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Characteristics of Newly-hired Members of the New York City Police Department as Predictors of Subsequent Job Performance

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Characteristics of Newly-hired Members

of the New York City Police Department

as Predictors of Subsequent Job Performance

by

Francis E. Spangenberg

A Dissertation submitted to the Graduate Faculty in Criminal Justice

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

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Abstract

Characteristics of Newly-hired Members of the New York City Police Department

as Predictors of Subsequent Job Performance

by

Francis E. Spangenberg

Adviser: Professor Candace McCoy

It would be advantageous for law enforcement agencies if it could be determined which

applicants for employment were most likely to provide superior performance over the course of

their careers. In order to do this, it is necessary to determine a) what constitutes superior

performance by police officers, b) what measurements can be used to record such performance,

and c) if there are characteristics known about newly-hired police recruits that can serve as

predictors of superior performance over an extended career. This study looked at the career

histories of the 1,707 members of the New York City Police Department class hired in June of

1995 who completed Academy training and were subsequently assigned to permanent

commands. Characteristics of the members of the class that were known at the end of training

were drawn from NYPD personnel and Police Academy records. The principles of performance

theory were used to determine behaviors that could be considered superior performance, and then

measurable indicators for such performance were identified, and subjected to analysis using

cross tabulations and linear regression. The study found that female officers and officers with

four-year bachelor's degrees were more likely to provide superior performance in the measures

that served as indicators for good judgment and respectful interaction with the public, while New

York City residents and officers whose final Police Academy grade was in the upper half of the

class were more likely to have superior performance in measures that served as indicators for a higher rate of organizational commitment. A greater likelihood of superior performance was also provided by male officers in the first organizational commitment measure of comparative rate of sick leave, but not in the second measure of comparative length of service, where the sex of the officers did not have a significant effect. However, superior performance was found not to be related to the current hiring requirement of only 60 college credits upon employment or its alternative of two years of military service. The study concludes with suggestions regarding how the findings might affect public policies regarding police hiring.

<u>Dedication</u>

To all the Good Cops,

especially those whom I have known and with whom I have worked,

and from whom I have learned so much.

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I must first and foremost acknowledge the enormous help and encouragement given by my adviser, Professor Candace McCoy. She has been a loyal ally, a steadfast friend, and a dauntless guide through a long journey that was at times fraught with unexpected and hazardous obstacles. I will always be grateful for all of the assistance she has given me. I would also like to acknowledge those members of the New York City Police Department who have assisted in the production of this dissertation. First, I would like to thank former Police Commissioner Raymond Kelly, with whom a chance conversation at a parade detail led to the Department's approval of, and support for, this study. I would also like to thank Police Commissioner William Bratton, whose administration continued that same approval and support. I am grateful to my two bosses over the course of my graduate studies, retired Chief of Transportation Michael Scagnelli and Inspector Michael Pilecki, for their generosity in permitting me to work a schedule that made those studies possible, and for all their encouragement. The peerless Antoinette Burke of the NYPD's Information Technology Services Division has my thanks for the invaluable assistance she repeatedly gave me in the collection of data. I am also grateful to First Deputy Commissioner Benjamin Tucker, Deputy Commissioner William Andrews, Captain Tim Malin, and Officer Tom Bilach, for their contributions to the process of creating this dissertation. Finally, I want to thank Richard Avignone, Christopher Druckman, Brandon Sokota, Molly Munley, Alba Mazarelli, and all my other friends and co-workers at the NYPD Traffic Enforcement District for their constant encouragement and support.

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CHAPTER 1: INTRODUCTION

Introduction to the Problem

It is natural that any employer should want to have as employees those men and women who would provide the best performance of the job they are employed to do. This is true whether the employer is a farmer and the employees are unskilled day laborers, or whether the employers are the voting public and the employees are the President and the members of Congress. Law enforcement agencies are no exception to this model, and they also desire to employ officers who perform their duties well rather than poorly. The enormous power that is placed into the hands of police officers makes the quality of their performance of duty particularly significant; as Theodore Roosevelt (1913) said regarding his own experience as a Commissioner with the New York City Police Department, "that power which will enable a man to do a job well will also necessarily enable him to do it ill if he is the wrong kind of man." It is thus of vital importance for a law enforcement agency to find the right kind of man – or today, the right kind of woman – who will do the job well.

Statement of the Problem

While hiring men and women who will provide the best service as police officers may seem to be a straightforward statement of what law enforcement agencies should seek to do when hiring new members, the operationalization of this goal is not so straightforward. First, it is necessary to establish what is meant by job performance as applied to police officers, and then it is necessary to determine what sort of performance is to be considered superior – that is, to use Roosevelt's phrase, doing the job well. After that, the task remains of selecting which candidates for employment are most likely to provide superior performance after being hired.

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The current practices of law enforcement agencies, including the author's own New York City Police Department, strongly suggest that those agencies do indeed believe that such candidates can be identified. It is a general policy of most such agencies either to require outright that applicants have certain characteristics in order to be considered for employment, or to give a preference in hiring to applicants who possess certain characteristics over those applicants who do not. It is reasonable to conclude that by requiring applicants to have certain characteristics, the hiring agencies consider those characteristics to be indicators of the applicants who are likely to make better police officers. However, the choice by law enforcement agencies of which standards to prefer often does not appear to be based on the evidence of research, which is largely lacking, but rather on custom, or popular assumptions, or political expedience. Furthermore, it is not at all clear that the candidates who met the selected standards did indeed turn out to have been the best ones to choose.

This, then, is the problem to be addressed by the current study: even if one may establish what is meant by "good job performance" among police officers, is it possible to identify measureable indicators for it? And if so, is there any relationship between an increased likelihood of finding such indicators in the performance of actual police officers, and the characteristics known about those officers before they began their police careers?

<u>Purpose of the Study</u>

It is the purpose of this study to supply some of the current deficiency in empirical research regarding the relationship – if such exists – between the characteristics known about newly-hired police officers, and the likelihood of those officers providing superior performance over the course of their career. The study will first identify a definition of "job performance" in

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accordance with current research in job performance theory. It will then select certain

measurable behaviors by police officers that may be regarded as indicators of what law

enforcement agencies would regard as forms of good performance by police officers. It will then

consider whether it is possible to discover any characteristics among persons who had not yet

undertaken the role of police officers that might serve as statistically significant predictors of a

higher likelihood of those indicators of superior performance being produced by those same

officers over a number of years. The study will focus on the performance of New York City

police officers, and suggest ways in which the NYPD in particular, and law enforcement

agencies generally, might improve agency performance through changes in the way that police

officers are hired and trained.

Research Questions and Null Hypotheses

The research questions that the study will attempt to answer are the following:

1) Did any of the selected characteristics of persons who were about to begin a police career in

the New York City Police Department in 1995 have a statistically significant relationship with

subsequent superior performance as reflected in the selected performance measures recorded

during their careers?

2) If so, which of the selected characteristics were they?

The null hypotheses that will be tested are the following:

H1   Being hired at age 21 or older will not have a statistically significant relationship

with subsequent superior performance.

H2   Being hired at age 22 or older will not have a statistically significant relationship

with subsequent superior performance

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H3   Military service before hiring will not have a statistically significant relationship with subsequent superior performance.

H4   The earning of 60 or more college credits before hiring will not have a statistically significant relationship with subsequent superior performance.

H5   The earning of a 4-year college degree before hiring will not have a statistically significant relationship with subsequent superior performance.

H6   New York City residence at the time of hiring will not have a statistically significant relationship with subsequent superior performance.

H7   A higher final grade in the Police Academy will not have a statistically significant relationship with subsequent superior performance.

H8   The race of the officer will not have a statistically significant relationship with subsequent superior performance.

H9   The sex of the officer will not have a statistically significant relationship with subsequent superior performance.

The first four of these hypotheses are based on qualifications currently or formerly imposed on applicants to the New York City Police Department. The fifth and sixth hypotheses are derived from additional requirements that have been suggested at various times in statements by some public officials, and that are used in other police departments in the New York City metropolitan area. The seventh hypothesis seeks to test the predictive effect of Police Academy training, and is suggested by other studies in the literature. The final two hypotheses consider characteristics examined in earlier studies which have produced contradictory findings.

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CHAPTER 2: LITERATURE REVIEW

<u>**Organization of the Literature Review**</u>

The literature that will be reviewed below falls into two general categories. The first category is a review of some of the most applicable literature regarding job performance theory, which is the theoretical foundation for this study. The second category is a review of studies that have considered the effect of various demographic or background characteristics on the actions or decisions of police officers.

<u>**Job Performance Theory**</u>

While researchers have for decades considered various aspects of how workers do their jobs, it is only within the last 30 years that a specific focus has been given by researchers to defining "job performance" as an empirical construct (Rotundo, 2002.) While the models for understanding the concept of job performance offered by different researchers may differ in their approach and terminology (Murphy &Kroeker, 1988; Campbell et al., 1992; Borman & Motowildo, 1993), over time a consensus has emerged regarding a fundamental concept necessary for a definition of "job performance." As Rotundo observes (2002), "a typical definition focuses on behaviors or actions of individuals, not results or outcomes of these actions and behaviors." The definition that will be adopted in this current study is that created by John P. Campbell, one of the early leaders in the field of job performance theory. As stated by Campbell et al. (1992),

> Performance is herein defined as synonymous with behavior. It is something that
> people actually do and can be observed. By definition, it includes only those
> actions or behaviors that are relevant to the organization's goals and that can be

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scaled (measured) in terms of each individual's proficiency (that is, level of

contribution.) Performance is what the organization hires one to do, and do well.

Campbell et al. distinguish between "performance" and both "effectiveness" and "productivity".

Sonnentag and Frese (2002) provide examples that explain this distinction, noting that the

effectiveness of even an excellent teacher may be affected by the inability of her students to

learn, while high public demand for a new electronic device can produce a large number of sales,

and thus high "productivity", for even a mediocre salesman.

The models offered by various writers on performance theory divide individual work

performance into different numbers of dimensions. For example, Campbell (1992) divided work

performance into eight work performance dimensions: (1) job-specific task proficiency, (2) non–

job-specific task proficiency, (3) written and oral communications, (4) demonstrating effort, (5)

maintaining personal discipline, (6) facilitating peer and team performance, (7) supervision, and

(8) management and administration. Grouping 486 measures of job performance found in the

literature, Viswesvaran (1993) expanded on this and listed ten dimensional measures of work

performance: overall job performance, productivity, quality of work, job knowledge,

communication competence, effort, leadership, administrative competence, interpersonal

competence, and compliance with/ acceptance of authority. Borman and Motowildo (1993)

proposed a simpler model, and suggested that all work performance could be considered under

the two dimensions of "task performance" (behaviors that directly or indirectly contribute to the

organization's technical core) and "contextual performance" (behaviors that support the

organizational, social, and psychological environment in which the technical core must function.)

These "contextual performance" behaviors are similar to what Dennis Organ (1988) calls

"Organizational Citizenship Behavior", which he defines as "individual behavior that is

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discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization."   Organizational citizenship behaviors play a significant role in the evaluation of performance. For example, in an analysis of eleven studies regarding organizational citizenship behavior, Podsakoff et al. (2000) noted that organizational citizenship behaviors had a significant positive relation in performance evaluations, accounting for nearly 43% of the variation in the studies analyzed. In a subsequent meta-analysis, Podsakoff et al. (2009) determined that organizational citizenship behaviors were positively related both to unit-level performance and to customer satisfaction.

Police Officer Characteristics and Officer Performance

In looking at how the existing research has examined the relationship between the characteristics of police officers and their performance of duty, it was observed that certain characteristics of police officers have been subjects of study as performance indicators far more often than others: there were, for example, many more studies that looked at the possible effect of an officer's education level than there were that considered the effect of an officer's age at hiring or an officer's previous employment history. This imbalance will necessarily be reflected in the literature review which follows.

- **Education as a Predictor of Police Job Performance**

As a predictor of job performance, the effect of a police officer's education was probably the characteristic most often considered in the literature. The claim has been advanced since the days of August Vollmer (1936) that professionalizing the police depended on having college-educated individuals as police officers. This idea would be embodied in the highly influential

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report of the President's Commission on Law Enforcement and the Administration of Justice (1967), which stated directly that

> As an ultimate goal, the Commission recommends that all police personnel with
> general enforcement powers have baccalaureate degrees.

This goal seems more attainable with the passage of time. For example, the Census of 2000 showed that about 25% of US residents over the age of 25 had a bachelor's degree or higher, while a 1994 study of police department with more than 500 members found that approximately 28% of the officers were college graduates (Roberg, 2004). Another study found that the percentage of officers who had completed one year of college had increased from 46% of officers in 1974 to 65% in 1989 (Carter & Sapp, 1990).

Nevertheless, as noted by Hayeslip (1989), the Commission's recommendation that police officers should have college degrees was in fact not based on empirical research on the effect of higher education on police performance, as there was a dearth of such studies at the time. However, following the Law Enforcement Education Program-fueled increase through the 1970s of university-level programs in criminal justice and police science, a number of research studies were conducted to determine if there was empirical evidence to support the hypothesis that there was a difference between the performance of college-educated police officers and those without college. Most of the studies supported the hypothesis that college-educated officers provide better police performance. Carter, Sapp, & Stephens (1989) determined that college-educated police officers were better communicators, and in a similar vein, while using data from the Project on Policing Neighborhoods (POPN) study of police officers in Indianapolis and St. Petersburg, Paoline, & Terrill (2007) determined that those with at least some college relied less on verbal coercion than did those with no college at all. Cascio (1977) found that

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college-educated officers were less likely to receive citizen complaints for the use of force, and used fewer sick days and had fewer on-duty accidents. Kappeler, Sapp, & Carter (1992), also found that officers with college degrees were less likely to receive civilian complaints, or to commit violations of internal departmental rules or policies. In a study of the use of deadly physical force by members of the Riverside County (California) Sheriff's Department, McElvain & Kposowa (2008) found that college-educated officers were more than 40% less likely to be involved in job-related shootings than officers with less than college education.

On the other side, however, an analysis by Dejong et al. (2001) of the POPN data mentioned above found that the attainment of a college degree not only had no effect regarding the amount of time that general patrol officers spent in problem solving, but in fact suppressed problem solving by community policing officers. A separate analysis of the same data by Mastrofski et al. (2000) likewise found that college education had no significant impact on whether an officer would grant a request by a citizen to control another person.

A curious anomaly was found by Wilson (1999), who determined that while officers with college degrees were less likely to receive civilian complaints than those with none, the holders of bachelors' degrees had a slightly higher rate of complaints made against them than did the holders of only associates' degrees. Manis, Archbold, & Hassell (2008), on the other hand, found that police with a four-year degree received fewer complaints than police with some college, but without a four-year degree. An entirely different result was found by Bostrom in his study of the St. Paul, Minnesota, Police Department. That study looked at the relationship between the level of an officer's education and four performance measures (sick leave hours used, on-duty vehicle accidents, number of commendations received, and disciplinary actions per officer.) In a surprising finding, while the best performance was found among those with

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graduate degrees (that is, the highest level of education), the second best performers were those with only a high school diploma, followed by those with a four-year bachelor's degree, while the worst performers were those with two-year associate's degrees. Fyfe and Kane (2005), though, provide a valuable caveat to findings related to officer education levels, noting that the nature of duties performed by the officers in the studies was not taken into account, and that the better-educated officers may be working in administrative assignments where their contact with the public (and thus opportunity to be subject to complaints) may be limited.

There also was not universal concurrence by researchers on the necessity for, or even the value of, college education for police officers. In a survey of officers from various departments in four northeastern states, Shernock (1992) found little difference between the "professional" attitudes of officers with college and those without. In a study of job satisfaction of police officers – which may be presumed to have an effect on how well an officer performs his or her duties – Dantzker (1993) discovered that while newer officers with at least some college education were more satisfied with their jobs than officers with no college education and similar experience, the least satisfied officers were those who had college degrees and more than five years of experience. Truxillo, Bennet, & Collins (1998) reviewed ten years' worth of records for officers in an unnamed "southern, metropolitan police department." While the review found a correlation between a college education and both promotions and supervisory ratings of job knowledge, no relationship was found between education and supervisory ratings of actual job performance.

In an analysis of data collected for the Police Services Study in 1977, Worden (1990) found little relation between the educational level of police officers and either police officer attitudes or the level of citizen satisfaction regarding the performance of the police officers with

whom they had contact. Worden comes to the conclusion that "patrol officers' performance and

morale will be affected neither by policies that encourage in-service education nor by entry

requirements that include college education." Baro and Burlingame (1999) have questioned the

whole notion of education as a sign of "professionalism", pointing out that "professionalism" is

often a matter of technical and bureaucratic expertise, rather than a concern about community

problems. They therefore regard the true value of a higher education requirement for police

officers as being a still-debatable question. Likewise, the wide-ranging review of existing

research conducted by committees of the National Research Council (Skogan & Frydl, 2004)

noted that in the area of the impact of education on police officer performance,

> Prior research has not employed strong measures of police behavior and
>
> performance; it has not taken into account the content of the education; and it has
>
> not controlled for the effects of many other influences on behavior and
>
> performance. [. . .] The committee finds the available evidence inadequate to
>
> make recommendations regarding the desirability of higher education for
>
> improving police practice.

- **Sex and Race as Predictors of Police Job Performance**

Most police officers in the United States are males who are not members of minority

groups, and in addition women police officers generally did not perform the same patrol duties as

male officers until the 1970s. Furthermore, topics such as the attitudes of coworkers towards

police officers who are females or members of minority groups, or the problems or sense of

discrimination experienced by those officers, have attracted more research than has the officers'

actual performance of duty. These factors tend to limit the quantity of literature that considers

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how a police officer's sex or race affects job performance. Nevertheless, there are still some studies that do take these characteristics into account.

When considering whether the sex of the officer is related to civilian complaints, some researchers have found that male officers are more likely to receive civilian complaints (Lersch and Mieczkowski, 2000; Worden, 1995), but others have found that the sex of the officer is not significant as a predictor (Kappeler, Sapp, & Carter, 1992). Several researchers (Grennan, 1987; Garner et al., 1996, 2002; Lonsway et al., 2002) have found that female police officers are less likely than male officers to use force. McElvain and Kposowa (2008) similarly found that male officers were three times more likely than female officers to be involved in on-duty shooting incidents. Lonsway et al. (2002) cite as an advantage to law enforcement agencies that use-of-force complaints and legal settlements against the actions of female officers are far less likely to be sustained.

The analysis of the POPN data by Mastrofski et al. (2000) found that male officers were twice as likely as female officers to fulfill a request to control another person. Furthermore, this greater likelihood of intervention by male officers was found at both high and low levels of evidence of wrongdoing by the subject controlled, and for all types of control or assistance requested. Schuck and Rabe-Hemp (2005) similarly found that female officers are less likely to use force or coercion than male officers. However, they also note that the opposite of the use of excessive force can be the <u>failure</u> by a police officer to use sufficient force to maintain order in or defuse a situation. This they term "underpredicted policing", and they find that female police officers are more likely to underpredict a situation than male officers are. While women police officers are traditionally considered better at such "supporting" assignments as community policing or serving as juvenile officers, Rabe-Hemp (2008) did not find that female officers were

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more "supporting" than male officers, and in fact found that female community policing officers displayed less "supporting" behavior than male patrol officers.

Gershon's (1999) study titled "Police stress and domestic violence in police families in Baltimore, Maryland, 1997-1999" provided data later used by a number of separate researchers regarding whether there is a relationship between the stress an officer may feel and the officer's sex, or race, or both. In the original study, self-administered questionnaires that addressed four major areas of interest (stressors that might produce symptoms of physical or psychological stress, perceived current stress, strategies for coping with stress, and health outcomes) were distributed to 1,106 members of the Baltimore City Police Department. He et al. (2005), Morash et al. (2006), and McCarty et al. (2007) separately examined the dataset produced by Gershon's study to see if the sex or race of the officer had an effect on officer stress.

