credits	Count	100.0	39.0	139	
		Expected count	79.6	59.4	139	
	120 Credits	Count	208.0	191.0	399	
		Expected count	228.4	170.6	399	
	Total		Count	308.0	308.0	230
			Expected count	308.0	308.0	230

Multicollinearity. As illustrated in Table 22, a statistically significant, high positive correlation was observed between SENIORITY and AGE ($r = .706, p < .001$) (Hinkle, Wiersma, & Jurs, 2003). As a result, further analysis is warranted to determine if a collinear relationship exists. The remaining predictor variables showed low, if any, correlation.

Table 22

Correlation Matrix: Promotion to Lieutenant Group

		Age	Seniority	Gender	Race	Education
Age	<i>r</i>	1	.706**	.078	-.148*	-.226**
	Sig. (2-tailed)		.000	.070	.001	.000
	<i>N</i>	538	538	538	538	538
Seniority	<i>r</i>	.706**	1	.116**	-.118**	-.302**
	Sig. (2-tailed)	.000		.007	.006	.000
	<i>N</i>	538	538	538	538	538
Gender	<i>r_s</i>	.068	.124**	1.000	-.047	-.110*
	Sig. (2-tailed)	.114	.004	.	.274	.011
	<i>N</i>	538	538	538	538	538
Race	<i>r_s</i>	-.147**	-.128**	-.047	1.000	.143**
	Sig. (2-tailed)	.001	.003	.274	.	.001
	<i>N</i>	538	538	538	538	538
Education	<i>r_s</i>	-.235**	-.305**	-.110*	.143**	1.000
	Sig. (2-tailed)	.000	.000	.011	.001	.
	<i>N</i>	538	538	538	538	538

To rule out multicollinearity, the Tolerance value for the Promotion to Lieutenant Group must be greater than .788(1 - .212). Among the predictor variables for the group, the Tolerance values for AGE and SENIORITY were .497 and .478, respectively, indicating the presence of multicollinearity (see Table 23).

The part, or semi-partial, correlation coefficient is used to determine which variable explains the greater percentage of variance in the outcome variable. The variable with the higher part correlation coefficient is SENIORITY ($r = .289$), therefore, AGE ($r = .036$) is omitted.

Table 23

Collinearity Statistics: Promotion to Lieutenant Group

Model	Correlations			Collinearity statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Age	.270	.040	.036	.497	2.012
Seniority	.357	.311	.289	.478	2.093
Gender	.035	.021	.019	.980	1.021
Race	.036	.055	.048	.965	1.037
Education	.175	.313	.291	.892	1.121

Note. Dependent Variable: Promoted to Lieutenant.

Binary logistic regression analysis (lieutenant). Using the enter method, a mixed-methods binary logistic regression analysis was performed to assess the predictive impact of seniority, gender, race and education on promotion to Lieutenant. The Omnibus Tests of Model Coefficients table displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant ($\chi^2(4) = 131.370, p < .001$), thus indicating the fitted model was able to distinguish between participants who were promoted to Lieutenant and those who were not. The chi-square statistic represents the difference in log-likelihood (-2LL) values between the null and fitted models ($734.478 - 603.108 = 131.370$).

Goodness-of-fit tests are designed to determine the adequacy or inadequacy of the fitted logistic regression model. A poorly fitted model can give biased or invalid conclusions on the statistical inference based on the fitted model (Liu, 2007). Goodness-of-fit statistics are reported in the Model Summary table.

The Model Summary table displays the -2LL for the fitted model, 603.108, and two pseudo R^2 values, the Cox & Snell R^2 and the Nagelkerke R^2 . The -2LL statistic is used to assess the overall fit of the full model and should be lower than the -2LL statistic

for the null model (lower -2LL values indicate the model is predicting the outcome variable more accurately) (Field, 2013). The Cox & Snell (.217) and Nagelkerke (.291) statistics attempt to replicate the coefficient of determination found in OLS regression and are interpreted in the same manner. The fitted model explains between 21.7% and 29.1% of the variance in promotional outcomes (see Table 24 for Goodness-of-Fit statistics).

Table 24

Goodness-of-Fit Statistics: Promotion to Lieutenant Group

Tests	χ^2	<i>df</i>	Sig.
Omnibus tests of model coefficients	131.370	4	.000
-2LL	603.108		
Cox & Snell R^2	.217		
Nagelkerke R^2	.291		

The Block 0 Classification Table shows how well the null model (includes only the constant, no predictor variables) classifies cases (57.2%). The Block 1 Classification Table shows how well the full/fitted model correctly classifies cases. The fitted model for Promotion to Lieutenant correctly classified 72.3% of the cases (see Table 26), an improvement of 14.9% over the null model (see Table 25).

Table 25

Block 0 Classification Table: Promotion to Lieutenant Group

	Observed	Predicted		
		Promoted to lieutenant		% correct
		Not promoted	Promoted	
Promoted to lieutenant	Not promoted	308	0	100.0
	promoted	230	0	0.0
Overall %				57.2

Note. Constant is included in the model. The cut value is .500.

Table 26

Block 1 Classification Table: Promotion to Lieutenant Group

	Observed	Predicted		
		Promoted to lieutenant		% correct
		Not promoted	Promoted	
Promoted to lieutenant	Not promoted	272	36	88.3
	promoted	114	116	50.4
Overall %				72.1

Table 27 presents the findings of the binary logistic regression analysis for the Promotion to Lieutenant Group. Two predictor variables were found to be statistically significant ($p < .001$), EDUCATION and SENIORITY.

Table 27

Logistic Regression Results: Promotion to Lieutenant Group

	B	SE	Wald	df	Sig.	Exp(B)	95% CI for EXP(B)	
							Lower	Upper
Seniority	.264	.028	86.049	1	.000	1.302	1.232	1.377
Gender(1)	.200	.567	.124	1	.724	1.221	.402	3.710
Race(1)	.430	.294	2.147	1	.143	1.538	.865	2.734
Education(1)	1.818	.262	48.164	1	.000	6.160	3.686	10.293
Constant	-7.940	.958	68.657	1	.000	0.000		

Note. Variable(s) entered on step 1: SENIORITY, GENDER, RACE, EDUCATION.

The strongest predictor of promotional outcome was EDUCATION, which had an odds ratio of 6.160 (95% CI between 3.686 & 10.293), which indicates the odds of promotion increase 6.160 times for each unit increase in EDUCATION. In other words, Troopers in compliance with SOP C-58 (120 college credits) were 6.2 times more likely to be promoted than non-compliant Troopers.

The odds ratio for SENIORITY was 1.302, with a 95% CI between 1.232 and 1.377. This indicates the odds of being promoted increase 1.3 times with every additional year of SENIORITY.

The predictor variables GENDER and RACE were statistically insignificant.

Conclusion. In the Promotion to Lieutenant Group, Troopers in compliance with SOP C-58 were 6.2 times more likely to be promoted. As a result, the null hypothesis is rejected.

Captain

Research Question

To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Captain in the New Jersey State Police?

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not significantly increase participant's likelihood of promotion to Captain in the New Jersey State Police.

Statistical Analysis

Descriptive statistics. Using the Descriptive Statistics / Descriptives function in SPSS, the following values were observed: AGE ($\mu = 48$, $SD = 3.074$); SENIORITY ($\mu = 23.5$, $SD = 3.711$). The age of the oldest participant in the population sample was 55, while the youngest was 40. The senior participant had been a trooper for 32 years, while the junior participant had 14 years of seniority. There were no missing cases (see Table 28).

Table 28

Descriptive Statistics for Continuous Predictor Variables: Promotion to Captain Group

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Trooper's age	278	40	55	48.40	3.074
Years of service	278	14	32	23.54	3.711
Valid <i>N</i> (listwise)	278				

Frequency statistics. Among the categorical predictor variables, GENDER was the most skewed, with 97.1% being male. Whites accounted for 86.3%, while 67.3% of the population had earned at least a Bachelor's Degree (see Table 29).

Table 29

Frequency Statistics for Categorical Predictor Variables: Promotion to Captain Group

		<i>f</i>	%	Valid %	Cumulative %
Gender	Female	8	2.9	2.9	2.9
	Male	270	97.1	97.1	100.0
	Total	278	100.0	100.0	
Race	Nonwhite	38	13.7	13.7	13.7
	White	240	86.3	86.3	100.0
	Total	278	100.0	100.0	
Education	< 60 Credits	91	32.7	32.7	32.7
	60 Credits	187	67.3	67.3	100.0
	Total	278	100.0	100.0	

Crosstabulations. Using the Descriptive Statistics / Crosstabs function in SPSS, three separate crosstabulations analyses were run. Included in each analysis was the outcome variable and one of the three categorical predictor variables. The results are presented in a 'contingency table' used, for the purposes of this study, to observe the 'expected counts' value for every possible combination of variables included in the analysis. The Expected counts value represents the "frequencies that you would expect in

each cell of the table, if you knew only the row and column totals, and if you assumed that the variables under comparison were independent” (Easton & McColl, 2014).

To ensure the statistical integrity of the binary logistic regression analysis, the ‘expected counts’ value must be greater than or equal to five in each cell (Leech, Barrett, & Morgan, IBM SPSS for Introductory Statistics - Use and Interpretation, 2013). The results of the three SPSS crosstabulations analyses have been consolidated into a single contingency table. All Expected counts values met or exceeded the minimum standard, with the exception of the Female & Promoted categorical variable combination (see Table 30).

Table 30

Crosstabulations for Categorical Variables: Promotion to Captain Group

			Promoted to sergeant		
			Not promoted	Promoted	Total
Trooper’s gender	Female	Count	6	2.0	8
		Expected count	6.6	1.4	8
	Male	Count	224.0	46.0	270
		Expected count	223.4	46.6	270
Total		Count	230.0	230.0	48
		Expected count	230.0	230.0	48
Trooper’s race	Nonwhite	Count	30.0	8.0	38
		Expected count	31.4	6.6	38
	White	Count	200.0	40.0	240
		Expected count	198.6	41.4	240
Total		Count	230.0	230.0	48
		Expected count	230.0	230.0	48
Level of education	< bachelor’s	Count	81.0	10.0	91
		Expected count	75.3	15.7	91
	Bachelor’s	Count	149.0	38.0	187
		Expected count	154.7	32.3	187
Total		Count	230.0	230.0	48
		Expected count	230.0	230.0	48

Multicollinearity. As illustrated in Table 31, a statistically significant, moderate positive correlation was observed between SENIORITY and AGE ($r = .573, p < .001$) (Hinkle, Wiersma, & Jurs, 2003). A moderate positive correlation is not necessarily indicative of collinearity, however, it does indicate the need for further analysis to determine if a collinear relationship exists. The remaining predictor variables showed low, if any, correlation.

Table 31

Correlation Matrix: Promotion to Captain Group

		Age	Seniority	Gender	Race	Education
Age	<i>r</i>	1	.573**	.023	-.159**	-.141*
	Sig. (2-tailed)		.000	.707	.008	.019
	<i>N</i>	278	278	278	278	278
Seniority	<i>r</i>	.573**	1	.176**	-.123*	-.332**
	Sig. (2-tailed)	.000		.003	.041	.000
	<i>N</i>	278	278	278	278	278
Gender	<i>r_s</i>	.001	.177**	1.000	-.006	-.028*
	Sig. (2-tailed)	.989	.003	.	.923	.638
	<i>N</i>	278	278	278	278	278
Race	<i>r_s</i>	-.134*	-.103	-.006	1.000	-.010
	Sig. (2-tailed)	.026	.086	.923	.	.871
	<i>N</i>	278	278	278	278	278
Education	<i>r_s</i>	-.110	-.289**	-.028	.010	1.000
	Sig. (2-tailed)	.067	.000	.638	.871	.
	<i>N</i>	278	278	278	278	278

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

To rule out multicollinearity, the Tolerance value for the Promotion to Captain Group must be greater than .958(1 - .042). Among the predictor variables for the group, the Tolerance values for AGE and SENIORITY were .654 and .581, respectively,

indicating the presence of multicollinearity (see Table 32). SENIORITY had a higher semi-partial correlation coefficient ($r = .122$), therefore, AGE ($r = .071$) was omitted.