In their interpretation of the data, He et al. (2005) found that white males reported higher levels of stress indicators than black males did, although black males were more likely to report signs of depression. Furthermore, both male and female black officers were more likely than white officers to use constructive measures for coping with stress. Morash et al. (2006) noted that while females experience more stress than males generally, the male officers were more likely than female officers to perceive that they had little input or influence into their jobs, which in turn served as a greater source of stress for male officers. Furthermore, male officers experienced more workplace problems than did female officers. The study of McCarty et al. (2007) gave more attention than provided by the other two studies to burnout among police officers. Among the findings of this study was that while female officers did not have a higher level of burnout than male officers, black female officers experienced burnout at a higher rate

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than white female officers. However, among male officers, ethnicity did not produce a statistically significant difference in the rate of burnout.

Holdaway and Parker (1998) found that women are less likely than men to seek promotions, with women officers more than three times as likely as their male colleagues (17% vs. 5%) to list a conflict between work and family obligations as a reason not to seek promotion. Archbold, Hassell, and Stichman (2010) also found that in the department they studied, female officers were less likely to aspire to promotion, while Gau et al. (2013) likewise found that female officers were less likely than male officers to consider promotion important.   A study of ten police departments in Great Britain by Cooper and Ingram (2004) showed that women officers resigned at a higher rate than men did, although they tended to do so later in their careers, and were more likely to give domestic responsibilities as a reason for resigning. In a study of the relationship between the physical fitness of police officers and their medical care and absenteeism, Steinhardt et al. (1991) found that female police officers were absent significantly more often than male police officers. Furthermore, while increased cardiovascular fitness was related to decreased absenteeism among male officers, increased fitness was not related to decreased absenteeism among female officers.

In the area of race, Cohen and Chaiken (1972, 1973) found no difference in civilian complaints between white and black officers, but did find that black officers had considerably more departmental disciplinary charges than white officers. In particular, Cohen and Chaiken found that black officers with high IQs had greater departmental misconduct, including high absenteeism, than average, but noted that it might merely be an indication of difficulties in race relations at the time of the report. Fyfe (1981) found that black officers were more likely than white officers to use deadly physical force, but that this was accounted for by differences in both

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the work assignments of black officers (who for reasons of community relations were more likely to be assigned to minority neighborhoods that also had a higher level of violent crime) and the higher risk of shooting in the neighborhoods where black officers lived. On the other hand, in their study of the Riverside County Sheriff's Department, McElvain and Kposowa (2008) found that white, non-Hispanic officers were more likely to shoot than were Hispanic officers, but there was no significant difference in the likelihood of being involved in a shooting between Hispanic and black officers.

In a further analysis of observational data collected by Black and Reiss (1967), Friederich (1980) found that patrol teams made up of two black officers were more than twice (6.8% of encounters compared to 3.1%) as likely to use force in a way the observers deemed "reasonably", but were only one-quarter as likely (0.5% of all incidents compared to 2.1%) to use force in a way the observers deemed "excessively". The determination of "reasonable" or "excessive" force may be weighted by the observers' own biases regarding force used by police whose race is different from that of the person against whom it is used, but the total percentage of incidents in which force was used (7.3 vs. 5.2) remained greater for teams of two black officers than for teams of two white officers. Surveying police officers in a Florida police department, Kakar (2003) found little difference in most performance measures between white and minority officers, although he did find that white officers were generally more likely to report themselves as happy with their department, while minority officers were more likely to report themselves as able to deal successfully with angry citizens.

An analysis of the POPN data by Terrill and Mastrofski (2002) found no relationship between police use of force and the race of the officers. Likewise, an analysis of the same data

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by Mastrofski et al. (2000) found no significant effect of citizen or officer race on police decisions to control another person when requested.

- **Police Training as a Predictor of Police Job Performance**

While there is a great deal of literature about the possible effect of a university education on police officer performance, the literature regarding the effect on performance of what officers learn in the police academy is surprisingly scant. In a study of the NYPD academy class of July 2003, White (2008) found that the best predictor of success in the academy class before assignment to patrol was the possession of reading ability greater than that of high school level. Following up on White's work, Henson et al.(2010) found that higher academy scores were significantly associated with higher supervisory ratings during the first three years on patrol, but were nor significantly associated with other measures of performance, such as the number of complaints or commendations an officer received. However, Fyfe and Kane (2005) determined that those officers who do well in police academy training classes are less likely to be terminated for wrongdoing.

- **Psychological and Personality Tests as Predictors of Police Job Performance**

A variety of studies have considered the value of psychological or personality tests in predicting police performance. In a study in Spain of 2,010 police candidates enrolled in the Catalan Institute for Public Safety, Forero and his colleagues (2009) determined that low emotional vulnerability and high conscientiousness were the personality traits that predicted successful law enforcement performance, and that successful police officers were more controlled and less anxious than less successful officers. A study by Decoster-Martin et al. (2004) produced the surprising finding that while an obsessive-compulsive personality typically has detrimental effects, mild levels of obsessive-compulsive disorder personality traits were

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significantly correlated with <u>better</u> performance by male – although not female – police officers. Detrick and Chibnall (2002) tested the ability of the Inwald Personality Inventory (IPI), administered during recruit training, to predict post-training police officer performance in the field, and found it successful. However, a meta-analysis by Varela et al. (2004) found both the IPI and the MMPI (Minnesota Multiphasic Personality Inventory) – which were designed to test for psychopathology – to be less successful for the purpose of testing law enforcement officers than the California Psychological Inventory (CPI) test, which was designed for testing normal personalities. This meta-analysis also found that personality tests for law enforcement officers were more effective at describing concurrent conditions rather than predicting future performance. A study with mixed results by Beutler et al. (1985) was able to note that there was a clear distinction between officers who rated highly for interpersonal abilities and those who rated highly for technical abilities. However, Burbeck and Furnham (1985) note there is little evidence to support a claim that intelligence is by itself related to successful performance by the officer on patrol.

- **Other Characteristics as Predictors of Police Job Performance**

Conrad and Chaiken, whose reviews (1972, 1973) of two cohorts of NYPD officers hired in the 1950s bears the most resemblance to the present study, considered a number of factors that might affect police performance. Considering previous military experience, they determined that veterans were not apt to be better or worse performers than non-veterans. Similar results were obtained by Patterson (2002), who found little relation for police officers between length of prior military service, if any, and either work performance or reaction to stress. Ivie and Garland (2011) likewise found that there was no statistically significant difference between officers with military backgrounds and those with none in the production of officer "burnout" as the result of

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negative experiences at work. Wright, Dai, and Greenbeck (2011) also found that prior military experience was not a significant predictor of successful completion of training at Baltimore's Police Academy. Conrad and Chaiken (1972, 1975) did determine, however, that a prior military misconduct record was a predictor of future police misconduct. Fyfe and Kane (2005), however, found that independent of their disciplinary history in the military, officers with prior military employment experience were more likely to be terminated involuntarily than officers with no military employment experience. White and Kane (2013) had a similar finding, although with a distinction: while military experience was not related to misconduct that would lead to termination during the first ten years of an officer's employment, it was a strong predictor of misconduct resulting in termination after an officer's tenth year of employment.

While Conrad and Chaiken (1972, 1973) did not find any relation between performance and the number or types of civilian jobs an officer may have had before joining the police, in prior civilian as in prior military employment a history of disciplinary incidents or dismissals was found to be a strong predictor of a future pattern of police discipline. In their study of officers dismissed from the New York City Police Department, Fyfe and Kane (2005) likewise found that unsatisfactory performance in prior civilian jobs is associated with career failure in the NYPD.

When considering the effect of age at employment on police performance, Conrad and Chaiken (1972, 1973) noted that the officers who were oldest at the time of hiring were least likely to advance in rank, but also had lower absenteeism and were substantially less likely to be the object of civilian complaints. Lersch and Mieczkowski (1992) also found that younger officers tend to receive more complaints, but Bayley and Garafalo (1989) found that age and length of service are not predictors of which officers are more likely to receive complaints by

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members of the public. Fyfe and Kane (2005) also noted that the age of hiring had an effect, with officers who were less than 22 years old at the time they were hired being more likely to be involuntarily terminated while on probation than those who were 22 years old or more at hiring.

Nevertheless, the effect of individual characteristics may be mitigated by circumstances. Forero et al. (2009) found that the influence of an officer's personality could be mediated by training. Friederich (1980) found that in the area of the use of force, the individual characteristics of the officer are not as important to determining whether force will be used as are the demeanor of the suspect and the circumstances of the event.

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CHAPTER 3: OVERVIEW OF THE STUDY

Methodology/Research Design

     As noted previously, the purpose of this study was to determine if certain characteristics of newly hired officers served as predictors of a greater likelihood of superior performance by those officers during their careers. In order for such a study to be possible, one must first be able to identify at least some behaviors that constitute good performance by police officers, and then determine if there are any measurable indicators for those behaviors. While there are a large number of behaviors that any police agency would consider good performance, this study will consider three in particular: 1) the exercise of good judgment, 2) respectful and professional interaction with the public, and 3) organizational commitment.

     The need for the officer to have and use good judgment is self-evident: because of the way officers are deployed in the field, they do not commonly spend most of their workday under the direct personal observation of a supervisor (Johnson, 2015), but instead are entrusted with enormous individual discretion regarding when and how to take action regarding the situations they encounter. In order to perform well, the officer must tend to make the right decisions, which in turn requires the exercise of good judgment. The importance of this quality to law enforcement agencies is reflected, for example, in the fact that while the performance evaluation forms for members of different ranks in the New York City Police Department call for an evaluation of different characteristics, all ranks are evaluated on their "judgment".

     It is equally clear that good performance by a police officer requires that the officer interact with the public in a way that is both respectful and professional. To return to Campbell's definition of performance, "performance is what the organization hires one to do, and do well." In the case of police officers, they are hired with the expectation that they will have interactions

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with the public, and such interactions, when done well, will not provoke resentment and dissatisfaction with the individual officer, but will instead encourage cooperation with the police, and foster a sense of the legitimacy of their mission and actions. As noted by Mazerolle et al. (2012) in a study involving police-civilian interactions in Queensland, Australia, when people perceive that police are using their authority fairly and are treating people with respect, they are more likely to regard police authority as legitimate, and are more likely to comply with the directives of officers. Furthermore, even very brief encounters can influence citizen attitudes towards the police. McCluskey et al. (1999) similarly found that officers who were respectful were more likely to get compliance from the public, and also found, as did Mastrofski et al. (1996), that officers who were disrespectful were less likely to receive acquiescence to their requests.

Organizational commitment is closely related to Ogden's concept of "organizational citizenship" mentioned above. Mowday et al. (1982) define organizational commitment as being

> characterized by at least three factors: (a) a strong belief in and acceptance of the
> organization's goals and values; (b) a willingness to exert considerable effort on
> behalf of the organization, and (c) a strong desire to maintain membership in the
> organization, When organization commitment is defined in this fashion, it
> represents something beyond mere passive loyalty to an organization. It involves
> an active relationship with the organization such that individuals are willing to
> give something of themselves in order to contribute to the organization's well-
> being. Hence, to an observer, commitment can be inferred not only from the
> expression of an individual's belief and opinions, but also from his or her actions.

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The goals and values of law enforcement agencies (such as demanding scrupulous integrity from members, or requiring officers to respond professionally and calmly in all situations even in the face of extraordinary provocation, or expecting officers to place themselves in dangerous situations in order to protect the community) are often contrary to the habits and culture of society as a whole. As a result, police departments prize higher levels of organizational commitment in their members. For example, in the case of the New York City Police Department, while the exact phrase "organizational commitment" does not appear on evaluation forms, members are nonetheless evaluated on behavioral dimensions that are expressions of organizational commitment, such as "Drive and Initiative", or "Dependability".

In the current study, the "good performance" behaviors of good judgment, respectful and professional interaction with the public, and organizational commitment were operationalized in the form of various measures of police officer behaviors recorded by the New York City Police Department for an identified cohort of police officers. These measures then served as the dependent variables for analysis using χ^2 (chi-square) tests for independence as well as logistic regression analysis, in which the independent variables consisted of various characteristics of either potential or newly-hired police officers that might be used selectively by the Police Department in making recruitment or retention decisions. This analysis then determined which, if any, of the independent variables served as statistically significant predictors of the likelihood of the production of the dependent variables over the course of the officers' employment.

Population

The New York City Police Department employs 49,817 persons. Of this total, 14,921 are civilian employees, and 34,896 are sworn police officers who range in rank from recruits still

undergoing training in the Police Academy to the Chief of Department. The sworn police officer

members of the NYPD are hired periodically in large groups whose members are all appointed to

the Police Department on the same day. Each group hired on the same day forms a "class"

whose members are trained simultaneously at the New York City Police Academy, which was

until last year located at 235 East 20th Street in Manhattan, but which is now housed in a new

facility at 130-30 28th Avenue in the College Point neighborhood in Queens. Depending both on

need and on the funds budgeted by New York City, there may be either one or two classes in a

year. Classes may vary greatly in size, and since 1994 they have ranged from 2,549 members

(the class hired on July 1, 2002) to 112 members (the class hired on January 11, 2010.)

Cohort Selection

The purpose of this study was to determine if the characteristics of newly-hired police

officers serve as predictors of their subsequent performance, and in particular of superior

performance. As a result, there would be a threat to internal validity if the subject officers were

hired by different police departments with different policies, or if the officers received different

training at the outset of their careers, as either of these factors could serve to explain differences

in performance. Another threat to validity would derive from comparing officers who were hired

at different times, and who had different amounts of experience. Thus, for the purposes of this

study, it was highly preferable that the subject officers all work for the same agency, all have the

same length of employment, and had all received the same recruit training at the same time.

While using members of the same Police Academy class would solve the problem of

comparing the performance of officers with different length of experience, the requirement that

all be members of the same agency produced a limitation on which classes could be used for the

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study. Until 1995, New York City had three separate police departments: the NYPD, the New York City Transit Police Department and the New York City Housing Authority Police Department. The members of each of these three departments were hired from the same single civil service examination, but the department to which an applicant was assigned was selected by the City rather than by the applicant. Each department was completely independent of the other two, and each had its own regulations, procedures, and practices. Furthermore, all three did not answer to the same level of governmental authority: while the NYPD and the Housing Authority Police were both responsible to the Mayor of the City of New York, the Transit Police Department was not under mayoral control, but instead answered ultimately to the Metropolitan Transportation Authority, which was a state (as opposed to city) agency. Even when recruits from all three were trained together at the NYPD Police Academy, Transit Police and Housing Authority Police officers received additional classroom training not given to NYPD officers, while NYPD officers received field training not experienced by Transit and Housing Authority officers.

The separation of the departments ended with the merger of the New York City Transit Police with the NYPD on April 2, 1995, followed by the merger of the New York City Housing Authority Police into the NYPD on May 1, 1995. After that date, all new police officers in New York City were hired for a single New York City agency having a single set of regulations, practices, procedures, and recruit training policies. Therefore, in order to avoid the problem of employment by different agencies mentioned earlier, it was most appropriate that the subject class should be one hired by the NYPD after May 1 of 1995.

A second criterion for the subject class was that there be the maximum possible variety of education levels among the members of the class, as education level was a characteristic selected

for use as an independent variable. In December of 1995, the NYPD announced that applicants for the next hiring examination must have 60 credits of college or two years of military service, as opposed to the former standard that required only a high school diploma or its equivalent. This examination would be given in April of 1996, and it was expected that the first Police Academy class to include persons who had taken this examination would be hired in 1997. However, shortly after the Police Department announced its new standards, the New York City Department of Personnel, which controls the hiring process, announced that even though the members of the 1996 Police Academy class would be chosen from those who had taken an earlier hiring examination which did not have the new educational requirement, the Department of Personnel would give preference in placement to those applicants who already met the new standard regarding education. Thus, as far as diversity in the educational levels of class members is concerned, the best classes to consider were those hired before December of 1995. There was only one class that met both of these criteria, and therefore the officers selected for the study were those who were members of the New York City Police Academy class that was hired on June 30, 1995.

Since the study considers job performance by officers in the field, it was further necessary to refine the cohort. While a total of 1,894 probationary police officers were sworn in on June 30, 1995, all of them would not ultimately be assigned to commands. One hundred eighty-seven of the members of the class would resign or be terminated while still assigned to the Recruit Training Section. Therefore, the remaining 1,707 police officers who were hired on June 30, 1995, and who, upon completing all training, were assigned to permanent commands constitute the subjects of this study.

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Data Collection

All data used in this study were extracted with the express permission of the New York City Police Department from the Department's existing personnel records, and from the records of the Civilian Complaint Review Board (CCRB). These records included academic training records kept by the Police Academy, general personnel demographic information supplied by the Police Department's Management Information Systems Division, records regarding Department vehicle collisions maintained by the Department's Strategic Technology Division, and civilian complaint totals for individual police officers collected by CCRB.

The units named above provided data in both electronic and paper formats, and these data were coded and entered by the author into a SPSS dataset. The author had no direct personal contact in any way with any member of the cohort being studied. All identifiers regarding the members of the cohort (such as names, or tax identification numbers) were deleted from the dataset before analysis to maintain the privacy and anonymity of the cohort's members.

Independent Variables

The characteristics of police recruits selected for use as independent variables in this study are characteristics either known before hiring, or ascertained during academy training, that have been used, or could be used, in making decisions regarding the recruitment, hiring, or retention of police officers. Those characteristics are:

- Age at hiring
- City residence at time of hiring

- Education level at time of hiring

- Military Service

- Final academy grade

- Sex

- Race

Age at hiring was selected because of the history of how and why the minimum required age for members of the NYPD has fluctuated. At the time the class of June 30, 1995, was hired, the minimum hiring age for police officers was 20. However, the "Commission to Investigate Allegations of Police Corruption and the Anti-Corruption Procedures of the Police Department" (better known as the Mollen Commission), in its 1994 final report had speculated that older recruits would have had the opportunity to develop more mature characters and thus would be better able to resist corruption. As a result, beginning with the class hired from the civil service examination offered in 1996, the minimum age for employment was raised to 22. (Commission to Combat Police Corruption, 1996.) Subsequently, however, it was found difficult to obtain a sufficiently large pool of candidates, and so in 2000 the minimum age was lowered to 21 (McPhee, 2000), where it still remains. It was therefore apparent that, while the age of candidates for employment is considered significant in some way by the NYPD, the Department has not determined precisely which possible hiring age has the greatest significance in relationship to subsequent performance.

New York City residence was selected because of the frequency with which this characteristic turns up in proposals on ways the Police Department might be improved, although without any empirical evidence provided in support of using city residence as a requirement. For example, giving city residents extra points on the police hiring test was proposed by Mayor

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David Dinkins in his State of the City address in 1993, while in its August 2000 report on "Police Practices and Civil Rights in New York City", the United States Commission on Civil Rights, despite noting conflicting evidence regarding the value of the proposal, recommended categorically that:

> At a minimum, the NYPD should increase its preference points for applicants from New York residents and add other incentives for officers to move into the city. Preferably, the NYPD should require all police officers to live in one of the four [*sic*] New York boroughs.

It would therefore be worthwhile to determine if there is evidence to support this proposal.

Education Level and **Military Service** were selected because at present, applicants for the position of police officer with the New York City Police Department must have either successfully completed 60 college semester credits, or completed two years of honorable full-time U.S. military service. While these are common requirements, as can be seen from the literature, different studies of officers from other agencies have produced conflicting findings regarding the usefulness of such requirements.

The **Final Academy Grade** was chosen because it is also already used in the making of employment decisions. Recruits who do not attain a final average score of 75 or higher in their Police Academy studies do not graduate, and instead have their employment terminated. This practice leads to the conclusion that the Police Department considers the difference between earning a grade of 75.0, which will allow the recruit to proceed with a police career, and a grade of 74.9, which will result in loss of employment, to be highly significant. In such a case, it is appropriate to examine whether higher or lower final grades in the Police Academy are indicators of the likely subsequent quality of officers' performance.