Table 32

Collinearity Statistics: Promotion to Captain Group

Model	Correlations			Collinearity statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Trooper's age	.154	.073	.071	.654	1.528
Years of service	.141	.125	.122	.581	1.723
Trooper's gender	-.035	-.061	-.059	.958	1.044
Trooper's race	-.040	-.005	-.005	.971	1.030
Level of education	.116	.172	.169	.883	1.133

Note. Dependent Variable: Promoted to Captain.

Binary logistic regression analysis (captain). Using the enter method, a mixed-methods binary logistic regression analysis was performed to assess the predictive impact of seniority, gender, race and education on promotion to Captain. The Omnibus Tests of Model Coefficients table displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was statistically significant ($\chi^2(4) = 15.306, p = .004$), thus indicating the fitted model was able to distinguish between participants who were promoted and those who were not.

Goodness-of-fit tests are designed to determine the adequacy or inadequacy of the fitted logistic regression model. A poorly fitted model can give biased or invalid conclusions on the statistical inference based on the fitted model (Liu, 2007). Goodness-of-fit statistics are reported in the Model Summary table.

The Model Summary table displays the -2LL for the fitted model, 240.499, and two pseudo R^2 values, the Cox & Snell R^2 and the Nagelkerke R^2 . The -2LL statistic is used to assess the overall fit of the full model and should be lower than the -2LL statistic

for the null model (lower -2LL values indicate the model is predicting the outcome variable more accurately) (Field, 2013). The Cox & Snell (.054) and Nagelkerke (.089) statistics attempt to replicate the coefficient of determination found in linear regression and are interpreted in the same manner. Thus, we can say the fitted model explains between 5.4% and 8.9% of the variance in promotional outcomes (see Table 33 for Goodness-of-Fit statistics).

Table 33

Goodness-of-Fit Statistics: Promotion to Captain Group

Tests	χ^2	df	Sig.
Omnibus Tests of Model	15.306	4	.004
Coefficients			
-2LL	240.499		
Cox & Snell R^2	.054		
Nagelkerke R^2	.089		

The Block 0 Classification Table shows how well the null model (includes only the constant, no predictor variables) classifies cases. The Block 1 Classification Table shows how well the full/fitted model correctly classifies cases. The fitted model for Promotion to Captain correctly classified 82.7% of the cases (see Table 35), exactly the same as the null model (see Table 34). Our fitted model is limited in its usefulness because it failed to improve upon the null model.

Table 36 presents the findings of the binary logistic regression analysis for the Promotion to Captain Group. Two predictor variables were found to be statistically significant ($p < .001$), EDUCATION and SENIORITY.

Table 34

Block 0 Classification Table: Promotion to Captain Group

Observed		Predicted		
		Not promoted	Promoted	% correct
Promoted to captain	Not promoted	230	0	100.0
	promoted	48	0	0.0
Overall %				82.7

Note. Constant is included in the model. The cut value is .500.

Table 35

Block 1 Classification Table: Promotion to Captain Group

Observed		Predicted		
		Not promoted	Promoted	% correct
Promoted to captain	Not promoted	230	0	100.0
	promoted	48	0	0.0
Overall %				82.7

Table 36

Logistic Regression Results for Captain: Promotion to Captain Group

	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	Sig.	Exp(B)	95% <i>CI</i> for EXP(B)	
							Lower	Upper
Seniority	.158	.051	9.703	1	.002	1.171	1.060	1.293
Gender(1)	-1.105	.877	1.587	1	.208	.331	.059	1.848
Race(1)	-.101	.449	.051	1	.821	.904	.375	2.177
Education(1)	1.081	.399	7.335	1	.007	2.949	1.348	6.449
Constant	-4.973	1.490	11.134	1	.001	.007		

Note. Variable(s) entered on step 1: SENIORITY, GENDER, RACE, EDUCATION.

The strongest predictor of promotional outcome was EDUCATION, which had an odds ratio of 2.949 (95% CI between 1.348 & 6.449), which indicates the odds of promotion increase 2.949 times for each unit increase in EDUCATION. In other words, Troopers in compliance with SOP C-58 (Bachelor's degree) were about 3 times more likely to be promoted than non-compliant Troopers.

The odds ratio for SENIORITY was 1.171, with a 95% CI between 1.060 and 1.293. This indicates the odds of being promoted are basically the same for all participants, regardless of SENIORITY.

GENDER and RACE were not found to be statistically significant predictors in the binary logistic regression model.

Conclusion. In the Promotion to Captain Group, Troopers in compliance with SOP C-58 were approximately 3 times more likely to be promoted. As a result, the null hypothesis is rejected.

Major

Research Question

To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Major in the New Jersey State Police?

Null Hypothesis

Higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not significantly increase participant's likelihood of promotion to Major in the New Jersey State Police.

Statistical Analysis

Descriptive statistics. Using the Descriptive Statistics / Descriptives function in SPSS, the following values were observed: AGE ($\mu = 49$, $SD = 2.205$); SENIORITY ($\mu = 24.8$, $SD = 2.657$). The age of the oldest participant in the population sample was 55, while the youngest was 44. The senior participant had been a trooper for 29 years, while the junior participant had 17 years of seniority. There were no missing cases (see Table 37).

Table 37

Descriptive Statistics for Continuous Predictor Variables: Promotion to Major Group

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
Trooper's age	63	44	55	49.43	2.205
Years of service	63	17	29	24.81	2.657
Valid <i>N</i> (listwise)	63				

Frequency statistics. Among the categorical predictor variables, GENDER was the most skewed, with 95.2% being male. Whites accounted for 79.4%, while 57.1% of the population had not earned a Master's Degree (see Table 38).

Table 38

Frequency Statistics for Categorical Predictor Variables: Promotion to Major Group

		<i>f</i>	%	Valid %	Cumulative %
Gender	Female	3	4.8	4.8	4.8
	Male	60	95.2	97.1	100.0
	Total	63	100.0	100.0	
Race	Nonwhite	13	20.6	20.6	20.6
	White	50	79.4	79.4	100.0
	Total	63	100.0	100.0	
Education	< master's	36	57.1	57.1	57.1
	Master's	27	42.9	42.9	100.0
	Total	63	100.0	100.0	

Crosstabulations. Using the Descriptive Statistics / Crosstabs function in SPSS, three separate crosstabulations analyses were run. Included in each analysis was the outcome variable and one of the three categorical predictor variables. The results are presented in a ‘contingency table’ used, for the purposes of this study, to observe the ‘expected counts’ value for every possible combination of variables included in the analysis. The Expected counts value represents the “frequencies that you would expect in each cell of the table, if you knew only the row and column totals, and if you assumed that the variables under comparison were independent” (Easton & McColl, 2014).

To ensure the statistical integrity of the binary logistic regression analysis, the ‘expected counts’ value must be greater than or equal to five in each cell (Leech, Barrett, & Morgan, IBM SPSS for Introductory Statistics - Use and Interpretation, 2013). The results of the three SPSS crosstabulations analyses have been consolidated into a single contingency table. All Expected counts values met or exceeded the minimum standard with the exception of the following categorical variable combinations: Female & Promoted, Female & Not Promoted, and Nonwhite & Promoted (see Table 39).

Multicollinearity. As illustrated in Table 40, a statistically significant, low positive correlation was observed between SENIORITY and AGE ($r = .320, p < .001$) (Hinkle, Wiersma, & Jurs, 2003). The remaining predictor variables showed little, if any, correlation. A low correlation between two variables does not necessarily indicate collinearity, however, for the sake of scientific validity and academic rigor, a check for collinearity will still be performed.

Table 39

Crosstabulations for Categorical Variables: Promotion to Major Group

			Promoted to sergeant			
			Not promoted	Promoted	Total	
Trooper's gender	Female	Count	2.0	1.0	3	
		Expected count	2.3	7.0	3	
	Male	Count	46.0	14.0	60	
		Expected count	45.7	14.3	60	
Total		Count	48.0	48.0	15	
		Expected count	48.0	48.0	15	
Trooper's race	Nonwhite	Count	8.0	5.0	13	
		Expected count	9.9	3.1	13	
	White	Count	40.0	10.0	50	
		Expected count	38.1	11.9	50	
	Total		Count	48.0	48.0	15
			Expected count	48.0	48.0	15
Level of education	< master's	Count	29.0	7.0	36	
		Expected count	27.4	8.6	36	
	Master's	Count	19.0	8.0	27	
		Expected count	20.6	6.4	27	
	Total		Count	48.0	48.0	15
			Expected count	48.0	48.0	15

Table 40

Correlation Matrix: Promotion to Major Group

		Age	Seniority	Gender	Race	Education
Age	<i>r</i>	1	.320*	.044	-.079	-.140
	Sig. (2-tailed)		.011	.733	.536	.273
	<i>N</i>	63	63	63	63	63
Seniority	<i>r</i>	.320*	1	.238	-.007	-.035
	Sig. (2-tailed)	.000		.060	.956	.787
	<i>N</i>	63	63	63	63	63
Gender	<i>r_s</i>	.064	.239	1.000	.070	.194
	Sig. (2-tailed)	.616	.059	.	.585	.128
	<i>N</i>	63	63	63	63	63
Race	<i>r_s</i>	-.115	.061	.070	1.000	.045
	Sig. (2-tailed)	.370	.636	.585	.	.724
	<i>N</i>	63	63	63	63	63
Education	<i>r_s</i>	-.139	-.126	.194	.045	1.000
	Sig. (2-tailed)	.279	.323	.128	.724	.
	<i>N</i>	63	63	63	63	63

To rule out multicollinearity, the Tolerance value for the Promotion to Major Group must be greater than 1.019(1 – (-.019)). The Tolerance values for AGE and SENIORITY were .876 and .846, respectively, indicating the presence of multicollinearity (see Table 41).

Table 41

Collinearity Statistics: Promotion to Major Group

Model	Correlations			Collinearity statistics	
	Zero-order	Partial	Part	Tolerance	VIF
Trooper's age	-.007	-.034	-.033	.876	1.142
Years of service	.083	.113	.110	.846	1.182
Trooper's gender	-.050	-.090	-.088	.898	1.113
Trooper's race	-.175	-.179	-.176	.988	1.012
Level of education	.118	.142	.139	.938	1.066

The part, or semi-partial, correlation is used to determine which variable explains the greater percentage of variance in the outcome variable. The variable with the higher part regression coefficient is SENIORITY ($r = .110$), therefore, AGE ($r = -.033$) was omitted.

Binary logistic regression analysis (major). Using the enter method, a mixed-methods binary logistic regression analysis was performed to assess the predictive impact of seniority, gender, race and education on promotion to Major. The Omnibus Tests of Model Coefficients table displays the model chi-square and tests for overall significance of the fitted model. The fitted model chi-square was not statistically significant ($\chi^2(4) = 3.908$, $p = .419$), thus indicating the fitted model was not able to distinguish between participants who were promoted and those who were not.

The Model Summary table displays the -2LL for the fitted model, 65.250, and two pseudo R^2 values, the Cox & Snell R^2 and the Nagelkerke R^2 . The -2LL statistic is used to

assess the overall fit of the full model and should be lower than the -2LL statistic for the null model (lower -2LL values indicate the model is predicting the outcome variable more accurately) (Field, 2013). The Cox & Snell (.060) and Nagelkerke (.090) statistics attempt to replicate the coefficient of determination found in OLS regression and are interpreted in the same manner. Thus, we can say the fitted model explains between 6.0% and 9.0% of the variance in promotional outcomes (see Table 42 for Goodness-of-Fit statistics).

Table 42

Goodness-of-Fit Statistics: Promotion to Major Group

Tests	χ^2	<i>df</i>	Sig.
Omnibus Tests of Model Coefficients	3.908	4	.419
-2LL	65.250		
Cox & Snell R^2	.060		
Nagelkerke R^2	.090		

The Classification Table shows how well the full model correctly classifies cases. The fitted model for Promotion to Major correctly classified 76.2% of the cases (see Table 44), exactly the same as the null model (Table 43). Therefore, our fitted model is no better at classifying cases than a model containing only the constant.

Table 43

Block 0 Classification Table: Promotion to Major Group

		Predicted		
		Promoted to major		% correct
Observed		Not promoted	Promoted	
Promoted to major	Not promoted	47	1	97.9
	promoted	14	1	6.7
Overall %				76.2

Note. Constant is included in the model. The cut value is .500.