Finally, the possible effects of the **Race** and **Sex** of officers were chosen for examination because of the contradictory nature of the findings in the substantial amount of existing literature. It seemed a worthwhile matter for empirical research to see whether the experience of the members of the NYPD class hired on June 30, 1995 served to confirm or to dispute any of the earlier research.

Dependent Variables

As noted above, the study aimed to measure 1) the exercise of good judgment, 2) respectful and professional interaction with the public, and 3) organizational commitment. These behaviors were operationalized through the use of several measurements of behavior maintained by the Police Department.

The measurement selected to operationalize "the exercise of good judgment" was **the number of on-duty collisions involving Police Department vehicles** in which an officer had been involved as the driver, calculated as an annual average over the full course of the officer's career. The operation of vehicles is a basic part of the duties of police officers of all ranks. All members of the New York City Police Department are required at the time of employment to have a valid New York State Driver License, and they are further required (under the penalty of suspension from duty for non-compliance) to maintain one throughout their term of employment with the Police Department. All officers are given training in the operation of Department vehicles while in the Police Academy, and none may graduate from the Academy without first passing a test of driving competence. The unlimited paid sick leave given to police officers precludes the likelihood of an officer coming to work while under incapacitating medication, or so sick as to be unable to drive competently, because their income might be disrupted if they did not come to work as can happen in other occupations. The Police Department also has strict

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rules with severe penalties that prohibit officers from being unfit for duty because of the use of alcohol, or from using illegal drugs in any quantity at any time, with the latter prohibition ensured through periodic random drug tests.

It can thus be assumed that when a police officer is involved in a collision while driving a Department vehicle on duty, that officer was not driving while physically impaired in any way, but was instead in full possession of his or her mental faculties, and made driving decisions subject to the officer's judgment. It is certainly the case that there are occasions (for example, an officer is legally and properly parked at the curb with the engine off, and the police vehicle is suddenly struck by an out-of-control oncoming car) when collisions occur wherein the officer behind the wheel was not at fault in any way, and the officer's judgment did not come into play. However, in most situations, a driver is usually able to exercise judgment in some way that allows a collision to be prevented or avoided. Furthermore, it is highly unlikely that careful and prudent police officers will repeatedly be involved in collisions involving no fault of their own and no ability to exercise their judgment while operating Police Department vehicles on duty. Therefore, for this study, it was considered an indicator of superior judgment for an officer to have a lower annual collision rate, with an increased rate of collisions taken as an indicator of inferior judgment.

The measurement use to indicate respectful and professional interaction with the public was **the number of civilian complaints for discourtesy, abuse of authority, or offensive language** that an officer had received, calculated as an annual average over the full course of the officer's career. In New York City, complaints against police officers are handled by a non-police mayoral agency called the Civilian Complaint Review Board, or CCRB. As per section 440 (c)(1) of the New York City Charter,

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The board shall have the power to receive, investigate, hear, make findings and recommend action upon complaints by members of the public against members of the police department that allege misconduct involving excessive use of force, abuse of authority, discourtesy, or use of offensive language, including, but not limited to, slurs relating to race, ethnicity, religion, gender, sexual orientation and disability.

While this legislation gives the CCRB authority to receive complaints alleging four types of misconduct (excessive use of force, abuse of authority, discourtesy, and the use of offensive language), this study will use only the complaints for the last three as an indicator. Allegations of the excessive use of force typically arise as a result of enforcement actions, particularly arrests, and are commonly made by the person arrested. Unsurprisingly, the number of allegations of the excessive use of force made against officers correlate strongly with the number of arrests that officers make over the course of their career. As a result, the number of allegations of the excessive use of force serves as a hidden variant of the number of arrests, which is really a measurement of *productivity* rather than performance, and as noted earlier "productivity" and "performance" are different constructs. Furthermore, it is intended that the measurement used here be one that reflects interactions between police and the public generally, rather than between police and persons who are charged with crimes. The allegations of the excessive use of force have thus been excluded, and the measurement used is limited to one derived from a total number of allegations other than the excessive use of force: that is, allegations of discourtesy, abuse of authority, and offensive language.

Two statistics are used to operationalize a measurement of organizational commitment: the **number of times an officer has taken sick leave**, calculated as an annual average over the

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full course of the officer's career, and the **length of service** with the Police Department. Researchers have found that higher levels of organizational commitment are linked with both lower rates of employee turnover and less frequent absenteeism (Steers, 1977; Mowday et al., 1982; Mathieu & Zajac, 1990; Griffeth et al., 2000). In addition to that body of evidence which supports the use of both of the measures selected, there is an additional reason for selecting the number of times an officer has taken sick leave that is drawn from the Departmental culture of the NYPD itself. Because of the nature of police work, when officers go out sick, the work they would have done is not laid aside until they return, but instead must be picked up immediately as additional work for their colleagues in their commands. Taking excessive and unnecessary sick leave is thus often regarded as placing a burden on one's colleagues. Furthermore, police officers in the NYPD have an unlimited number of paid sick days each year. In order to protect this extraordinary benefit, the Police Department both carefully monitors the frequency and reasons that members take sick leave, and also praises and rewards those whose sick leave incidents are infrequent. An "excellent sick record" is a term of high praise and recommendation when included in a supervisor's endorsement of an officer's request for a transfer to another unit, and the Department gives certificates and other awards to officers who do not take sick leave for one or more years. As a result, some officers prefer to use vacation days or compensatory time when they need to stay home because of illness, rather than use sick leave and diminish an attendance record that is taken as a sign of particular devotion to their work.

It is appropriate at this point to explain why certain other possible performance measures were not used in this study as indicators of superior performance. For example, as noted by White (2008), the performance level of police officers is frequently viewed in terms of the officer's enforcement activity – that is, the number of arrests the officer has made, or the number

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of summonses the officer has issued. Under the terms of job performance theory, however, measurements of an officer's enforcement activity are not in fact measurements of performance at all, but are instead measurements of productivity.

Furthermore, even as a measure of productivity, the number of enforcement actions a police officer takes does not really reflect the officer's actual effectiveness when compared to other officers, especially in larger departments that police a wide variety of locations with highly diverse levels of crime or types of public behavior, and in which members serve in units with different assignments. Officers assigned to areas with a lower incidence of crime should be expected to make fewer arrests than are made by officers assigned to areas with more crimes, and thus more opportunities for arrests. Likewise, officers assigned to specialized duty that concentrates on summons enforcement, such as highway patrol or a street peddler enforcement squad, should be expected to issue many more summonses than officers performing more general patrol duties, or detectives investigating felonies. In each of the examples described above, the higher or lower level of "activity" is more likely to be affected by the location and nature of the officers' assignments rather than the individual proficiency or contributions of the officers themselves.

In a similar way, advancement in rank was not considered an appropriate measure to use as an indicator of superior job performance by New York City police officers. In the New York City Police Department, members are promoted based solely on their scores on a written civil service test consisting of 100 multiple choice questions drawn from the Department's Patrol Guide and Administrative Guide. The matter included on the promotional exams can seem exceedingly trivial; in a recent notable example, one question required candidates for the rank of captain to remember that in the official NYPD format, the precise number of lines left blank

between the body of a memorandum and the signature block was not three, but four. The attainment of a promotion in the NYPD is thus an indicator of an individual's ability to memorize verbatim large sections of department manuals. However, in so far as the daily work of a police officer is concerned, such feats of memory are not necessarily, in Campbell's words cited earlier, "what the organization hires one to do, and do well".

The measurement not used that perhaps might have been most expected as a performance indicator is the score given to officers on the annual performance evaluations completed by their supervisors. As it is the basic function of a performance evaluation to state whether an employee is performing well or poorly, it would therefore seem that a performance evaluation would serve as an ideal measurement to be used in a study such as this one. Furthermore, the New York City Police Department has an elaborate evaluation system in which each member in all ranks from Police Officer to Deputy Chief is supposed to receive an evaluation each year from the higher-ranking member to whom the officer directly reports. These evaluations involve the use of instruments containing a number of "performance dimensions" and "behavioral dimensions", which are supposed to be used in the production of an annual score between (in theory) 0.0 and 5.0, with 5.0 being "well above standards", 4.0 representing "above standards", 3.0 signifying "meets standards", and so on.

However, numerous problems were found when the NYPD's annual evaluation system was examined more closely. In addition to issues involving such things as the loss of records for some retired officers because of flooding of the storage facility during Hurricane Sandy, two fatal flaws were discovered that rendered evaluation scores inappropriate to use as performance measures. First, each rank was evaluated using a rank-specific evaluation form that was different in its details, and in the areas evaluated, from the forms used by the other ranks. Therefore, since

members of different ranks were being evaluated on different behaviors, the scores recorded could not be used as an appropriate measurement for comparing individual performance by members of different ranks.

The second and even more severe problem was discovered in specific connection to the evaluation scores of members in the rank of police officer. As noted earlier, as part of the NYPD's general evaluation process, each year the supervisors of police officers are obliged to complete an evaluation instrument for those officers that calls for ratings in 27 "performance areas". However, in 2008, as part of the introduction of a new program called "Quest for Excellence", the Police Department introduced a separate, additional rating system for police officers called the "Police Officer's Monthly/Quarterly Review and Rating System." In this rating system, each month the officer's supervisor would identify two specific "conditions" (which could be unlawful activity such as drug sales, or persistent unlawful parking, or unlicensed vendors in a shopping area, etc.) in the officer's assigned sector which the officer would then address through enforcement activities such as the issuing of summonses or notices of violation, or the making of arrests. The supervisor would then produce both monthly and quarterly evaluations based upon the level of the officer's enforcement activity, and how "effective" the officer was in addressing the identified condition. Subsequently, a corresponding number of rating points would then be assigned to the officer.

As can be seen, this evaluation was a rating of both productivity and effectiveness, rather than of performance as that term is used in this study. However, included in the instructions given in Patrol Guide procedure 205-56 (that is, the relevant section of the Department's official manual of procedures), entitled "Police Officer's Annual Evaluation Utilizing the Monthly/Quarterly Performance Review and Rating", was the directive that the primary basis for

the annual evaluation score of police officers was to be the specific number of points given in the Monthly/Quarterly Rating System for enforcement activity and effectiveness as converted to an annual score by a provided table. Thus, the annual performance evaluation score for police officers in the NYPD is in fact not derived from the actual annual performance evaluation instrument itself, but from a different source, and is instead a measurement of productivity and effectiveness rather than a measurement of performance.

Data Analysis

In making the data suitable for an analysis by logistic regression, it was necessary that the dependent variables be dichotomous, and the independent variables be either dichotomous or continuous. This requirement in fact worked well with the nature of the study. In the area of the dependent variables, the median score was used to split the cases into two categories. Those whose annual rate of department vehicle accidents, annual rate of sick leave, and annual rate of CCRB complaints for abuse of authority, discourtesy, and offensive language (that is, all complaints accepted by CCRB other than those for excessive use of force) were lower than the median, and those whose length of service was greater than the median, were coded as "1" for superior performance, while those whose accidents, sick leave, and CCRB complaints were at the median or higher, and those whose length of service was at the median and less, were coded as "0" for performance that was not superior.

To create these variables, a general variable of "length of service" was created by subtracting the appointment date from either the separation date (for inactive members of the cohort) or from the date of December 1, 2015, which is the last date for which data were

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updated. The result was then rendered as a number of years, with any fraction rendered decimally to two decimal places.

The following figure shows the distribution found:

Fig. 3.1 - Statistics

Length of Service in years

N	Valid	1707
	Missing	0
Median		20.0027
Range		19.67
Minimum		.75
Maximum		20.42

As noted above, this variable was recoded as a variable called "Comparative length of service", with the performance of those serving more than 20.0027 years classified as "superior". The fact that the median is close to 20 is significant, in that 214 members of the class retired either on June 30 or July 1 of 2015, at exactly 20 years of service. Twenty years of service was the amount of time necessary for the members of the class of 1995 to be able to retire and immediately begin collecting a full pension. Those who stayed for any time longer than that were therefore not as eager as their colleagues to be gone the first moment that they could collect a pension, and instead apparently preferred at least some longer connection with the Police Department. This supports the concept of this measurement as an indicator of "organizational commitment". The distribution for the new, dichotomous variable was as follows:

Fig 3.2 - Comparative length of service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Superior	921	54.0	54.0	54.0
	Superior	786	46.0	46.0	100.0
	Total	1707	100.0	100.0	

Next, in order to allow a proper comparison of the incidence of the behaviors that were measured by the other dependent variables, it was first necessary to change the absolute number of Department vehicle accidents, sick leave incidents, and CCRB complaints for misconduct other than excessive use of force into averages per year, and so in each case the raw number was divided by the "length of service" number to produce an average number of incidents per year of service. The distributions found for the resulting rate variables were as follows:

Fig. 3.3 - Statistics

Vehicle Accidents per year

N	Valid	1707
	Missing	0
Median		.049802
Range		3.9134
Minimum		.0000
Maximum		3.9134

Fig. 3.4 - Statistics

Sick incidents per year

N	Valid	1676
	Missing	31
Median		2.05664
Range		27.098
Minimum		.049
Maximum		27.147

Fig. 3.5 - Statistics

CCRB complaints other than force per year

N	Valid	1707
	Missing	0
Median		.048968
Range		1.6906
Minimum		.0000
Maximum		1.6906

These three variables were then recoded as new variables called "Comparative rate of department vehicle accidents", "Comparative rate of sick leave incidents", and "Comparative rate of CCRB complaints", with the performance of those having a rate that was less than the median classified as "superior". The new distributions for these variables were as follows:

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Fig. 3.6 - Comparative rate of Department vehicle accidents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Superior	854	50.0	50.0	50.0
	Superior	853	50.0	50.0	100.0
	Total	1707	100.0	100.0	

Fig. 3.7 - Comparative Sick Rate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Superior	777	45.5	46.4	46.4
	Superior	899	52.7	53.6	100.0
	Total	1676	98.2	100.0	
Missing	System	31	1.8		
Total		1707	100.0		

Fig. 3.8 - Comparative rate of CCRB complaints other than force

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Superior	782	45.8	45.8	45.8
	Superior	925	54.2	54.2	100.0
	Total	1707	100.0	100.0	

The independent variable of "Male or Female" was by its nature dichotomous; Male officers were coded as "1" and Female as "0". The independent variable of "Military Service" was coded as a dichotomous variable, with $0 =$ no military service, and $1 =$ military service prior to hiring. For "City residence at time of hiring", the zip codes of recruits' home addresses while in the Police Academy were first translated into the counties where those zip codes are found,

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and then based on that recoded as a dichotomous variable, with 0 = "not a New York City resident at time of hiring" and 1 = "New York City resident at time of hiring."

The original data for completed educational level at time of hiring were organized into the nine categories: "High School equivalent", "High School graduate", "Some college no degree", "Associate's degree" "Bachelor's degree", "Some work towards master's", "Master's degree", "Some work towards doctorate" and "Doctoral degree." For the purposes of this study, this information was initially coded as two dichotomous variables. For the first variable, which is the independent variable called "Sixty or more college credits", the cases with 'High School equivalent', 'High School graduate', and 'Some college no degree' were coded as 0, representing "No", while the remaining categories were coded as 1, indicating "Yes." The second dichotomous variable was similar, and indicated whether the officer had a full four-year college degree as opposed to only sixty credits or more. That variable was coded the same way, except that those in the "Associate's degree" category were now coded as 0 for "No" instead of 1 for "Yes."

Subsequently, in order to consider the value of the current educational requirement of 60 college credits when compared to the previous standard of a high school diploma, a third dichotomous variable was created that eliminated those who had four-year degrees from the comparison. The third education variable was called "Associate's Degree", and the cases with 'High School equivalent', 'High School graduate', and 'Some college no degree' were coded as 0, representing "No", while the sole category coded as "1" for "yes" was 'Associate's degree'.

A variable named "Age at hiring" was determined by subtracting the date of birth from the date of hiring. This number was not rendered decimally, but was instead truncated to the

integer. It was then recoded as two dichotomous variables, "21 years or older at hiring", and "22

years or older at hiring", with 0 = "No" and 1 = "Yes" in each variable.

The distributions for these independent variables are as follows:

Fig. 3.9 - Male or Female

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	1457	85.4	85.4	85.4
Valid	Female	250	14.6	14.6	100.0
	Total	1707	100.0	100.0	

Fig. 3.10 - Military service before hiring?

		Frequency	Percent	Valid Percent	Cumulative Percent
	No	1520	89.0	89.0	89.0
Valid	Yes	187	11.0	11.0	100.0
	Total	1707	100.0	100.0	

Fig. 3.11 - New York City Resident?

		Frequency	Percent	Valid Percent	Cumulative Percent
	No	514	30.1	31.4	31.4
Valid	Yes	1123	65.8	68.6	100.0
	Total	1637	95.9	100.0	
Missing	System	70	4.1		
Total		1707	100.0		

Fig. 3.12 - Sixty college credits at hiring?

		Frequency	Percent	Valid Percent	Cumulative Percent
	No	1157	67.8	70.9	70.9
Valid	Yes	475	27.8	29.1	100.0
	Total	1632	95.6	100.0	
Missing	System	75	4.4		
Total		1707	100.0		

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Fig. 3.13 - Four-year Bachelor's Degree at hiring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1349	79.0	82.7	82.7
	Yes	283	16.6	17.3	100.0
	Total	1632	95.6	100.0	
Missing	System	75	4.4		
Total		1707	100.0		

Fig. 3.14 - Associate's degree at hiring?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1157	67.8	85.8	85.8
	Yes	192	11.2	14.2	100.0
	Total	1349	79.0	100.0	
Missing	System	358	21.0		
Total		1707	100.0		

Fig. 3.15 - 21 years or older

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	.8	.8	.8
	Yes	1694	99.2	99.2	100.0
	Total	1707	100.0	100.0	

Fig. 3.16 - 22 years or older

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	109	6.4	6.4	6.4
	Yes	1598	93.6	93.6	100.0
	Total	1707	100.0	100.0	

"Final Academy Grade" scores were transcribed in the same form in which they appear in the paper records maintained at the Police Academy Recruit Records Unit. The independent variable of Academy Final Grade was normally distributed, with 96.3% of cases within two

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standard deviations, and all of them within three. However, the distribution of scores was not symmetrical, as can be seen here:

Fig. 3.17 - Statistics

Average final grade

N	Valid	1698
	Missing	9
Mean		88.5538
Median		89.0000
Std. Deviation		4.88465
Variance		23.860
Skewness		-.377
Std. Error of Skewness		.059
Minimum		75.00
Maximum		98.75
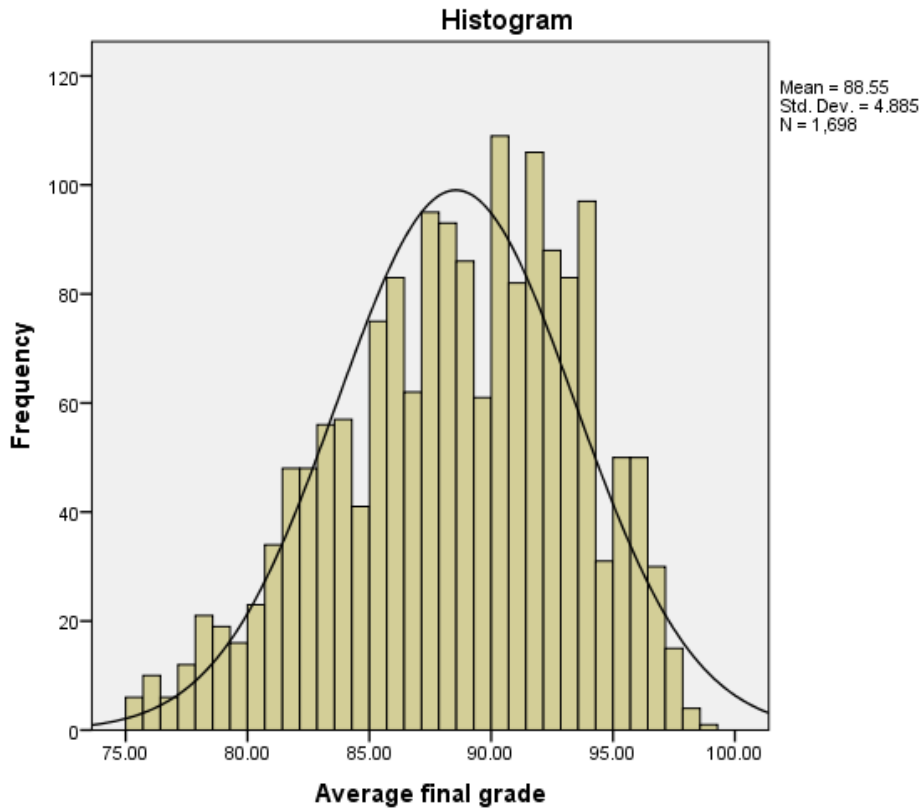
Fig 3.18 – Distribution of average final grades