Table 44

Block 1 Classification Table: Promotion to Major Group

		Predicted		
		Promoted to major		% correct
Observed		Not promoted	Promoted	
Promoted to major	Not promoted	47	1	97.9
	promoted	14	1	6.7
Overall %				76.2

Table 45 presents the findings of the binary logistic regression analysis for the Promotion to Major Group. None of the predictor variables were statistically significant. In other words, we cannot assume any of the independent variables make a significant contribution to the prediction of the outcome (*Y*).

Table 45

Logistic Regression Results for Major: Promotion to Major Group

	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	Sig.	Exp(B)	95% <i>CI</i> for EXP(B)	
							Lower	Upper
Seniority	.119	.139	.732	1	.392	1.126	.858	1.478
Gender(1)	-1.141	1.398	.666	1	.414	.320	.021	4.950
Race(1)	-.956	.688	1.930	1	.165	.385	.100	1.481
Education(1)	.738	.637	1.342	1	.247	2.092	.600	7.298
Constant	-2.668	3.297	.655	1	.418	.069		

Note. Variable(s) entered on step 1: SENIORITY, GENDER, RACE, EDUCATION.

Sample size. As with goodness-of-fit tests and interpretation of collinearity statistics, rules of thumb for adequate case-to-variable ratios vary widely among statisticians. Depending on the author, acceptable ratios range from 10:1 to 50:1 (Hosmer, Lemeshow, & Sturdivant, Applied Logistic Regression, 2013; Peng, Lee, &

Ingersoll, 2002). The population size for the Promotion to Major Group (N = 63) meets the minimum rule of thumb.

To assess whether increasing the case-to-variable ratio would strengthen the statistical analyses, OLS regression analysis and binary logistic regression analysis were performed with GENDER & RACE omitted, resulting in a case-to-variable ratio of 30:1. The results, however, were virtually identical.

Conclusion. The statistical analysis for the rank of Major resulted in the following noteworthy findings:

1. The fitted model chi-square was not statistically significant ($\chi^2(4) = 3.908$, $p = .419$), thus indicating the fitted model was not able to distinguish between participants who were promoted and those who were not;
2. As illustrated in the Block 0 and Block 1 Classification Tables, the full model does not improve upon the null model's ability to correctly classify cases;
3. All of the predictor variables in the fitted model were statistically insignificant.

Based on these findings, the null hypothesis is retained.

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The extant research regarding the need for higher education standards in law enforcement has provided answers to the question of whether earning a college degree contributes to the likelihood of being promoted in select municipal and county-level agencies. Sorely lacking, however, are studies specific to state police agencies. While all police departments utilize rank, state police agencies are characterized by their strict para-military structure and equally strict adherence to a vertically hierarchical chain of command. The lack of quantitative research specific to state police agencies in the area of higher education and promotional outcomes mandate the need for this study.

The purpose of this study is to examine the influence of higher educational attainment on promotional outcomes in the New Jersey State Police. This study is designed to be a significant contribution to the body of knowledge regarding the relationship between higher education and the New Jersey State Police, and to inform Troopers who aspire to supervisory and command positions.

In this chapter I will describe the population and sample, review the theoretical foundation used to gird this study, summarize key findings for each participant group, and present my conclusions. I will also discuss the implications of this study within the context of the New Jersey State Police, and conclude with recommendations for policy, practice, and future research.

Population and Sample

At the time the archival data used in this study was provided, the New Jersey State Police's two most recent promotional events were September 14, 2012 and October

25, 2011. The quantitative archival data utilized in this population study were derived from three thousand, five-hundred fifteen ($N = 3515$) enlisted members considered for promotion during one, or both, of these promotional events to one the following ranks: Sergeant ($n = 1779$); Sergeant First Class ($n = 857$); Lieutenant ($n = 538$), Captain ($n = 278$); and Major ($n = 63$). The data represent total population samples for each rank. The total population samples were analyzed as five separate participant groups.

Theoretical Foundation

As mentioned in Chapter 2, the theoretical framework of Adams' equity theory on job motivation (Adams, 1965) is similar to Hanushek's education product function theory (Hanushek, 2007) in that both theories involve inputs and outputs. According to Adams, "Inputs are logically what we give or put into our work. Outputs are everything we take out in return" (1965). In this study, the input is higher education, while the output are promotional outcomes.

Adams' theory, however, builds upon Hanushek's by introducing the concept of extending beyond the individual self, and incorporates influence and comparison of other people's situations, thus enabling one to form a comparative view and awareness of equity in the workplace (Hanushek, 2007). Applied to this study, for example, Hanushek's theory implies a Trooper might examine whether the time, effort, and resources dedicated to earning a college degree effectively translate to a greater likelihood of being promoted.

This perspective addresses only the individual's input to output ratio, while Adams' theory introduces a comparative dimension to equity awareness by asserting employees seek to maintain equity between the inputs that they bring to a job and the

outcomes that they receive from it against the perceived inputs and outcomes of others. In other words, a Trooper's sense of equity is not dependent solely on the extent to which they believe reward equals effort, but also on whether their input to output ratio is comparable with the ratio of other Troopers in similar situations. Adams' equity theory on job motivation informed the research questions for this study.

Key Findings

In order to reach a scientifically valid conclusion reference retaining or rejecting each participant group's respective null hypothesis, descriptive statistics, bivariate correlation, multiple linear regression and binary logistic regression were performed.

Table 46

Null Hypothesis Results

Participant group	<i>N</i>	Result
Sergeant	1,779	Rejected
Sergeant First Class	857	Rejected
Lieutenant	538	Rejected
Captain	278	Rejected
Major	63	Retained

Sergeant

The research question for the Promotion to Sergeant Group asks to what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Sergeant in the New Jersey State Police?

For the Promotion to Sergeant Group, I rejected the null hypothesis based on the binary logistic regression result indicating Troopers in compliance with SOP C-58 were almost 30 times more likely to be promoted ($\text{Exp}(B)^{\text{Education}} = 29.604, p < .001$) than

non-compliant Troopers (See table 45). A key finding contributing to the rejection of the null hypothesis was the fitted model's statistical reliability in distinguishing between participants who were promoted and those who were not ($\chi^2(4) = 817.466, p < .001$). The fitted model correctly classified 82.5% of the cases, an improvement of 13.4% over the null model. In other words, adding predictor variables (gender, race, education and seniority) to the null model improved our ability to classify cases by 13.4%.

Controlling for the other variables in the binary logistic regression model, Seniority was the second strongest predictor of promotional outcomes ($\text{Exp}(B)^{\text{Seniority}} = 1.584, p < .001$), indicating the odds of being promoted increase 1.5 times with each additional year of employment.

Gender and race were not found to be statistically significant predictors of promotional outcomes ($p^{\text{Gender}} = .878, p^{\text{Race}} = .376$). This may be attributed to the homogeneity of the total population sample, wherein 95.5% of the population were male and 81.8% were white. This allows for very little variability within the categories.

Rejection of the null hypothesis leads this researcher to conclude higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion to Sergeant in the New Jersey State Police.

Sergeant First Class

The research question for the Promotion to Sergeant First Class Group asks to what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Sergeant First Class in the New Jersey State Police?

For the Promotion to Sergeant First Class Group, I rejected the null hypothesis based on the binary logistic regression result indicating Troopers in compliance with SOP C-58 were 4.5 times more likely to be promoted ($\text{Exp}(B)^{\text{Education}} = 4.562, p < .001$) than non-compliant Troopers (See table 45). A key finding contributing to the rejection of the null hypothesis was the fitted model's statistical reliability in distinguishing between participants who were promoted and those who were not ($\chi^2(4) = 284.617, p < .001$). The fitted model correctly classified 74.6% of the cases, an improvement of 10.5% over the null model. In other words, adding predictor variables (gender, race, education and seniority) to the null model improved our ability to classify cases by 10.5%.

Controlling for the other variables in the binary logistic regression model, Seniority was the second strongest predictor of promotional outcomes ($\text{Exp}(B)^{\text{Seniority}} = 1.354, p < .001$), indicating the odds of being promoted increase 1.35 times with each additional year of employment.

Gender and race were not found to be statistically significant predictors of promotional outcomes ($p^{\text{Gender}} = .320, p^{\text{Race}} = .354$). This may be attributed to the homogeneity of the total population sample, wherein 96.0% of the population were male and 84.6% were white. This allows for very little variability within the categories.

Rejection of the null hypothesis leads this researcher to conclude higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion to Sergeant First Class in the New Jersey State Police.

Lieutenant

The research question for the Promotion to Lieutenant Group asks to what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Lieutenant in the New Jersey State Police?

For the Promotion to Lieutenant Group, I rejected the null hypothesis based on the binary logistic regression result indicating Troopers in compliance with SOP C-58 were over 6 times more likely to be promoted ($\text{Exp}(B)^{\text{Education}} = 6.160, p < .001$) than non-compliant Troopers (See table 45). A key finding contributing to the rejection of the null hypothesis was the fitted model's statistical reliability in distinguishing between participants who were promoted and those who were not ($\chi^2(4) = 131.370, p < .001$). The fitted model correctly classified 72.1% of the cases, an improvement of 14.9% over the null model. In other words, adding predictor variables (gender, race, education and seniority) to the null model improved our ability to classify cases by 14.9%.

Controlling for the other variables in the binary logistic regression model, Seniority was the second strongest predictor of promotional outcomes ($\text{Exp}(B)^{\text{Seniority}} = 1.302, p < .001$), indicating the odds of being promoted increase 1.3 times with each additional year of seniority.

Gender and race were not found to be statistically significant predictors of promotional outcomes ($p^{\text{Gender}} = .724, p^{\text{Race}} = .143$). This may be attributed to the homogeneity of the total population sample, wherein 96.7% of the population were male and 85.5% were white. This allows for very little variability within the categories.

Rejection of the null hypothesis leads this researcher to conclude higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion to Lieutenant in the New Jersey State Police.

Captain

The research question for the Promotion to Captain Group asks to what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Captain in the New Jersey State Police?

For the Promotion to Captain Group, I rejected the null hypothesis based on the binary logistic regression result indicating Troopers in compliance with SOP C-58 were almost 3 times more likely to be promoted ($\text{Exp}(B)^{\text{Education}} = 2.949, p = .007$) than non-compliant Troopers (See table 45). A key finding contributing to the rejection of the null hypothesis was the fitted model's statistical reliability in distinguishing between participants who were promoted and those who were not ($\chi^2(4) = 15.306, p = .004$). However, the fitted and null models were identical in their ability to classify cases. Both models correctly classified 82.7% of the cases. In other words, adding predictor variables (gender, race, education and seniority) to the null model was ineffective in improving our ability to classify cases.

Controlling for the other variables in the binary logistic regression model, Seniority was the second strongest predictor of promotional outcomes ($\text{Exp}(B)^{\text{Seniority}} = 1.171, p = .002$), indicating the odds of being promoted increase approximately 1.2 times with each additional year of seniority.

Gender and race were not found to be statistically significant predictors of promotional outcomes ($p^{\text{Gender}} = .208$, $p^{\text{Race}} = .821$). This may be attributed to the homogeneity of the total population sample, wherein 97.1% of the population were male and 86.3% were white. This allows for very little variability within the categories.

Rejection of the null hypothesis leads this researcher to conclude higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, increases participant's likelihood of promotion to Captain in the New Jersey State Police.

Major

The research question for the Promotion to Major Group asks to what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Major in the New Jersey State Police?

For the Promotion to Major Group, I retained the null hypothesis for the following reasons:

1. The fitted model chi-square was not statistically significant ($\chi^2(4) = 3.908$, $p = .419$), thus indicating the fitted model was not able to distinguish between participants who were promoted and those who were not;
2. As with the Promotion to Captain Group, the fitted and null models ability to classify cases was identical (76.2%). This speaks to the limited usefulness of the full model based on its inability to improve upon the null model;
3. None of the predictor variables in the fitted model were statistically significant.

Rejection of the null hypothesis leads this researcher to conclude higher educational attainment, as delineated in SOP C-58: Educational Standards for Promotion, does not increase participant's likelihood of promotion to Major in the New Jersey State Police.

Conclusions

The same research question was posed for each participant group: To what extent does participants' compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increase the likelihood of being promoted to Sergeant/Sergeant 1st Class/Lieutenant/Captain/Major in the New Jersey State Police?