This variable was then recoded as a dichotomous variable called "Comparative Academy Grade", with those whose final Academy average grade was the median score of 89 or less coded as "0" for "Lower half", and those whose final grade was higher than the median score coded as "1" for "Upper half." The distribution for this new variable was as follows:

Fig. 3.19 – Comparative Academy Grade

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lower half	857	50.2	50.5	50.5
	Upper half	841	49.3	49.5	100.0
	Total	1698	99.5	100.0	
Missing	System	9	.5		
Total		1707	100.0		

The variable for the race of the officers presented several challenges to analysis. As originally obtained, the variable had five categories: 1) white, 2) black, 3) Hispanic, 4) Asian, and 5) American Indian. An initial review of distribution revealed that the subject class was approximately 55% white, 18% black, 24% Hispanic, and 3% Asian, with 3 members of the class (or 1/5 of 1%) indicating "American Indian" as their ethnicity. As noted above, one major reason for reviewing a variable for race was to compare the findings of this study with the findings of other studies in the literature. However, there is very little literature which has considered the performance of Asian-American officers, with most literature examining only the categories of white, black, and Hispanic officers. Therefore, the data were recoded as two new variables. For the purpose of cross tabulation, a variable was created that only included the white, black, and Hispanic officers who constituted more than 97% of the class. Then, for use in the regressions which required a dichotomous variable, a second variable was created that divided all members of the class into two groups, with white officers classified as "white", and

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black, Hispanic, Asian, and American Indian officers classified together as ""other than white".
The distributions of these two new variables were as follows:

Fig 3.20 - White Black Hispanic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	943	55.2	56.9	56.9
	Black	303	17.8	18.3	75.2
	Hispanic	411	24.1	24.8	100.0
	Total	1657	97.1	100.0	
Missing	System	50	2.9		
Total		1707	100.0		

Fig 3.21 - White or minority?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other than white	764	44.8	44.8	44.8
	White	943	55.2	55.2	100.0
	Total	1707	100.0	100.0	

Cross tabulations and χ^2 tests of independence were then performed for all the variables, using the variant "WhiteBlackHispanic" as the variable for the race of officers, and logistic regressions were performed for full sets of variables, using the dichotomous "White or Minority" as the variable for the race of officers. For the χ^2 tests performed on 2 x 2 tables, in each case the degrees of freedom would be 1, and so the critical χ^2 value in each test that would allow the rejection, at the probability level of .05, of the null hypothesis that there was no relation between the variables would be 3.841. With the variable that considered whether officers were white, black, or Hispanic, the χ^2 tests were performed on 3 x 2 tables, which meant there were 2 degrees of freedom, and a critical χ^2 value of 5.991. All regressions used the same

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"Comparative Academy Grade", "City Residence", "Military Service", "Male or Female", and "White or Minority" variables. In order to test the effect of the two variants of the education variable (*i.e.*, "Sixty credits" and "Four-year Bachelor's degree"), and the two variants of the age requirement variable (*i.e.*, "21 or older at hiring" and "22 or older at hiring"), each regression was run in two different forms. In each case, the first version used the current requirements (Over 21 and Sixty college credits), and the second used the higher possible age and education requirements (Over 22 and Four-year Bachelor's degree.) With 7 degrees of freedom, at the probability level of .05 the critical χ^2 value for the regressions was 14.067.

CHAPTER 4: FINDINGS AND RESULTS

First Dependent Variable: Comparative Rate of Department Vehicle Accidents

Results:

The following are the results of the cross tabulations and χ^2 tests of each categorical independent variable with the dependent variable "Comparative Rate of Department Vehicle Accidents":

Fig. 4.1.1a – Cross tabulation: Comparative rate of Department vehicle accidents * 21 years of age or older at hiring?

			21 years of age or older at hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	7	847	854
		% within 21 years of age or older at hiring?	53.8%	50.0%	50.0%
	Superior	Count	6	847	853
		% within 21 years of age or older at hiring?	46.2%	50.0%	50.0%
Total		Count	13	1694	1707
		% within 21 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.1.1b - Chi-Square Tests: Comparative accident rate * 21 years of age

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.076[a]	1	.782		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.076	1	.782		
Fisher's Exact Test				1.000	.501
Linear-by-Linear Association	.076	1	.782		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.50.

b. Computed only for a 2x2 table

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Of those who were 21 years or older, 50.0% provided superior performance in the area of department vehicle accidents, while of those under 21, 46.2% provided superior performance. The x^2 test found no relationship between whether an officer was 21 years of age or older and the level of an officer's performance in the area of Department vehicle accidents, x^2 (1, $N = 1707$) = .076, p = .782.

Fig. 4.1.2a Cross tabulation: Comparative rate of Department vehicle accidents * 22 years of age or older at hiring?

			22 years of age or older at hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	61	793	854
		% within 22 years of age or older at hiring?	56.0%	49.6%	50.0%
	Superior	Count	48	805	853
		% within 22 years of age or older at hiring?	44.0%	50.4%	50.0%
Total		Count	109	1598	1707
		% within 22 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.1.2b - Chi-Square Tests: Comparative accident rate * 22 years of age?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.640[a]	1	.200		
Continuity Correction[b]	1.396	1	.237		
Likelihood Ratio	1.644	1	.200		
Fisher's Exact Test				.235	.119
Linear-by-Linear Association	1.639	1	.200		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 54.47.

b. Computed only for a 2x2 table

Of those who were 22 years of age or older, 50.4% provided superior performance in the area of department vehicle accidents, while of those under 22, only 44.0% provided superior

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performance. The drop in superior performance rate by the younger group indicates that the 13

members of the class who were 20 years old actually had a better rate of superior performance

(46.2%) than the 96 members of the class who were 21 years old (43.8%). The χ^2 test found no

relationship between whether an officer was 22 years of age or older and the level of an officer's

performance in the area of Department vehicle accidents, χ^2 (1, $N = 1707$) = 1.64, $p = .20$.

Fig. 4.1.3a – Cross tabulation: Comparative rate of Department vehicle accidents * Military service before hiring?

			Military service before hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	738	116	854
		% within Military service before hiring?	48.6%	62.0%	50.0%
	Superior	Count	782	71	853
		% within Military service before hiring?	51.4%	38.0%	50.0%
Total		Count	1520	187	1707
		% within Military service before hiring?	100.0%	100.0%	100.0%

Fig. 4.1.3b - Chi-Square Tests: Comparative accident rate * Military service before hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.102[a]	1	.001		
Continuity Correction[b]	11.569	1	.001		
Likelihood Ratio	12.209	1	.000		
Fisher's Exact Test				.001	.000
Linear-by-Linear Association	12.095	1	.001		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 93.45.

b. Computed only for a 2x2 table

Of those who had military service before hiring, only 38.0% provided superior

performance in the area of department vehicle accidents, while of those without military service,

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51.4% provided superior performance. The χ^2 test found the difference between the

performance of those who had military service before hiring and those who did not have such

service was significant, χ^2 (1, $N = 1707$) = 12.102, $p = .001$.

Fig. 4.1.4a – Cross tabulation: Comparative rate of Department vehicle accidents * Sixty college credits at hiring?

			Sixty college credits at hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	601	213	814
		% within Sixty college credits at hiring?	51.9%	44.8%	49.9%
	Superior	Count	556	262	818
		% within Sixty college credits at hiring?	48.1%	55.2%	50.1%
Total		Count	1157	475	1632
		% within Sixty college credits at hiring?	100.0%	100.0%	100.0%

Fig. 4.1.4b - Chi-Square Tests: Comparative accident rate * Sixty college credits at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.795[a]	1	.009		
Continuity Correction[b]	6.514	1	.011		
Likelihood Ratio	6.805	1	.009		
Fisher's Exact Test				.010	.005
Linear-by-Linear Association	6.791	1	.009		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 236.92.

b. Computed only for a 2x2 table

Of those who had sixty college credits before hiring, 55.2% provided superior

performance in the area of department vehicle accidents, while of those without sixty college

credits, 48.1% provided superior performance. The χ^2 test found the difference between the

performance of those who had sixty college credits and those who did not was significant, χ^2 (1,

$N = 1632) = 6.795, p = .009.$

Fig. 4.1.5a – Cross tabulation: Comparative rate of Department vehicle accidents * Four-year bachelor's degree at hiring?

			Four-year bachelor's degree at hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	698	116	814
		% within Four-year bachelor's degree at hiring?	51.7%	41.0%	49.9%
	Superior	Count	651	167	818
		% within Four-year bachelor's degree at hiring?	48.3%	59.0%	50.1%
Total		Count	1349	283	1632
		% within Four-year bachelor's degree at hiring?	100.0%	100.0%	100.0%

Fig. 4.1.5b - Chi-Square Tests: Comparative accident rate * Four-year bachelor's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.819[a]	1	.001		
Continuity Correction[b]	10.393	1	.001		
Likelihood Ratio	10.869	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	10.812	1	.001		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 141.15.

b. Computed only for a 2x2 table

Of those who had four-year bachelor's degrees, 59.0% provided superior performance in the area of department vehicle accidents, while of those who did not have four-year bachelor's degrees, 48.3% provided superior performance. The rise in superior performance rate by the

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group with less college indicates that the 192 members of the class who had sixty credits but not a four-year bachelor's degree had a better rate of superior performance than the 1,157 members who did not have sixty college credits. The χ^2 test found the difference between the performance of those who had a four-year degree and those who did not have a four-year degree was significant, χ^2 (1, N = 1632) = 10.819, p = .001.

In the above test, an improvement of the superior performance of less-educated officers was noted when those with more than 60 college credits, but less than a four-year degree, were added to the group. It therefore seemed appropriate to test separately the effect of the current education requirement for hiring, and to distinguish between those who had two-year degrees and those who had less education, while eliminating those with four-year degrees from the comparison entirely. As described earlier, a new variable called "Associate's degree" was therefore created and subjected to the same test above. The following results were obtained:

Fig. 4.1.6a – Cross tabulation: Comparative rate of Department vehicle accidents * Associate's degree at hiring?

			Associate's degree at hiring?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	601	97	698
		% within Associate's degree at hiring?	51.9%	50.5%	51.7%
	Superior	Count	556	95	651
		% within Associate's degree at hiring?	48.1%	49.5%	48.3%
Total		Count	1157	192	1349
		% within Associate's degree at hiring?	100.0%	100.0%	100.0%

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Fig. 4.1.6b - Chi-Square Tests: Comparative accident rate * Associate's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.134[a]	1	.715		
Continuity Correction[b]	.083	1	.774		
Likelihood Ratio	.134	1	.715		
Fisher's Exact Test				.755	.387
Linear-by-Linear Association	.134	1	.715		
N of Valid Cases	1349				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 92.66.

b. Computed only for a 2x2 table

Of those who had two-year associate's degrees, 49.5% provided superior performance in the area of department vehicle accidents, while of those who did not have two-year associate's degrees, 48.1% provided superior performance. The χ^2 test found the difference in performance between the two groups was not significant, χ^2 (1, N = 1349) = .134, p = .715.

Fig. 4.1.7a – Cross tabulation: Comparative rate of Department vehicle accidents * New York City Resident?

			New York City Resident?		Total
			No	Yes	
Comparative rate of Department vehicle accidents	Not Superior	Count	273	541	814
		% within New York City Resident?	53.1%	48.2%	49.7%
	Superior	Count	241	582	823
		% within New York City Resident?	46.9%	51.8%	50.3%
Total		Count	514	1123	1637
		% within New York City Resident?	100.0%	100.0%	100.0%

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Fig. 4.1.7b - Chi-Square Tests: comparative accident rate * New York City Resident?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.440[a]	1	.064		
Continuity Correction[b]	3.245	1	.072		
Likelihood Ratio	3.441	1	.064		
Fisher's Exact Test				.070	.036
Linear-by-Linear Association	3.438	1	.064		
N of Valid Cases	1637				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 255.59.

b. Computed only for a 2x2 table

Of those who were New York City residents before hiring, 51.8% provided superior performance in the area of department vehicle accidents, while of those who were not New York City residents, 48.2% provided superior performance. The χ^2 test did not find a significant relationship between city residence and the level of an officer's performance in the area of Department vehicle accidents, χ^2 (1, $N = 1637$) = 3.44, $p = .064$.

Fig. 4.1.8a – Cross tabulation: Comparative rate of Department vehicle accidents * Male or Female

			Male or Female		Total
			Male	Female	
Comparative rate of Department vehicle accidents	Not Superior	Count	776	78	854
		% within Male or Female	53.3%	31.2%	50.0%
	Superior	Count	681	172	853
		% within Male or Female	46.7%	68.8%	50.0%
Total		Count	1457	250	1707
		% within Male or Female	100.0%	100.0%	100.0%

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Fig 4.1.8b - Chi-Square Tests: Comparative rate of Department vehicle accidents * Male or Female

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	41.538[a]	1	.000		
Continuity Correction[b]	40.660	1	.000		
Likelihood Ratio	42.426	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	41.513	1	.000		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 124.93.

b. Computed only for a 2x2 table

Of those officers who were male, 46.7% provided superior performance in the area of department vehicle accidents, while of those who were female, 68.8 % provided superior performance. The x^2 test found the difference between the performance of male and female officers was significant, x^2 (1, $N = 1707$) = 41.538, $p = <.001$.

Fig. 4.1.9a – Cross tabulation: Comparative rate of Department vehicle accidents * White Black Hispanic

			White Black Hispanic			Total
			White	Black	Hispanic	
Comparative rate of Department vehicle accidents	Not Superior	Count	492	133	206	831
		% within White Black Hispanic	52.2%	43.9%	50.1%	50.2%
	Superior	Count	451	170	205	826
		% within White Black Hispanic	47.8%	56.1%	49.9%	49.8%
Total		Count	943	303	411	1657
		% within White Black Hispanic	100.0%	100.0%	100.0%	100.0%

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Fig 4.1.9b – Chi-Square Tests: Comparative rate of Department vehicle accidents * White Black Hispanic

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.288[a]	2	.043
Likelihood Ratio	6.300	2	.043
Linear-by-Linear Association	1.245	1	.264
N of Valid Cases	1657		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 151.04.

In the area of department vehicle accidents, 47.8% of the white officers, 49.9% of the Hispanic officers, and 56.1 % of the black officers provided superior performance. The χ^2 test found the difference between the performance of white, Hispanic, and black officers was significant, χ^2 (2, *N* = 1657) = 6.288, *p* = .043.

Fig. 4.1.10a – Cross tabulation: Comparative rate of Department vehicle accidents * Comparative Academy Grade

			Comparative Academy Grade		Total
			Lower half	Upper half	
Comparative rate of Department vehicle accidents	Not Superior	Count	443	407	850
		% within Comparative rate of Department vehicle accidents	52.1%	47.9%	100.0%
	Superior	Count	414	434	848
		% within Comparative rate of Department vehicle accidents	48.8%	51.2%	100.0%
Total		Count	857	841	1698
		% within Comparative rate of Department vehicle accidents	50.5%	49.5%	100.0%

Fig. 4.1.10b – Chi-Square Tests: Comparative rate of Department vehicle accidents * Comparative Academy Grade

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.846[a]	1	.174		
Continuity Correction[b]	1.716	1	.190		
Likelihood Ratio	1.846	1	.174		
Fisher's Exact Test				.190	.095
Linear-by-Linear Association	1.845	1	.174		
N of Valid Cases	1698				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 420.00.

b. Computed only for a 2x2 table

Of those whose final Academy grades were in the upper half of the class, 51.2% provided superior performance in the area of department vehicle accidents, while of those whose final grades were in the lower half of the class, 48.8% provided superior performance. The x^2 test found the difference in performance between the two groups was not significant, x^2 (1, N = 1698) = 1.846, p = .715.

The following are the results of the two different versions of the logistic regression for the dependent variable "Comparative Department Vehicle Accidents":

1st version: Age requirement = Over 21, Education standard = 60 credits.

Fig. 4.1.11.1a –Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	59.244	7	.000
	Block	59.244	7	.000
	Model	59.244	7	.000

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Fig. 4.1.11.1b – Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2192.096[a]	.036	.048

a. Estimation terminated at iteration number 3 because

parameter estimates changed by less than .001.

Fig 4.1.11.1c – Classification Table[a]

	Observed		Predicted		
			Comparative rate of Department vehicle accidents		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative rate of Department vehicle accidents	Not Superior	484	327	59.7
		Superior	383	430	52.9
	Overall Percentage				56.3

a. The cut value is .500

Fig. 4.1.11.1d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over21	.596	.662	.812	1	.368	1.816
	SixtyCred	.192	.115	2.800	1	.094	1.211
	MilServYesNo	-.496	.166	8.872	1	.003	.609
	CompAcadGrade	.235	.106	4.903	1	.027	1.264
	Cityres	.152	.119	1.639	1	.200	1.164
	Sex	.868	.157	30.749	1	.000	2.383
	WhiteMinority	-.013	.116	.012	1	.912	.987
	Constant	-1.798	.706	6.477	1	.011	.166

a. Variable(s) entered on step 1: Over21, SixtyCred, MilServYesNo, CompAcadGrade, Cityres, Sex,

WhiteMinority.

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2nd version: Age Requirement = Over 22, Education Standard = 4-year Bachelor's degree

Fig. 4.1.11.2a – Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	64.482	7	.000
	Block	64.482	7	.000
	Model	64.482	7	.000

Fig. 4.1.11.2b – Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2186.858[a]	.039	.052

a. Estimation terminated at iteration number 3 because

parameter estimates changed by less than .001.

Fig. 4.1.11.2c – Classification Table[a]

	Observed		Predicted		
			Comparative rate of Department vehicle accidents		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative rate of Department vehicle accidents	Not Superior	512	299	63.1
		Superior	416	397	48.8
	Overall Percentage				56.0

a. The cut value is .500

Fig. 4.1.11.2d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over22	.365	.212	2.965	1	.085	1.440
	BachDegree	.312	.138	5.105	1	.024	1.367
	MilServYesNo	-.503	.167	9.107	1	.003	.604
	CompAcadGrade	.227	.106	4.580	1	.032	1.255
	Cityres	.150	.120	1.572	1	.210	1.162
	Sex	.876	.157	31.286	1	.000	2.402
	WhiteMinority	-.010	.117	.007	1	.934	.990
	Constant	-1.549	.321	23.319	1	.000	.212

a. Variable(s) entered on step 1: Over22, BachDegree, MilServYesNo, CompAcadGrade, Cityres, Sex,

WhiteMinority.

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Discussion of Results:

In the cross tabulation comparisons, no significant relationship with performance was found in the area of Department vehicle accidents for the comparison groups determined by the variables that considered whether officers were 21 years of age or older, 22 years of age or older, New York City residents, or had final Academy grades in the upper half of their class.

A relationship with performance was found in the groups determined by the variable that considered whether officers had 60 college credits, and by the variable that considered whether officers had four-year bachelor's degrees. However, in the follow-up cross tabulation that eliminated those with four-year degrees from consideration, no significant relationship was found. This suggests that the significance found earlier when considering all of those who had 60 college credits or more as a single group was largely the result of the inclusion in that group of those officers who had four-year degrees.