With the exception of the Promotion to Major participant group, the following findings were consistent across all participant groups: when controlling for the other variables in the binary logistic regression model, the predictor variable Education was the strongest predictor of promotional outcomes; Seniority was the second strongest predictor of promotional outcomes; Gender and Race were not statistically significant predictor variables; with the exception of the Promotion to Captain participant group, the fitted models were statistically reliable in distinguishing between participants who were promoted and those who were not; and each participant group's null hypothesis was rejected.

The results of the statistical analyses in this study revealed compliance with Standard Operating Procedure C-58: Educational Standards for Promotion increased the likelihood of being promoted to Sergeant/Sergeant 1st Class/Lieutenant/Captain in the New Jersey State Police by 30 times/4.5 times/6 times/3 times, respectively.

Although statistical analysis permitted rejection of the null hypothesis for the Promotion to Captain Participant group, the fitted model's usefulness is called into question based on its inability to improve upon the null in classifying cases. Readers should keep this in mind when drawing inferences from this study.

The null hypothesis was retained for the Promotion to Major participant group based primarily on the statistical insignificance of both the Chi square statistic and all four predictor variables, leading to the conclusion compliance with Standard Operating Procedure C-58: Educational Standards for Promotion does not increase the likelihood of being promoted to Major in the New Jersey State Police.

Consistent with this study, Heinrich's mixed-methods analysis revealed a statistically significant relationship between rank and higher education ($p < .05$), and between rank and job satisfaction ($p < .05$), while survey responses indicated "the most common reason police officers attend college is to get promoted" (Heinrich III, 2000, p. 47). Consistent with Heinrich's findings, Cipolla's study also revealed a statistically significant relationship between rank and job satisfaction ($p < .05$). Cipolla observed "[Troopers] who were dissatisfied when they held lower ranks changed their views as they progressed in rank" (Cipolla, 1996, p. 100), while Heinrich found "as rank increases, job satisfaction also increases" (Heinrich III, 2000, p. 93).

Recommendations for Policy, Practice and Future Research

Based on this study's findings and review of the literature, the following recommendations are offered:

Policy and Practice

Recommendation 1. The New Jersey State Police Promotional Recommendation Process is governed by Operations Instruction (OI) 13-19, dated September 13, 2013. The purpose of OI 13-19 is to “establish a promotional recommendation process to ensure robust discussions among the staff about all eligible personnel within their area of responsibility” (Fuentes, New Jersey State Police Operations Instruction (OI) 13-19, Promotional Recommendation Process, 2013). The Final Report of the State Police Review Team, however, noted “the procedures governing promotion to the ranks of sergeant, sergeant first class and lieutenant were often inconsistent” (Farmer Jr. & Zoubek, 1999, p. 43).

A search of OI 13-19 for the terms ‘college,’ ‘degree,’ or ‘education,’ returned one result, referencing ‘educational standards’ and the ‘required promotional examination’ for the rank of Lieutenant. The promotional examination is also listed for the ranks of Sergeant and Sergeant First Class, however, a promotional examination hasn’t been held since approximately 2005.

The New Jersey State Police is the largest statewide law-enforcement agency in the country without a promotional exam (Baxter, 2012). It is recommended, in addition to the subjective assessment process delineated in OI 13-19, a quantitative method for assessing enlisted members be established. I recommend the implementation of a thoughtfully designed promotional examination, tailored to the member’s next rank. A Trooper I, Sergeant and Sergeant First Class, for example, should not take the same promotional examination. The daily responsibilities, and the required base of knowledge,

for each rank can vary greatly. I realize this is a time-consuming and challenging recommendation, however, it is a worthwhile endeavor.

Recommendation 2. I recommend a 14th section be added to the New Jersey State Police annual performance evaluation to recognize advanced training and formal education. The current evaluation lacks mandatory recognition of same. Whether an enlisted member attends a tactical training school, advanced firearms course, or earns a college degree, they should be duly recognized.

Recommendation 3. I recommend the New Jersey State Police enforce all provisions of Standard Operating Procedure C-58: Educational Standards for Promotion with the exception of the awarding of imputed credits.

SOP C-58 was implemented by Colonel Carl Williams, who maintained the state police will benefit by filling supervisory positions with personnel who have demonstrated the ability to accomplish a goal. Colonel Williams also stressed that higher education will benefit the State Police by giving supervisors more experience in dealing with a diversity of people and belief systems (Hester, 1995).

What held true in 1995 is even more applicable today. “Law enforcement is a demanding field which requires the ability to quickly apply retained knowledge, engage in problem solving, and [simultaneously consider multiple options to reach the most appropriate response]. Critical thinking has become increasingly important to policing, given the complexities of our modern society” (Papota, 2012, p. 131).

If abeyance of SOP C-58 were to be lifted, enlisted members should only be awarded those credits earned by the member, not through imputation. For purposes of promotional eligibility, a member who earns 60 credits through traditional class work

should not be on equal footing with a member whose college credits were awarded through policy.

The continued abeyance of SOP C-58 raises issues concerning the agency's stated commitment to higher education.

Lastly, I recommend SOP C-58, Section I, Subsection A, which reads "Troopers who enlisted in the Division of State Police prior to February 1975, (including the 91st class) are exempt from any educational standards for promotion," be updated to reflect current membership. The date of enlistment and class number would have to be mutually agreed upon by New Jersey State Police management and all three collective bargaining units (STFA, NCOA, and SOA).

Recommendation 4. I recommend the New Jersey State Police ensure funding pursuant to Standard Operating Procedure C-30: Tuition Reimbursement. The SOP mandates reimbursement of tuition, subject to availability of funds, at a rate of 90%. The SOP states "As a result of the Division's educational requirements for promotion, S.O.P. C58, employees who are eligible for tuition reimbursement will be allowed to pursue one (1) associate's degree, one (1) bachelor's degree [or] one (1) graduate degree only" (Fedorko, 1999).

Tuition reimbursement was initially halted after the spring 2002 semester and has been inconsistent over the years. As a result, enlisted members attending college in subsequent semesters paid 100% of the tuition costs, causing enlisted members to incur student loan debt. Members become aware of the lack of available funds only after they have registered, paid for their classes, and applied for tuition reimbursement. As a result, I recommend the inclusion of loan forgiveness and retroactive tuition reimbursement in

SOP C-30. Whether an enlisted member receives compensation should not be based on luck or timing. Criteria for eligibility should mirror those for tuition reimbursement. This is yet another tangible way the New Jersey State Police can demonstrate their commitment to higher education.