Relationships were found between the rate of Department vehicle accidents and both the sex and the race of the officers, with female officers providing superior performance at a higher rate than male officers did, and black officers having superior performance more frequently than white or Hispanic officers. However, the latter finding may be related to the former, as 29% of the black officers were females, compared to 23% of the Hispanic officers, and only 6% of the white officers. Significance was also found between the rate of Department vehicle accidents and whether an officer did or did not have military service before hiring, with those officers who did not have military service before hiring providing performance that was superior to that of officers with military service before hiring.

Both logistic regression models predicting whether individuals had superior performance based on the variables of age (either over 21 or over 22), military service, education (either 60

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college credits or a 4-year bachelor's degree), final Police Academy grade, New York City residence at hiring, sex, and race were significant: χ^2 (7), version 1= 59.244, version 2= 64.482; $p < .001$. In both cases the model is quite weak. The goodness of fit of the models including the predictors is approximately 5% (Nagelkerke R^2 1st version =.048, 2nd version = .052) better than the model without predictors. The first model was able to predict the observed values in 56.3.7% of all cases, while the second model was able to predict the observed values in 56.0% of the cases. In both models, the variable "Sex" had the greatest significance, ($p < .001$ in each), although the variables "military service" was also highly significant, and the variables "Comparative Academy grade" and "Bachelor's degree" also achieving significance. Based on the Wald statistic, it seems that the sex of the officer contributes more to the model for the dependent variable "Comparative rate of Department vehicle accidents" than the other variables. On the average, the odds of a male officer being in a Department vehicle accident in any single year are approximately 1.4 times higher than they are for a female officer after holding other variables constant.

In so far as this dependent variable is concerned, these findings suggest that female officers and male officers may approach their duties differently, with female officers being more careful in their decisions. Some support was also provided for the idea that police officers who have a four-year bachelor's degree may provide superior performance over the course of their careers in the area of department vehicle accidents, which would be an indicator of the use of better judgment. However, in so far as its effect on this dependent variable can be seen, the current education requirement of 60 college credits is not found to be more likely to produce superior performance than would either a lower standard, or a requirement of a full four-year degree.

Furthermore, the findings indicates that in so far as this particular dependent variable is concerned, accepting two years of military service as an alternative to the educational requirement is not an appropriate way to find members who will provide superior performance during their career, and that in fact the opposite is more likely. A possible explanation for this finding may be that the characteristics that are suited to military service are not necessarily the same as those suited to service as a police officer. While police departments are often referred to as "paramilitary organizations", their nature, function, and goals are substantially different from those of the military services. While soldiers, sailors, and marines are trained to engage an enemy military opponent despite personal risk, the main focus of police officers is maintaining the safety and order of a civilian population who are on the same "side" as themselves.   This variable was used as an operationalization of the construct of "judgment", and it would not be surprising that the same characteristics of aggressiveness, daring, immediate action, and disregard for personal consequences that are prized and considered "good judgment" in a military combat situation do not correlate with the prudence, discretion, and consideration of consequences more appropriate for the judgments of police officers in a civilian society.

Second Dependent Variable: Comparative Length of Service

Results:
The following are the results of the cross tabulations and χ^2 tests of each categorical independent variable with the dependent variable "Comparative Length of Service":

Fig. 4.2.1a – Cross tabulation: Comparative length of service * 21 years of age or older at hiring?

			21 years of age or older at hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	5	916	921
		% within 21 years of age or older at hiring?	38.5%	54.1%	54.0%
	Superior	Count	8	778	786
		% within 21 years of age or older at hiring?	61.5%	45.9%	46.0%
Total		Count	13	1694	1707
		% within 21 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.2.1b - Chi-Square Tests: Comparative length of service * 21 years of age at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.266[a]	1	.261		
Continuity Correction[b]	.715	1	.398		
Likelihood Ratio	1.265	1	.261		
Fisher's Exact Test				.279	.199
Linear-by-Linear Association	1.265	1	.261		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.99.

b. Computed only for a 2x2 table

Of those who were 21 years or older, 45.9% provided superior performance in the area of comparative length of service, while of those under 21 at hiring, 61.5% provided superior performance. The χ^2 test found no relationship between whether an officer was 21 years of age or older and the level of an officer's performance in the area of comparative length of service, χ^2 (1, $N = 1707$) = 1.266, $p = .261$.

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Fig. 4.2.2a – Cross tabulation: Comparative length of service * 22 years of age or older at hiring?

			22 years of age or older at hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	54	867	921
		% within 22 years of age or older at hiring?	49.5%	54.3%	54.0%
	Superior	Count	55	731	786
		% within 22 years of age or older at hiring?	50.5%	45.7%	46.0%
Total		Count	109	1598	1707
		% within 22 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.2.2b - Chi-Square Tests: Comparative length of service * 22 years of age or older at hiring

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.913[a]	1	.339		
Continuity Correction[b]	.733	1	.392		
Likelihood Ratio	.910	1	.340		
Fisher's Exact Test				.372	.196
Linear-by-Linear Association	.912	1	.340		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 50.19.

b. Computed only for a 2x2 table

Of those who were 22 years or older, 45.7% provided superior performance in the area of comparative length of service, while of those under 22, 50.5% provided superior performance. The drop in superior performance rate by the younger group indicates that the 13 members of the class who were 20 years old actually had a better rate of superior performance than the 96 members who were 21 (61.5% vs. 49.0%). The χ^2 test found no relationship between whether an officer was 22 years of age or older and the level of an officer's performance in the area of comparative length of service, χ^2 (1, N = 1707) = .913, p = .339.

Fig 4.2.3a – Cross tabulation: Comparative length of service * Military service before hiring?

			Military service before hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	830	91	921
		% within Military service before hiring?	54.6%	48.7%	54.0%
	Superior	Count	690	96	786
		% within Military service before hiring?	45.4%	51.3%	46.0%
Total		Count	1520	187	1707
		% within Military service before hiring?	100.0%	100.0%	100.0%

Fig 4.2.3b - Chi-Square Tests: Comparative length of service * Military service before hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.367[a]	1	.124		
Continuity Correction[b]	2.133	1	.144		
Likelihood Ratio	2.359	1	.125		
Fisher's Exact Test				.140	.072
Linear-by-Linear Association	2.365	1	.124		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 86.11.

b. Computed only for a 2x2 table

Of those who had military service before hiring, 51.3% provided superior performance in the area of comparative length of service, while of those without military service, 45.4% provided superior performance. The χ^2 test did not find a relationship between military service prior to hiring and the level of an officer's performance in the area of comparative length of service, χ^2 (1, N = 1707) = 2.367, p = .124.

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Fig 4.2.4a – Cross tabulation: Comparative length of service * Sixty college credits at hiring?

			Sixty college credits at hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	630	257	887
		% within Sixty college credits at hiring?	54.5%	54.1%	54.4%
	Superior	Count	527	218	745
		% within Sixty college credits at hiring?	45.5%	45.9%	45.6%
Total		Count	1157	475	1632
		% within Sixty college credits at hiring?	100.0%	100.0%	100.0%

Fig 4.2.4b - Chi-Square Tests: Comparative length of service * Sixty college credits at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.016[a]	1	.899		
Continuity Correction[b]	.005	1	.942		
Likelihood Ratio	.016	1	.899		
Fisher's Exact Test				.913	.471
Linear-by-Linear Association	.016	1	.899		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 216.84.

b. Computed only for a 2x2 table

Of those who had sixty college credits before hiring, 45.9% provided superior performance in the area of comparative length of service, while of those without sixty college credits, 45.5% provided superior performance. The χ^2 test found no relationship between having sixty college credits prior to hiring and the level of an officer's performance in the area of comparative length of service, χ^2 (1, $N = 1632$) = .016, $p = .899$.

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Fig 4.2.5a – Cross tabulation: Comparative length of service * Four-year bachelor's degree at hiring?

			Four-year bachelor's degree at hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	737	150	887
		% within Four-year bachelor's degree at hiring?	54.6%	53.0%	54.4%
	Superior	Count	612	133	745
		% within Four-year bachelor's degree at hiring?	45.4%	47.0%	45.6%
Total		Count	1349	283	1632
		% within Four-year bachelor's degree at hiring?	100.0%	100.0%	100.0%

Fig 4.2.5b - Chi-Square Tests: Comparative length of service * Four-year bachelor's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.250[a]	1	.617		
Continuity Correction[b]	.189	1	.664		
Likelihood Ratio	.250	1	.617		
Fisher's Exact Test				.646	.332
Linear-by-Linear Association	.250	1	.617		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 129.19.

b. Computed only for a 2x2 table

Of those who had four-year bachelor's degrees, 47.0% provided superior performance in the area of comparative length of service, while of those who did not have four-year bachelor's degrees, 45.4% provided superior performance. The χ^2 test found no relationship between having a four-year bachelor's degree prior to hiring and the level of an officer's performance in the area of comparative length of service, χ^2 (1, $N = 1632$) = .250, $p = .617$.

The drop in superior performance rate by the group with less college indicates that the 192 members of the class who had sixty credits but not a four-year bachelor's degree had a lower rate of superior performance than the 1157 members who did not have sixty college credits (44.3% vs. 45.5%). The performance of those who had a two-year associate's degree (and thus 60 college credits) was then compared to those with less education.

Fig. 4.2.6a – Cross tabulation: Comparative length of service * Associate's degree at hiring?

			Associate's degree at hiring?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	630	107	737
		% within Associate's degree at hiring?	54.5%	55.7%	54.6%
	Superior	Count	527	85	612
		% within Associate's degree at hiring?	45.5%	44.3%	45.4%
Total		Count	1157	192	1349
		% within Associate's degree at hiring?	100.0%	100.0%	100.0%

Fig. 4.2.6b - Chi-Square Tests: Comparative length of service * Associate's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.109[a]	1	.742		
Continuity Correction[b]	.063	1	.802		
Likelihood Ratio	.109	1	.742		
Fisher's Exact Test				.755	.402
Linear-by-Linear Association	.108	1	.742		
N of Valid Cases	1349				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 87.10.

b. Computed only for a 2x2 table

Of those who had a two-year associate's degree, but not a four-year bachelor's degree, 44.3% provided superior performance in the area of comparative length of service, while of those who did not have a two-year degree, 45.5% provided superior performance. The x^2 test found

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no relationship between having a two-year degree prior to hiring and the level of an officer's

performance in the area of comparative length of service, χ^2 (1, $N = 1349$) = .109, $p = .742$.

Fig. 4.2.7a – Cross tabulation: Comparative length of service * New York City Resident?

			New York City Resident?		Total
			No	Yes	
Comparative length of service	Not Superior	Count	319	570	889
		% within New York City Resident?	62.1%	50.8%	54.3%
	Superior	Count	195	553	748
		% within New York City Resident?	37.9%	49.2%	45.7%
Total		Count	514	1123	1637
		% within New York City Resident?	100.0%	100.0%	100.0%

Fig. 4.2.7b - Chi-Square Tests: Comparative length of service * New York City Resident?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	18.162[a]	1	.000		
Continuity Correction[b]	17.709	1	.000		
Likelihood Ratio	18.309	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	18.151	1	.000		
N of Valid Cases	1637				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 234.86.

b. Computed only for a 2x2 table

Of those who were New York City residents before hiring, 49.2% provided superior

performance in the area of comparative length of service, while of those who were not New York

City residents, 37.9% provided superior performance. The χ^2 test found there was a relationship

between residence location at time of hiring and performance in the area of comparative length

of service, χ^2 (1, $N = 1637$) = 18.162, $p = < .001$.

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Fig 4.2.8a – Cross tabulation: Comparative length of service * Male or Female

			Male or Female		Total
			Male	Female	
Comparative length of service	Not Superior	Count	789	132	921
		% within Male or Female	54.2%	52.8%	54.0%
	Superior	Count	668	118	786
		% within Male or Female	45.8%	47.2%	46.0%
Total		Count	1457	250	1707
		% within Male or Female	100.0%	100.0%	100.0%

Fig. 4.2.8b – Chi-Square Tests: Comparative length of service * Male or Female

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.157[a]	1	.692		
Continuity Correction[b]	.107	1	.743		
Likelihood Ratio	.157	1	.692		
Fisher's Exact Test				.731	.371
Linear-by-Linear Association	.157	1	.692		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 115.11.

b. Computed only for a 2x2 table

In the area of comparative length of service, superior performance was provided by 45.8% of male officers and 47.2% of female officers. The χ^2 test did not find a relationship between the sex of an officer and the level of an officer's performance in the area of comparative length of service, χ^2 (1, $N = 1707$) =.157, $p = .692$.

Fig. 4.2.9a – Cross tabulation: Comparative length of service * White Black Hispanic

			White Black Hispanic			Total
			White	Black	Hispanic	
Comparative length of service	Not Superior	Count	537	152	211	900
		% within White Black Hispanic	56.9%	50.2%	51.3%	54.3%
	Superior	Count	406	151	200	757
		% within White Black Hispanic	43.1%	49.8%	48.7%	45.7%
Total		Count	943	303	411	1657
		% within White Black Hispanic	100.0%	100.0%	100.0%	100.0%

Fig. 4.2.9b: Chi-Square Tests – Comparative length of service * White Black Hispanic

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.201[a]	2	.045
Likelihood Ratio	6.199	2	.045
Linear-by-Linear Association	4.671	1	.031
N of Valid Cases	1657		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 138.43.

In the area of department vehicle accidents, 43.1% of the white officers, 49.8% of the black officers, and 48.7 % of the Hispanic officers provided superior performance. The χ^2 test found the difference between the performance of white, Hispanic, and black officers was significant, χ^2 (2, $N = 1657$) = 6.201, $p = .045$

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Fig. 4.2.10a – Cross tabulation: Comparative length of service * Comparative Academy Grade

			Comparative Academy Grade		Total
			Lower half	Upper half	
Comparative length of service	Not Superior	Count	480	436	916
		% within Comparative length of service	52.4%	47.6%	100.0%
	Superior	Count	377	405	782
		% within Comparative length of service	48.2%	51.8%	100.0%
Total		Count	857	841	1698
		% within Comparative length of service	50.5%	49.5%	100.0%

Fig. 4.2.10b – Chi-Square Tests: Comparative length of service * Comparative Academy Grade

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.966[a]	1	.085		
Continuity Correction[b]	2.800	1	.094		
Likelihood Ratio	2.966	1	.085		
Fisher's Exact Test				.088	.047
Linear-by-Linear Association	2.964	1	.085		
N of Valid Cases	1698				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 387.32.

b. Computed only for a 2x2 table

Of those whose final Academy grades were in the upper half of the class, 51.8% provided superior performance in the area of comparative length of service, while of those whose final grades were in the lower half of the class, 48.2% provided superior performance. The χ^2 test found the difference in performance between the two groups was not significant, χ^2 (1, $N = 1698$) = 2.966, $p = .085$.

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The following are the results of the two different versions of the logistic regression for

the dependent variable "Comparative length of service":

1st version: Age requirement = Over 21, Education standard = 60 credits.

Fig. 4.2.11.1a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
	Step	28.792	7	.000
Step 1	Block	28.792	7	.000
	Model	28.792	7	.000

Fig. 4.2.11.1b - Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2210.118[a]	.018	.023

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Fig. 4.2.11.1c - Classification Table[a]

	Observed		Predicted		
			Comparative length of service		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative length of service	Not Superior	740	143	83.8
		Superior	554	187	25.2
	Overall Percentage				57.1

a. The cut value is .500

Fig. 4.2.11.1d - Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
	Over21	-1.061	.696	2.325	1	.127	.346
	SixtyCred	-.016	.114	.019	1	.891	.985
	MilServYesNo	.232	.162	2.044	1	.153	1.261
	CompAcadGrade	.218	.106	4.276	1	.039	1.244
Step 1[a]	Cityres	.432	.119	13.051	1	.000	1.540
	Sex	-.017	.148	.014	1	.906	.983
	WhiteMinority	-.134	.115	1.353	1	.245	.874
	Constant	.545	.735	.551	1	.458	1.725

a. Variable(s) entered on step 1: Over21, SixtyCred, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

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2ⁿᵈ version: Age Requirement = Over 22, Education Standard = 4-year Bachelor's degree

Fig. 4.2.11.2a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	27.299	7	.000
	Block	27.299	7	.000
	Model	27.299	7	.000

Fig 4.2.11.2b - Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2211.611[a]	.017	.022

a. Estimation terminated at iteration number 3 because

parameter estimates changed by less than .001.

Fig. 4.2.11.2c - Classification Table[a]

	Observed		Predicted		
			Comparative length of service		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative length of service	Not Superior	723	160	81.9
		Superior	540	201	27.1
	Overall Percentage				56.9

a. The cut value is .500

Fig. 4.2.11.2d - Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over22	-.214	.207	1.063	1	.303	.807
	BachDegree	.023	.136	.027	1	.868	1.023
	MilServYesNo	.237	.162	2.134	1	.144	1.267
	CompAcadGrade	.210	.105	3.955	1	.047	1.233
	Cityres	.426	.120	12.600	1	.000	1.531
	Sex	-.022	.148	.021	1	.884	.979
	WhiteMinority	-.138	.116	1.423	1	.233	.871
	Constant	-.303	.311	.951	1	.329	.739

a. Variable(s) entered on step 1: Over22, BachDegree, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

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Discussion of Results:

In the cross tabulation comparisons, no significant relationship with performance was found in the area of comparative length of service for the comparison groups determined by the variables that considered whether officers were 21 years of age or older, or 22 years of age or older, had military service before hiring, or had a final Academy grade in the upper half of the class. In addition, no relationship was found based on the variables that considered the sex of officers or levels of education. The two variables found through a χ^2 test to have a significant relationship with performance in the area of comparative length of service were New York City residence at the time of hiring, and – to a much less significant degree – the race of the officer.

It should be noted, however, that officer race and New York City residence are themselves related: 52% of the white officers were New York City residents at the time of hiring, compared to 89% of the Hispanic officers and 90% of the black officers. Considering the figures in a slightly different way, the officers who were New York City residents at time of hiring were 43% white, 33% Hispanic, and 24% black, while the officers who lived in the surrounding counties were 85% white, 6% black, and 9% Hispanic. The much stronger significance of New York City residence, and the comparatively weak significance of race, suggests that New York City residence is the more important factor, with New York City residents at time of hiring being more likely than non-residents to provide superior performance in the area of comparative length of service.

Both logistic regression models predicting whether individuals had superior performance based on the variables of age (either over 21 or over 22), military service, education (either 60 college credits or a 4-year bachelor's degree), comparative Police Academy grade, New York City residence at hiring, sex, and race were significant; χ^2 (7) version 1= 28.792, version 2=

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27.299; p < .001. In both cases the model is very weak. The goodness of fit of the models including the predictors is approximately 2% (Nagelkerke R² .023 in the 1st version and .022 in the 2nd version) better than the model without predictors. The first model was able to predict the observed values in 57.1% of all cases, while the second model was able to predict the observed values in 56.9% of the cases. In both models, only two variables were found to be significant: New York City residency at hiring (p < .001 in both models), and comparative Academy final grade (p = .039 in the first model, and .047 in the second.) Based on the Wald statistic, it seems that New York City residency at time of hiring contributes more to the model for the dependent variable "Comparative length of service" than the other variables. On the average, the odds of an officer who was a New York City resident at time of hiring staying longer with the Police Department are 53% higher than they are for officers who are not New York City residents at the time they are hired.

In so far as this variable is concerned, the findings did not support the suggestion that higher age at hiring is likely to produce superior performance, or that officers with sixty college credits but no four-year degree are more likely to provide superior performance than are officers who have less than sixty college credits.

This variable was the first of two that operationalized the concept of "organizational commitment." One possible explanation of the superior performance by those officers where were New York City residents at time of hiring is that New York City residents would have a stronger bond with the law enforcement agency of the city with which they identified as residents than would those who merely viewed the city as an employer. An alternative explanation for the finding, however, may be found in the fact that few officers move into the City during their career, and thus most of those who are subsequently City residents started their

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career as such. Those members who are New York City residents naturally have shorter commutes than their coworkers who live outside the city, and over the course of a career, a tedious commute becomes an ever more considerable factor in considering a change in employment. It should also be noted that while in relative terms a greater proportion of officers who were New York City residents at time of hiring provided superior performance, in absolute terms, superior performance was provided by less than half of the officers who were New York City residents at the time of hiring.

Third Dependent Variable: Comparative Rate of Sick Leave

Results:

The following are the results of the cross tabulations of each dichotomous independent variable with the dependent variable "Comparative rate of sick leave incidents":

Fig. 4.3.1a – Cross tabulation: Comparative Sick Rate * 21 years of age or older at hiring?

			21 years of age or older at hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	4	773	777
		% within 21 years of age or older at hiring?	30.8%	46.5%	46.4%
	Superior	Count	9	890	899
		% within 21 years of age or older at hiring?	69.2%	53.5%	53.6%
Total		Count	13	1663	1676
		% within 21 years of age or older at hiring?	100.0%	100.0%	100.0%

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Fig. 4.3.1b - Chi-Square Tests: Comparative Sick Rate * 21 years of age or older at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.281[a]	1	.258		
Continuity Correction[b]	.727	1	.394		
Likelihood Ratio	1.323	1	.250		
Fisher's Exact Test				.282	.198
Linear-by-Linear Association	1.280	1	.258		
N of Valid Cases	1676				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.03.

b. Computed only for a 2x2 table

Of those who were 21 years or older, 53.5% provided superior performance in the area of comparative sick leave rate, while of those under 21, 69.2% provided superior performance. The χ^2 test found no significant relationship between being 21 years of age or older at hiring and the level of an officer's performance in the area of comparative sick leave rate, χ^2 (1, $N = 1676$) = 1.281, $p = .258$.

Fig 4.3.2a – Cross tabulation: Comparative Sick Rate * 22 years of age or older at hiring?

			22 years of age or older at hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	48	729	777
		% within 22 years of age or older at hiring?	44.9%	46.5%	46.4%
	Superior	Count	59	840	899
		% within 22 years of age or older at hiring?	55.1%	53.5%	53.6%
Total		Count	107	1569	1676
		% within 22 years of age or older at hiring?	100.0%	100.0%	100.0%

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Fig 4.3.2b - Chi-Square Tests: Comparative Sick Rate * 22 years of age or older at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.103[a]	1	.748		
Continuity Correction[b]	.049	1	.825		
Likelihood Ratio	.104	1	.747		
Fisher's Exact Test				.765	.413
Linear-by-Linear Association	.103	1	.748		
N of Valid Cases	1676				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 49.61.

b. Computed only for a 2x2 table

Of those who were 22 years or older, 53.5% provided superior performance in the area of sick leave rate, while of those under 22, 55.1% provided superior performance. The drop in superior performance rate by the younger group indicates that the 13 members of the class who were 20 years old actually had a better rate of superior performance than the 94 members who were 21 (69.2% vs. 53.2%). The χ^2 test found no significant relationship between being 22 years of age or older at hiring and the level of an officer's performance in the area of comparative sick leave rate, χ^2 (1, $N = 1676$) = .103, $p = .748$.

Fig 4.3.3a – Cross tabulation: Comparative Sick Rate * Military service before hiring?

			Military service before hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	701	76	777
		% within Military service before hiring?	47.0%	41.5%	46.4%
	Superior	Count	792	107	899
		% within Military service before hiring?	53.0%	58.5%	53.6%
Total		Count	1493	183	1676
		% within Military service before hiring?	100.0%	100.0%	100.0%

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Fig 4.3.3b - Chi-Square Tests: Comparative Sick Rate * Military service before hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.927[a]	1	.165		
Continuity Correction[b]	1.716	1	.190		
Likelihood Ratio	1.938	1	.164		
Fisher's Exact Test				.182	.095
Linear-by-Linear Association	1.926	1	.165		
N of Valid Cases	1676				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 84.84.

b. Computed only for a 2x2 table

Of those who had military service before hiring, 58.5% provided superior performance in the area of comparative sick leave rate, while of those who had no military service before hiring, 53.0% provided superior performance. The x^2 test found no significant relationship between military service before hiring and the level of an officer's performance in the area of comparative sick leave rate, x^2 (1, $N = 1676$) = 1.927, $p = .165$.

Fig. 4.3.4a – Cross tabulation: Comparative Sick Rate * Sixty college credits at hiring?

			Sixty college credits at hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	559	186	745
		% within Sixty college credits at hiring?	49.1%	40.2%	46.5%
	Superior	Count	580	277	857
		% within Sixty college credits at hiring?	50.9%	59.8%	53.5%
Total		Count	1139	463	1602
		% within Sixty college credits at hiring?	100.0%	100.0%	100.0%

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Fig. 4.3.4b - Chi-Square Tests: Comparative Sick Rate * Sixty college credits at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.494[a]	1	.001		
Continuity Correction[b]	10.139	1	.001		
Likelihood Ratio	10.553	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	10.487	1	.001		
N of Valid Cases	1602				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 215.32.

b. Computed only for a 2x2 table

Of those who had sixty college credits at hiring, 59.8% provided superior performance in the area of comparative sick leave rate, while of those who did not have sixty college credits at hiring, 50.9% provided superior performance. The χ^2 test found that a significant relationship existed between having sixty college credits at time of hiring and the level of an officer's performance in the area of comparative sick leave rate, χ^2 (1, $N = 1602$) = 10.494, $p = .001$.

Fig. 4.3.5a – Cross tabulation: Comparative Sick Rate * Four-year bachelor's degree at hiring?

			Four-year bachelor's degree at hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	649	96	745
		% within Four-year bachelor's degree at hiring?	48.8%	35.3%	46.5%
	Superior	Count	681	176	857
		% within Four-year bachelor's degree at hiring?	51.2%	64.7%	53.5%
Total		Count	1330	272	1602
		% within Four-year bachelor's degree at hiring?	100.0%	100.0%	100.0%

Fig. 4.3.5b – Chi-Square Tests: Comparative Sick Rate * Four-year bachelor's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.550[a]	1	.000		
Continuity Correction[b]	16.012	1	.000		
Likelihood Ratio	16.814	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	16.540	1	.000		
N of Valid Cases	1602				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 126.49.

b. Computed only for a 2x2 table

Of those who had four-year bachelor's degrees, 64.7% provided superior performance in the area of comparative sick leave rate, while of those who did not have four-year degrees, 51.2% provided superior performance. The χ^2 test found that a significant relationship existed between having a four-year bachelor's degree at time of hiring and the level of an officer's performance in the area of comparative sick leave rate, $\chi^2 (1, N = 1602) = 16.55, p = < .001$.

Since those with four-year degrees were also included in the group with at least sixty college credits, a separate analysis compared the performance of those with a two-year associate's degree, but not a four-year bachelor's degree, and those with less education.

Fig. 4.3.6a – Cross tabulation: Comparative Sick Rate * Associate's degree at hiring?

			Associate's degree at hiring?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	559	90	649
		% within Associate's degree at hiring?	49.1%	47.1%	48.8%
	Superior	Count	580	101	681
		% within Associate's degree at hiring?	50.9%	52.9%	51.2%
Total		Count	1139	191	1330
		% within Associate's degree at hiring?	100.0%	100.0%	100.0%

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Fig. 4.3.6b - Chi-Square Tests: Comparative Sick Rate * Associate's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.251[a]	1	.616		
Continuity Correction[b]	.179	1	.673		
Likelihood Ratio	.251	1	.616		
Fisher's Exact Test				.639	.336
Linear-by-Linear Association	.251	1	.617		
N of Valid Cases	1330				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 93.20.

b. Computed only for a 2x2 table

Of those who had two-year associate's degrees, 52.9% provided superior performance in the area of comparative sick leave rate, while of those who did not have two-year associate's degrees, 50.9% provided superior performance. The χ^2 test did not find a relationship between having a two-year associate's degree at time of hiring and the level of an officer's performance in the area of comparative sick leave rate, χ^2 (1, N = 1330) = .251, p = .616.

Fig 4.3.7a – Cross tabulation: Comparative Sick Rate * New York City Resident?

			New York City Resident?		Total
			No	Yes	
Comparative Sick Rate	Not Superior	Count	264	484	748
		% within New York City Resident?	52.2%	44.0%	46.5%
	Superior	Count	242	617	859
		% within New York City Resident?	47.8%	56.0%	53.5%
Total		Count	506	1101	1607
		% within New York City Resident?	100.0%	100.0%	100.0%

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Fig 4.3.7b - Chi-Square Tests: Comparative Sick Rate * New York City Resident

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.401[a]	1	.002		
Continuity Correction[b]	9.073	1	.003		
Likelihood Ratio	9.389	1	.002		
Fisher's Exact Test				.003	.001
Linear-by-Linear Association	9.395	1	.002		
N of Valid Cases	1607				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 235.52.

b. Computed only for a 2x2 table

Of those who were New York City residents before hiring, 56.0% provided superior performance in the area of comparative sick leave rate, while of those who were not New York City residents, 47.8% provided superior performance. The χ^2 test found that a relationship existed between whether or not an officer lived in New York city at the time of hiring and the level of an officer's performance in the area of comparative sick leave rate, χ^2 (1, $N = 1607$) = 9.401, $p = .002$.

Fig. 4.3.8a – Cross tabulation: Comparative Sick Rate * Male or Female

			Male or Female		Total
			Male	Female	
Comparative Sick Rate	Not Superior	Count	629	148	777
		% within Male or Female	44.1%	59.4%	46.4%
	Superior	Count	798	101	899
		% within Male or Female	55.9%	40.6%	53.6%
Total		Count	1427	249	1676
		% within Male or Female	100.0%	100.0%	100.0%

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Fig. 4.3.8b – Chi-Square Tests: Comparative Sick Rate * Male or Female

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	20.112[a]	1	.000		
Continuity Correction[b]	19.499	1	.000		
Likelihood Ratio	20.098	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	20.100	1	.000		
N of Valid Cases	1676				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 115.44.

b. Computed only for a 2x2 table

In the area of comparative length of service, superior performance was provided by

55.9% of male officers, but only 40.6% of female officers. The χ^2 test found that a relationship

existed between the sex of officers and the level of their performance in the area of comparative

sick leave rate, χ^2 (1, N = 1676) = 20.112, p = <.001.

Fig. 4.3.9a – Cross tabulation: Comparative Sick Rate * White Black Hispanic

			White Black Hispanic			Total
			White	Black	Hispanic	
Comparative Sick Rate	Not Superior	Count	423	142	195	760
		% within White Black Hispanic	45.6%	47.5%	48.5%	46.7%
	Superior	Count	504	157	207	868
		% within White Black Hispanic	54.4%	52.5%	51.5%	53.3%
Total		Count	927	299	402	1628
		% within White Black Hispanic	100.0%	100.0%	100.0%	100.0%

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Fig. 4.3.9b – Chi-Square Tests: Comparative Sick Rate * White Black Hispanic

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.028[a]	2	.598
Likelihood Ratio	1.028	2	.598
Linear-by-Linear Association	1.011	1	.315
N of Valid Cases	1628		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 139.58.

In the area of comparative rate of sick leave, 54.4% of the white officers, 52.5% of the black officers, and 51.5% of the Hispanic officers provided superior performance. The χ^2 test found no relationship between the ethnicity of the officers and their performance in the area of the comparative rate of sick leave, χ^2 (2, $N = 1628$) = 1.028, $p = .598$.

Fig. 4.3.10a – Cross tabulation: Comparative Sick Rate * Comparative Academy Grade

			Comparative Academy Grade		Total
			Lower half	Upper half	
Comparative Sick Rate	Not Superior	Count	434	340	774
		% within Comparative Academy Grade	51.4%	41.3%	46.4%
	Superior	Count	410	483	893
		% within Comparative Academy Grade	48.6%	58.7%	53.6%
Total		Count	844	823	1667
		% within Comparative Academy Grade	100.0%	100.0%	100.0%

Fig. 4.3.10b – Chi-Square Tests: Comparative Sick Rate * Comparative Academy Grade

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.122[a]	1	.000		
Continuity Correction[b]	16.718	1	.000		
Likelihood Ratio	17.154	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	17.111	1	.000		
N of Valid Cases	1667				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 382.12.

b. Computed only for a 2x2 table

Of those whose final Academy grades were in the upper half of the class, 58.7% provided superior performance in the area of comparative rate of sick leave, while of those whose final grades were in the lower half of the class, 48.6% provided superior performance. The χ^2 test found a relationship existed between the comparative rate of sick leave and the officers' comparative Academy grades, χ^2 (1, $N = 1667$) = 17.122, $p = <.001$.

The following are the results of the two different versions of the logistic regression for the dependent variable "Comparative Rate of Sick Leave".

1st version: Age requirement = Over 21, Education standard = 60 credits.

Fig. 4.3.11.1a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	65.518	7	.000
	Block	65.518	7	.000
	Model	65.518	7	.000

Fig. 4.3.11.1b – Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2136.638[a]	.040	.054

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

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Fig.4. 3.11.1c – Classification Table[a]

	Observed		Predicted		
			Comparative Sick Rate		Percentage
			Not Superior	Superior	Correct
Step 1	Comparative Sick Rate	Not Superior	323	419	43.5
		Superior	219	633	74.3
	Overall Percentage				60.0

a. The cut value is .500

Fig. 4.3.11.1d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over21	-1.159	.803	2.084	1	.149	.314
	SixtyCred	.357	.117	9.233	1	.002	1.429
	MilServYesNo	.146	.167	.763	1	.382	1.157
	CompAcadGrade	.340	.107	10.111	1	.001	1.406
	Cityres	.508	.121	17.702	1	.000	1.662
	Sex	-.703	.152	21.279	1	.000	.495
	WhiteMinority	.036	.118	.095	1	.758	1.037
	Constant	1.449	.839	2.983	1	.084	4.258

a. Variable(s) entered on step 1: Over21, SixtyCred, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

2nd version: Age Requirement = Over 22, Education Standard = 4-year Bachelor's degree

Fig. 4.3.11.2a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	66.791	7	.000
	Block	66.791	7	.000
	Model	66.791	7	.000

Fig. 4.3.11.2b – Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2135.365[a]	.041	.055

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Fig. 4.3.11.2c – Classification Table[a]

	Observed		Predicted		
			Comparative Sick Rate		Percentage
			Not Superior	Superior	Correct
Step 1	Comparative Sick Rate	Not Superior	332	410	44.7
		Superior	240	612	71.8
	Overall Percentage				59.2

a. The cut value is .500

Fig. 4.3.11.2d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over22	-.041	.213	.038	1	.846	.960
	BachDegree	.530	.144	13.478	1	.000	1.700
	MilServYesNo	.147	.167	.777	1	.378	1.159
	CompAcadGrade	.327	.107	9.380	1	.002	1.387
	Cityres	.487	.121	16.102	1	.000	1.627
	Sex	-.696	.152	20.929	1	.000	.499
	WhiteMinority	.034	.119	.083	1	.773	1.035
	Constant	.364	.317	1.312	1	.252	1.438

a. Variable(s) entered on step 1: Over22, BachDegree, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

Discussion of Results:

In the cross tabulation comparisons, no significant relationship with performance was found in the area of comparative rate of sick leave for the comparison groups determined by the variables that considered the race of the officers, or whether officers were 21 years of age or older, or 22 years of age or older, or had military service before hiring.

A relationship with performance was found both in the groups determined by the variable that considered whether officers had 60 college credits, and by the variable that considered whether officers had four-year bachelor's degrees, with those having more education being more likely to produce superior performance. However, as was the case with the previous

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variable, no significant relationship was found in the follow-up cross tabulation that eliminated

those with four-year degrees from consideration. This suggests that the significance found

earlier when considering all of those who had 60 college credits or more as a single group was

largely the result of the inclusion in that group of those officers who had four-year degrees.

When considered separately, no relationship with performance was found for those who had two-

year associate's degrees but no higher degree when compared with officers who had less

education.

Relationships with performance were also found when considering the sex of the officers

(with male officers being more likely to provide superior performance), and the officers'

comparative final Academy grades (with those whose grades were in the upper half of the class

being more likely to provide superior performance.)

In addition, the χ^2 test found a significant relationship between performance in the

area of comparative rate of sick leave and whether or not officers were New York City residents

at the time they were hired, with New York City residents at time of hiring being more likely

than non-residents to provide superior performance.

Both logistic regression models were significant; χ^2 (7) version 1= 65.518, version 2=

66.791, $p < .001$. In both cases the model is quite weak. The goodness of fit of the models

including the predictors is approximately 5% (Nagelkerke R^2 = .054 in the 1st version, and .055

in the 2nd version) better than the model without predictors. The first model was able to predict

the observed values in 60.0% of the cases, while the second model was able to predict the

observed values in 59.2% of the cases. In both models, "Sex" and "New York City resident"

were found to be significant with $p < .001$, and in the second model "Bachelor's degree" also

was significant with a $p < .001$. The variable "Comparative Academy Grade" was also

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significant in both the 1st model ($p = .001$) and in the 2nd model ($p = .002$.) Based on the Wald statistic, it seems that the sex of the officer contributes more to the models for the dependent variable "Comparative rate of sick leave" than the other variables, with the second most influential contribution coming from being a resident of New York City resident. On the average, the odds of a female officer having a superior rate of sick leave are approximately 50% (1-.495/ 1-.499) lower than they are for a male officer after holding the other variables constant, while the odds of an officer who was a New York City resident at time of hiring having a superior rate of sick leave are between 63% and 66% higher than they are for officers who are not New York City residents at the time they are hired after holding the other variables constant. Furthermore, after holding the other variables constant, the odds of an officer who had a four-year bachelor's degree at time of hiring having a superior rate of sick leave are 70% higher than they are for officers who did not have a four-year college degree.

Like the previous variable, this variable also considered a measurement that operationalized the construct of "organizational commitment". In both of the "organizational commitment" variables, New York City residence was found to be statistically significant as a predictor of the behavior. In seeking to explain the connection, it is noted that the police officers who are not New York City residents are drawn from a limited number of New York counties, all of which are policed by other agencies. One may therefore question why a person from Orange, or Putnam, or Suffolk County would seek to become a police officer in New York City rather than in an agency closer to home. One possible explanation is that the new officer is following one, two, or even three generations of family members into the City's Police Department even though the family no longer lives in the City itself. Such a choice might indicate commitment, but it may be more a commitment to the family's individual legacy than it

is the NYPD as an institution. Another possibility is that a potential officer may see a greater

likelihood of being hired by the NYPD, which is vastly larger than any other law enforcement

agency in the country and which hires hundreds of new officers every year, than of being hired

by a smaller local Department, which may have no openings at the time a job is sought. In such

a case, the New York City Police Department would not be the most preferred employer, but

instead one for which a potential police officer had to settle, and this would serve as an obstacle

to the development of superior organizational commitment.

In considering the "organizational commitment" variables, it is also noted that in the

logistic regressions for both "comparative length of service" and "comparative rate of sick

leave", as well as in the cross tabulations for the latter, the variable of "Comparative Academy

Grade" was also found to be related to performance, with those whose grades were in the upper

half of the class being more likely to provide superior performance. One possible explanation

for this finding would be that those with a greater commitment to the Police Department had this

attachment from the outset of their careers, and therefore were willing to give the time and effort

necessary to studying for their Police Academy examinations in the work-related areas of "social

science", "police science", and "law" which then formed the Police Academy curriculum.