Similar recommendations can be found in previous peer-reviewed New Jersey State Police studies (Cipolla, 1996; Gerding, 2007; Heinrich III, 2000; Hoptay Jr, 2007; Lynskey, 2001; Royster, 2007).

Recommendations for Future Research

Recommendation 1. Cipolla and Heinrich’s studies should be replicated to gauge current perceptions of: the promotional process in general; the degree to which the NJSP values higher education; job satisfaction; and the role of politics, favoritism, and seniority in the promotional process. Cipolla and Heinrich’s studies were conducted in 1996 and 2000, respectively, and included only a small sample of the enlisted membership at the time.

In their 1999 report, Final Report of the State Police Review Team, the Police Executive Research Forum (PERF) found “The lack of clear standards and heavy emphasis on seniority in the promotion process make it susceptible to allegations that the process operates ineffectively or unfairly. Indeed, information received by the Review Team from troopers irrespective of race or gender generally indicated little support for the current process and a general desire for its reform” (Farmer Jr. & Zoubek, 1999, p. 45).

Due to technological advances in the New Jersey State Police, it is now possible, with the Superintendent’s permission, to survey every member of the Division as part of

annual in-service training. It would be a worthwhile investment of a researcher's time to determine if perceptions have changed over the past 14-18 years.

Recommendation 2. Replicate this study but, at a minimum, ascertain enlisted member's date of degree completion and factor same into the data set. The advantage to such an approach would be greater accuracy with regards to the NJSP's voluntary enforcement of SOP C-58, despite it being held in abeyance. The disadvantage would be a smaller sample size. Members meeting the requirements of SOP C-58 after being promoted to the corresponding rank would be eliminated from the sample.

Summary

Substantial research and literature support establishing higher education standards in law enforcement and the myriad benefits of an educated police force. Empirical evidence points to the conclusions that, on average, higher education significantly increases the level of knowledge, the intellectual disposition, and the cognitive powers of its students (Bowen, 1997). Despite this evidence, several researchers examining the connection between higher education and career advancement reached a consensus that police departments have done a poor job of valuing college education and providing promotion-based incentives for obtaining a degree (Bishop, 1993; Boesel & Fredland, 1999; Fischer, Golden, & Heininger, 1985; Molder, 1991; Rodriguez, 1995).

The Superintendent of the New Jersey State Police in late 1999 was Acting Colonel Robert Dunlop. A/Colonel Dunlop was interviewed regarding the relationship between higher education and the New Jersey State Police. He believed college educated Troopers write better reports, offer better testimony in court, perform better under pressure, and are generally more capable of "handling situations" than non-college

educated Troopers. A/Colonel Dunlop also stated “I think the criticality of decision-making in law enforcement almost dictates a four-year college degree now. I mean our people have to decide things within moments if not seconds, and I think, I believe, that the college educated people are able to do that a lot better than those without college.” (Varricchio, 1999, pp. 251-252).

The significance of the results of this study lie in their ability to inform enlisted members of the New Jersey State Police, who aspire to supervisory and command-level positions, as to the wisdom of investing their time and money in pursuit of higher education for the sole purpose of career advancement. Additionally, it is hoped this study will broaden a member’s view of higher education and encourage them to enroll, or remain enrolled, in an institution of higher learning for the myriad benefits delineated in Chapter II.

A secondary goal of this study is to encourage command-level personnel to consider my recommendations for policy and practice in the formation and implementation of Standard Operating Procedures and Operations Instructions governing performance evaluations and the promotional recommendation process in an effort to further professionalize the Division of State Police.

This study examined the relationship between higher educational attainment and promotional outcomes in the New Jersey State Police. Through advanced statistical analysis, education emerged as the strongest predictor of promotional outcomes, while seniority emerged as a statistically significant, yet weak, predictor. Based on these findings, it appears higher education remains a worthwhile investment. Results indicate

enlisted members of the New Jersey State Police should continue to pursue higher education to increase the likelihood of being promoted.

New Jersey State Troopers are kept mindful of the high standards set by their founder, Colonel H. Norman Schwarzkopf, and their responsibility to embody the core values he established: honor, duty, and fidelity. Ours is a culture of self-sacrifice & excellence, with clear expectations one realize their full potential.

Descriptive statistics reveal 91.4 % of the enlisted membership in this study attended college, while 76.1 % earned at least one degree. Colonel Schwarzkopf, a 1917 graduate of the United State Military Academy at West Point, was an educated man and, thus, an anomaly for his time. I am convinced, were he alive today, Colonel Schwarzkopf would be proud of today's Troopers and their enduring commitment to higher education.

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APPENDIX

PERMISSION TO USE EDUCATION DEMOGRAPHICS DATA

David D Costantino

From: LOUIS KLOCK <LPP4459@gw.njsp.org>
Sent: Wednesday, August 14, 2013 12:14 PM
To: BETH LARKIN
Cc: STEPHEN GERBER; DAVID COSTANTINO
Subject: Re: Education Demographics - Approval for Use

Hello Beth,

Please allow this e-mail to serve as a formal correspondence on behalf of this command. I have reviewed and personally approved DSG Dave Costantino's request for educational data. Please provide Dave with the necessary educational data consistent with his initial request.

Please keep this e-mail on file in the event any questions/concerns arise in the future. Thanks again for facilitating this request knowing your extensive workload.

Lou

Louis P. Klock, Lt. Colonel
New Jersey State Police
Deputy Superintendent of Administration
work: 609-882-2000 extension 6510
cell: 609-273-0921
e-mail: lpp4459@gw.njsp.org

>>> BETH LARKIN 8/2/2013 2:18 PM >>>

DSG David Costantino, #5575 of the Counter Terrorism Bureau requested this information for his continued education, as stated below. He would like approval from you to use this information, in case approval turns out to be a requirement. It is a spreadsheet that lists education by race/gender/rank. There is no identifying information included (names/badges/assignments).

"I intend to use the data in my doctoral dissertation. I am pursuing the degree of Doctor of Education at Seton Hall University and this is my last remaining requirement."

I will be on vacation next week so I ask that you include Dave in your response.

Thanks in advance