The variable which considered the sex of the officer was highly significant in relation to

the comparative rate of sick leave, with male officers being more likely to provide superior

performance than female officers. This finding is similar to that produced in the previously

noted study by Steinhardt et al. (1991), who also found that female officers were significantly

more likely to have medical-related absences. However, the sex of the officer did not have a

significant relationship, either in the cross tabulations or in the regressions, with "comparative

length of service", which was the other variable that measured organizational commitment. This

suggests that the more frequent use of sick leave by female officers may not be a reflection of less organizational commitment, but of other factors influenced by physical or behavioral differences that may exist between men and women generally.

The possession of a four-year college degree was likewise found to be a statistically significant predictor of a superior sick leave record, but not of the length of service. One possible explanation is that within the study cohort, a four-year college degree is of itself an indication of superior education. A large body of research has shown that the well-educated have better health than those who are more poorly educated (Ross & Wu, 1995). In the case of those with comparatively better educations having a lower annual rate of sick leave, the explanation may lie not in the concept of higher organizational commitment, but simply in the fact that such persons tend to have better health, and therefore have less reason to use sick leave.

Fourth Dependent Variable: Comparative rate of CCRB complaints for abuse of authority, discourtesy, and offensive language

Results:

The following are the results of the cross tabulations of each dichotomous independent variable with the dependent variable "Comparative rate of CCRB complaints for abuse of authority, discourtesy, and offensive language" (that is, other than for excessive use of force):

Fig. 4.4.1a - Comparative rate of CCRB complaints other than force * 21 years of age or older at hiring?

			21 years of age or older at hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	7	775	782
		% within 21 years of age or older at hiring?	53.8%	45.7%	45.8%
	Superior	Count	6	919	925
		% within 21 years of age or older at hiring?	46.2%	54.3%	54.2%
Total		Count	13	1694	1707
		% within 21 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.4.1b - Chi-Square Tests: Comp. rate CCRB complaints other than force * 21 or older at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.341[a]	1	.559		
Continuity Correction[b]	.093	1	.761		
Likelihood Ratio	.339	1	.560		
Fisher's Exact Test				.588	.378
Linear-by-Linear Association	.340	1	.560		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.96.

b. Computed only for a 2x2 table

Of those who were 21 years of age or older at hiring, 54.3% provided superior performance in the area of comparative rate of CCRB complaints other than for excessive use of force, while of those who were not yet 21, 46.2% provided superior performance. The χ^2 test found that there was no relationship between whether an officer was 21 or older at hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (1, $N = 1707$) = .341, $p = .559$.

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Fig 4.4.2a – Cross tabulation: Comp. rate CCRB complaints other than force * 22 years of age or older at hiring?

			22 years of age or older at hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	51	731	782
		% within 22 years of age or older at hiring?	46.8%	45.7%	45.8%
	Superior	Count	58	867	925
		% within 22 years of age or older at hiring?	53.2%	54.3%	54.2%
Total		Count	109	1598	1707
		% within 22 years of age or older at hiring?	100.0%	100.0%	100.0%

Fig. 4.4.2b - Chi-Square Tests: Comp. rate CCRB complaints other than force * 22 or older at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.045[a]	1	.832		
Continuity Correction[b]	.013	1	.911		
Likelihood Ratio	.045	1	.832		
Fisher's Exact Test				.843	.454
Linear-by-Linear Association	.045	1	.832		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 49.93.

b. Computed only for a 2x2 table

Of those who were 22 years of age or older at hiring, 54.3% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who were not yet 22, 53.2% provided superior performance. The χ^2 test found that there was no relationship between whether an officer was 22 or older at hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, $\chi^2 (1, N = 1707) = .045$, $p = .832$.

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Fig. 4.4.3a – Cross tabulation: Comp. rate CCRB complaints other than force * Military service bef. hiring?

			Military service before hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	681	101	782
		% within Military service before hiring?	44.8%	54.0%	45.8%
	Superior	Count	839	86	925
		% within Military service before hiring?	55.2%	46.0%	54.2%
Total		Count	1520	187	1707
		% within Military service before hiring?	100.0%	100.0%	100.0%

Fig 4.4.3b - Chi-Square Tests: Comp. rate CCRB complaints other than force * Military service bef. hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.687[a]	1	.017		
Continuity Correction[b]	5.322	1	.021		
Likelihood Ratio	5.664	1	.017		
Fisher's Exact Test				.020	.011
Linear-by-Linear Association	5.684	1	.017		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 85.67.

b. Computed only for a 2x2 table

Of those officers who had military service before hiring, 46.0% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who did not have military service, 53.2% provided superior performance. The χ^2 test found a relationship between whether an officer had military service before hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (1, N = 1707) = 5.687, p = .017.

Fig. 4.4.4a – Cross tabulation: Comp. rate CCRB complaints other than force * 60 college credits at hiring?

			Sixty college credits at hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	550	199	749
		% within Sixty college credits at hiring?	47.5%	41.9%	45.9%
	Superior	Count	607	276	883
		% within Sixty college credits at hiring?	52.5%	58.1%	54.1%
Total		Count	1157	475	1632
		% within Sixty college credits at hiring?	100.0%	100.0%	100.0%

Fig. 4.4.4b - Chi-Square Tests: Comp. rate CCRB complaints other than force * 60 college credits at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.317[a]	1	.038		
Continuity Correction[b]	4.093	1	.043		
Likelihood Ratio	4.332	1	.037		
Fisher's Exact Test				.038	.021
Linear-by-Linear Association	4.314	1	.038		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 218.00.

b. Computed only for a 2x2 table

Of those officers who had sixty college credits before hiring, 58.1% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who did not have sixty college credits, 52.5% provided superior performance. The χ^2 test found a relationship between whether an officer had sixty college credits before hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (1, N = 1632) = 4.317, p = .038.

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Fig 4.4.5a – Cross tabulation: Comp. rate CCRB complaints other than force * 4-year degree at hiring?

			4-year bachelor's degree at hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	638	111	749
		% within4-year bachelor's degree at hiring?	47.3%	39.2%	45.9%
	Superior	Count	711	172	883
		% within 4-year bachelor's degree at hiring?	52.7%	60.8%	54.1%
Total		Count	1349	283	1632
		% within 4-year bachelor's degree at hiring?	100.0%	100.0%	100.0%

Fig. 4.4.5b - Chi-Square Tests: Comp. rate CCRB complaints other than force * 4-year degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.138[a]	1	.013		
Continuity Correction[b]	5.817	1	.016		
Likelihood Ratio	6.190	1	.013		
Fisher's Exact Test				.015	.008
Linear-by-Linear Association	6.134	1	.013		
N of Valid Cases	1632				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 129.88.

b. Computed only for a 2x2 table

Of those officers who had a four-year bachelor's degree before hiring, 60.8% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who did not have a four-year bachelor's degree, 52.7% provided superior performance. The x^2 test found there was a relationship between whether an officer had a four-year bachelor's degree before hiring and the level of an officer's performance

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in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 $(1, N = 1632) = 6.138, p = .013$.

Since those with four-year degrees were also included in the group with at least sixty college credits, a separate analysis compared the performance of those with a two-year associate's degree, but not a four-year bachelor's degree, and those with less education.

Fig. 4.4.6a – Cross tabulation: Comp. rate CCRB complaints other than force * Associate's degree at hiring?

			Associate's degree at hiring?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	550	88	638
		% within Associate's degree at hiring?	47.5%	45.8%	47.3%
	Superior	Count	607	104	711
		% within Associate's degree at hiring?	52.5%	54.2%	52.7%
Total		Count	1157	192	1349
		% within Associate's degree at hiring?	100.0%	100.0%	100.0%

Fig. 4.4.6b - Chi-Square Tests: Comp. rate CCRB complaints other than force * Associate's degree at hiring?

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.192[a]	1	.662		
Continuity Correction[b]	.129	1	.719		
Likelihood Ratio	.192	1	.661		
Fisher's Exact Test				.697	.360
Linear-by-Linear Association	.192	1	.662		
N of Valid Cases	1349				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 90.81.

b. Computed only for a 2x2 table

Of those who had two-year associate's degrees, 54.2% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who did not have two-year associate's degrees, 52.5% provided superior performance.

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The x^2 test did not find a relationship between whether an officer had a two-year associate's degree at time of hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, x^2 (1, $N = 1349$) $= .192$, $p = .662$.

Fig. 4.4.7a – Cross tabulation: Comp. rate CCRB complaints other than force * New York City Resident?

			New York City Resident?		Total
			No	Yes	
Comparative rate of CCRB complaints other than force	Not Superior	Count	239	511	750
		% within New York City Resident?	46.5%	45.5%	45.8%
	Superior	Count	275	612	887
		% within New York City Resident?	53.5%	54.5%	54.2%
Total		Count	514	1123	1637
		% within New York City Resident?	100.0%	100.0%	100.0%

Fig. 4.4.7b - Chi-Square Tests: Comp. rate CCRB complaints other than force * New York City Resident

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.141[a]	1	.708		
Continuity Correction[b]	.103	1	.748		
Likelihood Ratio	.141	1	.708		
Fisher's Exact Test				.709	.374
Linear-by-Linear Association	.141	1	.708		
N of Valid Cases	1637				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 235.49.

b. Computed only for a 2x2 table

Of those who were New York City residents at time of hiring, 54.5% provided superior performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, while of those who were not New York City residents, 53.5% provided superior performance. The x^2 test did not find a relationship between whether an officer was a New York

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City resident at time of hiring and the level of an officer's performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (1, $N = 1637$) $= .141$, $p = .708$.

Fig. 4.4.8a – Cross tabulations: Comparative rate of CCRB complaints other than force * Male or Female

			Male or Female		Total
			Male	Female	
Comparative rate of CCRB complaints other than force	Not Superior	Count	698	84	782
		% within Male or Female	47.9%	33.6%	45.8%
	Superior	Count	759	166	925
		% within Male or Female	52.1%	66.4%	54.2%
Total		Count	1457	250	1707
		% within Male or Female	100.0%	100.0%	100.0%

Fig. 4.4.8b – Chi-Square Tests: Comparative rate of CCRB complaints other than force * Male or Female

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.594[a]	1	.000		
Continuity Correction[b]	17.022	1	.000		
Likelihood Ratio	17.961	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	17.584	1	.000		
N of Valid Cases	1707				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 114.53.

b. Computed only for a 2x2 table

In the area of comparative rate of CCRB complaints other than for the excessive use of force, superior performance was provided by 52.1% of male officers, compared to 66.4% of female officers. The χ^2 test found that a significant relationship existed between the sex of officers and the level of their performance in the area of comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (1, $N = 1707$) = 17.594, $p = <.001$.

Fig. 4.4.9a – Cross tabulation: Comparative rate of CCRB complaints other than force * White Black Hispanic

			White Black Hispanic			Total
			White	Black	Hispanic	
Comparative rate of CCRB complaints other than force	Not Superior	Count	423	140	199	762
		% within White Black Hispanic	44.9%	46.2%	48.4%	46.0%
	Superior	Count	520	163	212	895
		% within White Black Hispanic	55.1%	53.8%	51.6%	54.0%
Total		Count	943	303	411	1657
		% within White Black Hispanic	100.0%	100.0%	100.0%	100.0%

Fig. 4.4.9b – Chi-Square Tests: Comparative rate of CCRB complaints other than force * White Black Hispanic

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.469[a]	2	.480
Likelihood Ratio	1.467	2	.480
Linear-by-Linear Association	1.450	1	.229
N of Valid Cases	1657		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 139.34.

In the area of the comparative rate of CCRB complaints other than for the excessive use of force, 55.1% of the white officers, 53.8% of the black officers, and 51.6% of the Hispanic officers provided superior performance. The χ^2 test found no relationship between the ethnicity of the officers and their performance in the area of the comparative rate of CCRB complaints other than for the excessive use of force, χ^2 (2, $N = 1657$) = 1.469, $p = .480$.

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Fig. 4.4.10a – Cross tabulations: Comparative rate of CCRB complaints other than force

* Comparative Academy Grade

			Comparative Academy Grade		Total
			Not Superior	Superior	
Comparative rate of CCRB complaints other than force	Not Superior	Count	371	408	779
		% within Comparative rate of CCRB complaints other than force	47.6%	52.4%	100.0%
	Superior	Count	455	464	919
		% within Comparative rate of CCRB complaints other than force	49.5%	50.5%	100.0%
Total		Count	826	872	1698
		% within Comparative rate of CCRB complaints other than force	48.6%	51.4%	100.0%

Fig. 4.4.10b – Chi-Square Tests: Comparative rate of CCRB complaints other than force

* Comparative Academy Grade

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.600[a]	1	.439		
Continuity Correction[b]	.527	1	.468		
Likelihood Ratio	.600	1	.439		
Fisher's Exact Test				.465	.234
Linear-by-Linear Association	.599	1	.439		
N of Valid Cases	1698				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 378.95.

b. Computed only for a 2x2 table

Of those whose final Academy grades were in the upper half of the class, 50.5% provided

superior performance in the area of comparative rate of CCRB complaints other than for the

excessive use of force, while of those whose final grades were in the lower half of the class,

49.5% provided superior performance. The χ^2 test found no relationship between the

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comparative rate of CCRB complaints other than for the excessive use of force and the officers'

comparative Academy grades, χ^2 (1, $N = 1698$) = .600, $p = .439$.

The following are the results of the two different versions of the logistic regression for the dependent variable "CCRB complaints other than for the excessive use of force".

1st version: Age requirement = Over 21, Education standard = 60 credits.

Fig 4.4.11.1a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
	Step	25.185	7	.001
Step 1	Block	25.185	7	.001
	Model	25.185	7	.001

Fig. 4.4.11.1b -Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2215.416[a]	.015	.021

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Fig. 4.4.11.1c – Classification Table[a]

	Observed		Predicted		
			Comparative rate of CCRB complaints other than force		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative rate of CCRB complaints other than force	Not Superior	261	485	35.0
		Superior	246	632	72.0
	Overall Percentage				55.0

a. The cut value is .500

Fig. 4.4.11.1d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
	Over21	.329	.642	.262	1	.609	1.389
	SixtyCred	.177	.114	2.408	1	.121	1.194
	MilServYesNo	-.226	.162	1.949	1	.163	.798
	CompAcadGrade	-.028	.105	.071	1	.789	.972
Step 1[a]	Cityres	.061	.118	.264	1	.607	1.063
	Sex	.607	.154	15.535	1	.000	1.835
	WhiteMinority	.194	.116	2.788	1	.095	1.214
	Constant	-1.018	.688	2.191	1	.139	.361

a. Variable(s) entered on step 1: Over21, SixtyCred, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

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2ⁿᵈ version: Age Requirement = Over 22, Education Standard = 4-year Bachelor's degree

Fig. 4.4.11.2a - Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.796	7	.000
	Block	26.796	7	.000
	Model	26.796	7	.000

Fig. 4.4.11.2b – Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2213.806[a]	.016	.022

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Fig. 4.4.11.2c – Classification Table[a]

	Observed		Predicted		
			Comparative rate of CCRB complaints other than force		Percentage Correct
			Not Superior	Superior	
Step 1	Comparative rate of CCRB complaints other than force	Not Superior	281	465	37.7
		Superior	260	618	70.4
	Overall Percentage				55.4

a. The cut value is .500

Fig. 4.4.11.2d – Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Over22	.082	.208	.156	1	.693	1.086
	BachDegree	.272	.138	3.877	1	.049	1.312
	MilServYesNo	-.224	.162	1.914	1	.166	.799
	CompAcadGrade	-.035	.105	.110	1	.740	.966
	Cityres	.049	.119	.169	1	.681	1.050
	Sex	.610	.154	15.729	1	.000	1.841
	WhiteMinority	.190	.116	2.668	1	.102	1.209
	Constant	-.753	.316	5.688	1	.017	.471

a. Variable(s) entered on step 1: Over22, BachDegree, MilServYesNo, CompAcadGrade, Cityres, Sex, WhiteMinority.

Discussion of Results:

In the cross tabulation comparisons, no significant relationship with performance was found in the area of comparative rate of CCRB complaints for abuse of authority, discourtesy, or offensive language for the comparison groups determined by the variables that considered the race of the officers, or whether officers were 21 years of age or older, or 22 years of age or older, or were New York City residents at time of hiring, or had final Police Academy grades in the upper half of the class.

A relationship with performance was found both in the groups determined by the variable that considered whether officers had 60 college credits, and by the variable that considered whether officers had four-year bachelor's degrees, with those having more education being more likely to produce superior performance. However, in the follow-up cross tabulation that eliminated those with four-year degrees from consideration, no significant relationship was found. This suggests that the significance found earlier when considering all of those who had sixty college credits or more as a single group was largely the result of the inclusion in that group of those officers who had four-year degrees. When considered separately, no relationship with performance in the area of comparative rate of CCRB complaints was found for those who had two-year associate's degrees but no higher degree when compared with officers who had less education.

In addition, the x^2 test found a significant relationship between performance in the area of comparative rate of CCRB complaints for abuse of authority, discourtesy, or offensive language, and whether or not officers had military service before hiring, with those who did not have military service at time of hiring being more likely to provide superior performance. Furthermore, a significant relationship was found to exist between the sex of the officers and the

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comparative rate of the CCRB complaints considered, with female officers being more likely to provide superior performance.

Both logistic regression models were significant; χ^2 (7) version 1= 25.185, $p = .001$; χ^2 (7) version 2= 26.796, $p < .001$. In both cases the model is very weak. The goodness of fit of the models including the predictors is approximately 2% (Nagelkerke $R^2 = .021$ in the 1st version, and .022 in the 2nd version) better than the model without predictors. The first model was able to predict the observed values in 55.0% of the cases, while the second model was able to predict the observed values in 55.4% of the cases. In both models, the sex of the officer was found to be significant with $p < .001$, and in the second model the variable "Bachelor's degree" also just managed to achieve significance with $p = .049$. Based on the Wald statistic, it seems that the sex of the officer contributes more to the models for the dependent variable "Comparative rate of CCRB complaints other than for excessive use of force" than the other variables, with the second most influential contribution coming from having a four-year bachelor's degree. After holding the other variables constant, on the average, the odds of a female officer having a superior rate of CCRB complaints for abuse of authority, discourtesy, or offensive language are approximately 84% higher than they are for a male officer. Furthermore, after holding the other variables constant, the odds of an officer who had a four-year bachelor's degree at time of hiring having a superior rate of CCRB complaints for abuse of authority, discourtesy, or offensive language are 31% higher than they are for officers who did not have a four-year college degree.

The findings above give some support to the proposition that officers with four-year bachelor's degrees are less likely to receive civilian complaints for abuse of authority, discourtesy, and offensive language. However, this study did not find that the same was true for those who had an associate's degree, but not a full four-year bachelor's degree. These findings

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concurred with the findings of Kappeler et al. (1992) and Manis et al. (2008), while partly contradicting those of both Wilson (1999), who found that those with associate's degrees had fewer complaints, and those of Bostrom (2005), who found the performance of those with no degree at all to be significantly superior to those with an associate's degree.

The findings also support the proposition that female officers are less likely than male officers to have interactions with the public that are seen as improperly aggressive or confrontational, and that are taken as exhibiting disrespect. This concurs with the findings of Lersch and Mieczkowski (2000) and Worden (1995), who also found that female officers are less likely than male officers to receive civilian complaints.

This variable was intended to operationalize the concept of "respectful and professional interaction with the public". As was the case with the first dependent variable, which operationalized "exercise of good judgment", military service prior to hiring had a statistically significant relationship with performance that was <u>not</u> superior. A possible explanation may be found in the nature of military training, which teaches the service member how to engage with, and overcome, an enemy. In combat situations, aggressiveness is a virtue, and loyalty to the needs and objectives of the unit supersedes the wishes or desires of others with whom one comes in contact. However, despite the rhetoric that speaks of a "war on crime", policing in civilian society should not be seen through the lens of military conflict, and it is possible that habits or attitudes that were intentionally instilled through earlier military training are not necessarily the most suitable for the very different job of police work.

CHAPTER 5:   SUMMARY, CONCLUSIONS, IMPLICATIONS, AND

RECOMMENDATIONS

Summary

Based upon the results reported above, the following table summarizes the findings as

they relate to the null hypotheses that were to be tested.

Table 5.1: Summary of Results for Research Hypotheses

Legend:
$+$ = Statistically significant relationship between hypothesis characteristic and subsequent superior performance
$-$ = Statistically significant relationship between hypothesis characteristic and subsequent performance that was <u>not</u> superior
0 = No statistically significant relationship between hypothesis characteristic and subsequent performance
* = See more detailed explanation below

	Good Judgment (Department vehicle collisions)	Organizational Commitment 1 (Length of Service)	Organizational Commitment 2 (Rate of Sick Leave)	Respectful and Courteous Interaction (CCRB complaints)	Null Hypothesis Rejected?
H1 – Hired at age 21 or older	0	0	0	0	No
H2 – Hired at age 22 or older	0	0	0	0	No
H3 – Military Service prior to hiring	−	0	0	−	Yes
H4 – 60 college credits prior to hiring	+*	0	+*	+*	Yes*
H5 – 4-year degree prior to hiring	+	0	+	+	Yes
H6 – New York City residence	0	+	+	0	Yes
H7 – Higher Police Academy grade	0	+	+	0	Yes
H8 – Race of the officer	0*	0*	0	0	No
H9 – Sex of the officer	+	0	+	+	Yes

The following is a more detailed explanation of the findings summarized above:

H1: **Being hired at age 21 or older will not have a statistically significant relationship with subsequent superior performance.**

Result: **Failed to reject the null hypothesis.**

No statistically significant evidence was found to support the proposition that being hired at 21 years of age or older had a statistically relationship with the quality of a police officer's subsequent performance.

H2 **Being hired at age 22 or older will not have a statistically significant relationship with subsequent superior performance.**

Result: **Failed to reject the null hypothesis.**

No statistically significant evidence was found to support the proposition that being hired at 22 years of age or older had a statistically significant relationship with the quality of a police officer's subsequent performance.

H3 **Military service before hiring will not have a statistically significant relationship with subsequent superior performance.**

Result: **The null hypothesis was rejected.**

In the performance areas both of "the exercise of good judgment" (operationalized as the annual rate of on-duty Department vehicle accidents), and "respectful and professional interaction with the public," (operationalized as the annual rate of CCRB complaints for discourtesy, abuse of authority, and offensive language), prior military service was found to have

a statistically significant relationship with the quality of subsequent performance. In each case, prior military service was found to be related to performance that is <u>less</u> likely to be superior than is the performance of those who did not have prior military service. It was also noted, however, that while statistical significance was not reached in the regression models, those with prior military service had a higher rate of superior performance in the behaviors used as measurements for organizational commitment than those who did not have prior military service.

H4   **The earning of 60 or more college credits before hiring will not have a statistically significant relationship with subsequent superior performance.**

Result: **The null hypothesis was rejected.**

This result must be taken with an important caveat. When those recruits who had associates' degrees, bachelors' degrees, and post-graduate study were considered as a single group classified as "officers with 60 or more college credits", a significant relationship was found in the performance areas of "the exercise of good judgment" (operationalized as the annual rate of on-duty Department vehicle accidents), and "respectful and professional interaction with the public," (operationalized as the annual rate of CCRB complaints for discourtesy, abuse of authority, and offensive language), as well as in one of the two variables used to operationalize "organizational commitment". However, in each case, when those with education beyond the level of an associate's degree (which was considered an approximate equivalent of the current requirement for applicants of "60 college credits") were eliminated from the comparison, the results changed. When the analysis was confined to comparing the performance of those who had only associates' degrees with those who had less education, then no significant relationship was found between education level and performance. Thus, if one changed the hypothesis to

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"The earning of **only** sixty college credits, and no more, will not have a statistically significant relationship with subsequent superior performance", then **the null hypothesis would fail to be rejected.**

H5   **The earning of a 4-year college degree before hiring will not have a statistically significant relationship with subsequent superior performance.**

Result: **The null hypothesis was rejected.**

In the performance areas both of "the exercise of good judgment" (operationalized as the annual rate of on-duty Department vehicle accidents) and "respectful and professional interaction with the public" (operationalized as the annual rate of CCRB complaints for discourtesy, abuse of authority, and offensive language), a four-year college degree had a significant relationship with superior performance by those who had such degrees. Furthermore, for the variable of comparative rate of sick leave, which was one of the two measures used to operationalize the performance area of "organizational commitment", there was also a significant relationship between having a four-year college degree and a greater likelihood of providing superior performance. However, a four-year college degree was not found to have a significant relationship with comparative length of service with Police Department, which was the other measurement used to operationalize the construct of "organizational commitment". This suggests that the lower rate of sick leave of those who have four-year degrees may have an explanation other than increased organizational commitment, such as the better health generally enjoyed by those with better educations (Ross & Wu, 1995).

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H6 **New York City residence at the time of hiring will not have a statistically significant relationship with subsequent superior performance.**

Result: **The null hypothesis was rejected**

In both the x^2 tests and the logistic regressions, a significant relationship was found between a greater likelihood of superior performance in the area of "organizational commitment" (operationalized as comparative length of service and as the annual rate of sick leave incidents) and being a New York City resident at time of hiring. As noted earlier, this suggests that officers who are from New York City may feel a deeper attachment to the Department than do those who come from elsewhere, and who might have regarded New York City as their employer, but not as their home.

H7 **A higher final grade in the Police Academy will not have a statistically significant relationship with subsequent superior performance.**

Result: **The null hypothesis was rejected.**

In both the x^2 test and the logistic regressions, a significant relationship was found between superior performance in the annual rate of sick leave and having a final Police Academy grade that was in the upper half of the class. Furthermore, a significant relations was found in the regressions (although not the cross tabulations) between superior performance in comparative length of service and a final Police Academy grade that was in the upper half of the class. Both of these variables operationalized the concept of "organizational commitment". As noted earlier, because of the effort necessary to achieve it, a higher Police Academy final grade may indicate higher organizational commitment at the outset of an officer's career, with the later relationship indicating that such commitment could have persisted throughout an officer's career.

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H8   The race of the officer will not have a statistically significant relationship with subsequent superior performance.

Result: Failed to reject the null hypothesis.

While some relationship was found in some areas of the cross tabulations, as was noted above, this may merely have been the result of overlap between the ethnicity of officers and their sex or their likelihood to be New York City residents. Furthermore, no relationship was found in the logistic regressions. Therefore, without further analysis, it is not possible at this time to reject the null hypothesis.

H9   The sex of the officer will not have a statistically significant relationship with subsequent superior performance.

Result   The null hypothesis was rejected.

In both of the performance areas "exercise of good judgment" (operationalized as the comparative annual rate of Department vehicle accidents) and "respectful and professional interaction with the public" (operationalized as the annual rate of CCRB complaints for discourtesy, abuse of authority, and offensive language), a significant relationship was found between the sex of the officer and subsequent superior performance, with female officers having a higher likelihood of superior performance than male officers. A further significant relationship was found between the sex of the officer and subsequent superior performance in the comparative annual rate of sick leave, with male officers having a higher likelihood of superior performance than female officers. However, the comparative rate of sick leave was only one of two measures used to operationalize the performance area of "organizational commitment"; in

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the examination of the comparative length of service, which was the other measure used to operationalize that performance area, no relationship was found between performance and the sex of the officers. This suggests that the difference of performance between male and female officers in the area of the comparative rate of sick leave may not be a reflection of the officers' organizational commitment, but of some other factors.

Conclusions

While opinions about what sort of persons should or should not be police officers are frequently voiced in the media, by elected officials, and in public discourse, these opinions are often not based on research or empirical evidence. While this may in part be attributed to the unfortunate possibility that some journalists, public officials, and members of the public in fact have little interest in basing opinions on research or empirical evidence, this is not a universal failing, and most people prefer to have their decisions be guided by facts rather than otherwise. Unfortunately, there presently exists relatively little material upon which the more thoughtful can ground their judgments on questions regarding the hiring and training of police officers. This study was intended as a first step towards filling that lack.

Several conclusions can be drawn from the study. First, while the study showed that those who have full four-year college degrees are indeed more likely to provide superior performance in some areas, the study did not find evidence to support the present hiring requirement of only 60 college credits. In most cases, the performance of those who had 60 college credits, but not a four-year degree, was little different from (and in some cases, not as good as) the performance of officers who had fewer college credits, or indeed no college education at all.

As was described earlier, the minimum hiring age for the class of 1995 was 20 years of age, although – based on a recommendation of the Mollen Commission – the NYPD's hiring age was subsequently raised to 22, at which level it remained for a decade. Because of the difficulties this created for recruitment, the minimum age was later lowered to 21, where it remains today. This study found no support for the proposal that the use of a hiring age of 22 or 21 would be more likely than the use of a hiring age of 20 in selecting officers with a greater likelihood of superior performance. However, it should be noted that this is not the same thing as avoiding the hiring of officers with a greater likelihood of misconduct, which is a different and equally valid goal. In addition, despite the finding of this study, there are a variety of other reasons (including existing laws regarding such things as purchasing firearms or possessing alcohol), why it would not be advantageous to lower the hiring age from the present requirement that an officer be 21 years of age.

There was no evidence found to support the idea that military service, as opposed to any other type of previous employment, was more likely to produce recruits who would provide superior performance, and that military service should therefore be accepted as the sole allowable alternative to the requirement for college education. Indeed, in two areas, prior military service served as a significant predictor of the likelihood of lesser, rather than better, performance.

A relationship was noted between a higher final grade in the Police Academy and superior performance in the two variables that operationalized "organizational commitment", but no similar relationship with the area of "respectful interaction with the public". This suggests that there may be a certain amount of disconnection between what even willing and cooperative

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police officers <u>learn</u> during their training, and what they will actually be expected to <u>do</u> once they are assigned to patrol.

While New York City residents did not have superior performance in other areas, in both of the behaviors used to measure "organizational commitment" New York City residents were found to be more likely than others to provide superior performance. The conclusion that may be drawn here is that while New York City residents who become police officers are more likely to be attached to the Department that employs them, that may not necessarily mean that this sense of attachment extends to their fellow New Yorkers, with whom – as fellow community members – they already had a relationship on individually defined terms long before they became police officers.

Finally, a difference in performance was noted between male and female officers in a number of measures, with the superior performance being provided alternately by female or male officers as the measure changed. The conclusion to be drawn is that a wise police executive should not expect all members of the Department to behave the same way in all circumstances, but should instead anticipate variation, and should plan to use the individual strengths or talents of officers in the most appropriate ways available.

Implications for Public Policy

The area of public policy for which this study has the most serious implications is that of the hiring requirements to be used for New York City police officers. At present, the requirement imposed by the NYPD (i.e., that applicants have successfully completed either 60 college credits or two years of military service before hiring) is among the more stringent standards now in use in this country. The US Bureau of Justice Statistics reports that only 15%

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of all U.S. police departments require that applicants have any college at all, including 10% that require 60 credits and 1% that require a four-year degree (Reaves, 2015). Of the fifty largest urban police departments in the United States (of which the NYPD is the first in size), whose members account for 31% of the nation's municipal police officers, 32 agencies (or 64%) require nothing more of applicants than a high school diploma. Of the remaining 18, only eight agencies (Chicago, Philadelphia, Washington, Montgomery County in Maryland, Louisville, Nashville, Tampa, and Portland in Oregon) match New York's requirement that applicants without military service must have 60 college credits, and only one of the nation's largest law enforcement agencies (namely, the Jacksonville Sheriff's Office in Florida) has a requirement that is more demanding.

Nevertheless, the results of this study indicate that the current education and experience requirement imposed by the City of New York on persons who wish to become officers in the city's Police Department does not serve its intended purpose of providing the city with the best performing police officers. Instead, since there is no significant difference in the performance of those with associate's degrees and those with less college, or none at all, the 60 college credit education requirement limits the pool of potential applicants without producing a compensating benefit.   Furthermore, the sole alternative to the educational requirement (namely, two years of military service) appears to produce distinctly unfavorable results. The City of New York must therefore make a difficult choice regarding the best way to change its current education or experience requirement for prospective police officers.

One possibility is that the NYPD could join the very small number of American law enforcement agencies that impose a flat requirement of a four-year bachelor's degree on all potential recruits. This study found that there was indeed a higher likelihood of superior

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performance from recruits who had four-year degrees, so there would be a benefit derived from such a policy. However, imposing this more stringent educational requirement on all potential officers would also be likely to have undesirable consequences in the area of recruit diversity. The National Center for Education Statistics (2012) has found that in March of 2011, among persons between the ages of 25 and 29 (who may be considered the prime candidates for police recruitment), only 12.8% of Hispanics and 20.1% of blacks had bachelor's degrees, compared to 34.0% of whites, and 50.8% of Asians. Thus, requiring that all applicants have a baccalaureate degree would not only shrink the pool of potential police officers overall, but would disproportionately eliminate black and Hispanic candidates. As a result, while it would be advantageous in some ways to have a police department made up entirely of officers who each had at least a bachelor's degree, the strongly negative effect such a requirement would be likely to have on officer diversity makes this an inappropriate choice for New York.

The second alternative would be to eliminate the education or experience requirement altogether, and thereby create a larger pool of potential applicants who are statistically as likely to provide superior performance as are those who have 60 credits of college, but no more than that. This is, in fact, the action taken by the New Orleans Police Department, which in 2010 had instituted the same 60-credits-or-two-years-or-military-service hiring standard used in New York. New Orleans subsequently found itself unable to recruit a sufficient number of new officers to fill an increasing number of vacancies, and so in February of 2015 the city's Civil Service Commission unanimously agreed to eliminate any education or experience requirement beyond a high school diploma (McClendon, 2015). If New York were to do the same, the city would increase the pool of potential recruits to include many who would be no less likely to provide superior performance than are the recruits who meet the current standard of 60 credits or

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two years of military service. However, an abandonment of any education or experience requirement also seems to be a poor choice for New York City. In the first place, any attempt to reduce the hiring standards in this way is likely to prove generally unpopular and politically inexpedient. An even more important consideration, though, is that while the current hiring requirements may have proven ineffective for their intended purpose, the way to correct the problem is not by imposing lower standards that will create a candidate pool that is no worse than the present one, but instead to find better standards that will produce recruits who are more likely to produce superior performance.

This leads to the third possibility, which is to continue to have an education requirement with an experience alternative, but to change them from those presently used. It was noted earlier that the Jacksonville Sheriff's Office (JSO) is the only one of the 50 largest municipal police departments in the United States that has an education requirement that is more stringent than that of the NYPD, and it is appropriate at this point to consider it as one example of how New York City might adjust its own police hiring requirements. To become a JSO police officer, an applicant may satisfy the minimum requirements by having completed a four-year college degree. Those who have 60 credits may also be eligible, but (unlike the four-year degree holders, who need do nothing more) they must also fulfill an additional experience requirement of either two years of full time law enforcement experience, or four years as a full time civilian employee of the Jacksonville Sheriff's Office, or four years of service in the military reserves, or five years of continuous full time employment in any other field. The education requirement is waived entirely for those who have four years of active military service, or four years of full time law enforcement experience (Jacksonville Sheriff's Office, 2014).

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It is not here suggested that the Jacksonville Sheriff's Office standards are a one-size-fits-all solution that would perfectly suit every police department in the country, including the NYPD. However, what is suggested is that the education standard that New York City should adopt which requires nothing beyond itself is the standard of a four-year college degree. Those who have less education (whether 60 college credits, or even a high school diploma only) would still be eligible for hiring as police officers, but in addition to their education they would also be required to have an appropriate amount of employment experience, and with more than just military service considered an acceptable for the experience alternative. For example, in order to be eligible for hiring by the NYPD, those who had 60 college credits might also be required to have either two years of full time employment experience working for a governmental agency (whether federal, state, or local), or four years of full time employment in the private sector. Those who had less than 60 credits, but at least a high school diploma, would also be eligible, but they might be required to have four years of full time employment experience working for a governmental agency, or six years of full time employment in the private sector. These particular standards are offered only as suggestions, but the point for makers of public policy to take is that it is necessary to improve police hiring requirements so that they are more effective in selecting persons likely to provide superior performance, while simultaneously avoiding the elimination of large numbers of potentially suitable candidates through the imposition of hiring requirements that were not considered with sufficient care.

A second implication for public policy is produced by the finding that a very large number of the members of the studied class retired either exactly on the twentieth anniversary of their hiring, or on the following day. This strongly suggests that many of those officers did not stay for those 20 years out of a continuing sense of organizational commitment, but only because

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that was the requirement to be fulfilled in order for them to collect a full pension. It is reasonable to assume that many would have left much earlier if collecting a full pension were not a consideration. It is also reasonable to assume, that in the period preceding their departure, officers who left the Department at the very first moment when they could do so without compromising their financial self-interest may not have had the level of desire to continue to do the work of a police officer that their employing city might have preferred. In such cases, it is probably for the best that the officers depart, so that their places can be taken by new hires who have a less jaded attitude. However, in recent years, the contracts negotiated by the City with the police officer's union have extended the span of employment necessary for those now being hired to collect a full pension to 22 years. If it is correct that a large number of officers who have lost true commitment to their jobs already linger unwillingly in their positions only until the moment they can leave without personal financial compromise, delaying that moment for an additional two years may not be the best public policy.

Finally, as noted above, the study found that the organizational commitment of officers who were New York City residents at time of hiring was more likely to be superior than was the organizational commitment of officers from the other permitted residence counties. While it is always be to the advantage of the Police Department to seek officers who have greater organizational commitment, the elected officials who have favored residency requirements, or extra points on hiring tests, should understand that the study's results also suggest that a stronger devotion to the Police Department as an institution by officers who were New York City residents at hiring does not necessarily translate to a closer, warmer, and friendlier relationship between police officers and all members of the communities where they are assigned.

Recommendations for Future Research

While this study, like several earlier studies, found that officers with four-year college degrees had a higher likelihood of providing superior performance in certain areas, there is a lack of research that examines what sort of college study is likely to produce the best officers. Is there more value in a criminal justice degree, or are students of philosophy and history more likely to be the better cops? Future research should also be conducted to see if there is a relation between performance and the type of degree (BA, BS, AA, AS, etc.) an officer has.

This study also questioned the current practice of selecting two years of military service to serve as the sole alternative for an educational requirement. It is recommended that research be conducted to determine if other types and lengths of employment might serve as better alternatives. It was also noted by the study that while officers who were New York City residents at hiring tended to perform better on the measures of the construct "organizational commitment", they did not provide performance superior to that of other officers in the areas of good judgment, and respectful and professional interaction with the public. Further study is warranted regarding the differences between officers who are City residents and those who commute in from other counties, including an examination of whether officer performance or attitudes change when an officer moves out of the city (as many do), and is no longer a New York City resident.

The difference in performance between male and female officers in certain areas was noteworthy, and deserves further study. A closer examination of CCRB complaints for abuse of authority, discourtesy, and offensive language might be made, with more attention given to the effect of the particular duties of the officers (for example, only considering officers who perform radio motor patrol in sectors, as opposed to also including without distinction officers who

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perform specialized or administrative assignments.) It would also be worthwhile to examine the specific causes for the difference in the rate of sick leave use by male and female officers.

One of the difficulties encountered in performing this study was defining what "good performance" means as related to police officers, and then finding ways to measure it. In more than one earlier study, this difficulty has led the researcher to ask rhetorically "What is a good cop, anyhow?", and Beth Sanders (2003) wryly noted this in the title of her article on the topic, suggesting "Maybe there's no such thing as a 'good cop'". The author of this study is deeply committed to the proposal that there certainly are such things as good cops; indeed, he is quite certain that he has known and worked with many of them. Following from this, it should be both possible and worthwhile through further research to define specifically what the term "good cops" means, and to identify through objective measures just which cops are the good ones. In addition, further research should be conducted to determine which potential candidates are most likely to make the best police officers, and what sort of training is most likely to induce superior performance in officers once they have left the Police Academy for work in the world at large.

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