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Do Good Recruits Make Good Cops? Problems Predicting and Measuring Academy and Street-Level Success

Billy Henson,1 Bradford W. Reyns,1 Charles F. Klahm IV,2 and James Frank1

Abstract
The purpose of this study is to extend White’s analysis predicting successful police recruit performance during academy training. Using police personnel data collected on 486 officers hired between 1996 and 2006 by a Midwestern police department, the authors examine characteristics related to academy success as well as active police service. The results show that most demographic and experience variables did not predict academy or active service success. However, White recruits and those scoring higher on the civil service exam consistently performed better on multiple academy outcome measures than their counterparts. In addition, those scoring higher on the overall academy success measure generally received better evaluations from their superiors. The results also show that higher education is not related to any of the measures of academy or on the job success used in these analyses.

Keywords
police selection, hiring, recruitment

Policing is a very labor-intensive field, and the nature of police work and organizations is becoming more complex and challenging. This is especially true of contemporary policing strategies that expand the traditional police role and place greater demands on officers. For instance, community-oriented policing suggests that policing be

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decentralized and that officers solve community problems by being both proactive and creative, while involving community members in the coproduction of safety and security (Buerger, 1994; Cordner, 1995; Mastrofski, 1992; Trojanowicz & Bucquerox, 1990). Similarly, problem-oriented policing requires officers to seek out unique solutions that are most appropriate for specific problems encountered (Eck & Spelman, 1987; Goldstein, 1979). Data-driven police strategies such as COMPSTAT and intelligence-led policing rely on officer use of crime and intelligence data as the basis for targeting resources on the most current problems within the community (Carter, 2004). As policing on the street becomes more complex, it is imperative that new recruits are both highly qualified and dynamic.

With these changes in policing, the challenge of selecting quality police personnel has been a critical problem for law enforcement agencies. Unfortunately, there is a lack of evidence illuminating which criteria are the best predictors of quality personnel. The present study seeks to employ techniques similar to those used in other areas of the criminal justice system to examine information that police agencies have at their disposal during the selection and academy stages to predict which recruits will successfully adjust to the duties of policing. To that end, this study examines three primary research questions:

**Research Question 1:** Do personal qualifications predict performance in the training academy?

**Research Question 2:** Does performance in the training academy predict success as an officer?

**Research Question 3:** What are the most appropriate and effective measures of officer success?

Although limited research concerning the relationship between selection criteria and academy performance exists (White, 2008), the relationship between academy performance and street-level quality remains an empirical question. This may result from the difficulties associated with defining and operationalizing street-level success and quality performance. The findings of this examination may enable police administrators to better develop reliable selection systems that can be used to screen for higher quality candidates rather than rely on the more traditional methods of screening for negative attributes.

**The Current State of the Literature**

The quality of police personnel has perhaps become the key element in the effective execution of police goals (Grant & Grant, 1995; Roberg, Kuykendall, & Novak, 2002). The presumption is that the selection of quality personnel translates into effective crime fighting, positive community interaction, and improvements in police accountability. In contrast, there are numerous negative consequences for the police department, the city, and the community if qualified officers are not selected, though they are
not easy to quantify. In a general sense, the failure to select quality personnel undermines the ability of law enforcement agencies to protect their citizens. In addition, unqualified officers create problems for the agency and community in terms of complaints for excessive force, improper use of coercive activities, and inequitable police practices (Sanders, 2003; White, 2008). Furthermore, the agency endures costs associated with both hiring and training of replacement officers and defending unnecessary and costly lawsuits. Together, these factors have deleterious effects on police–community relationships. Even more unfortunate, they often have the most negative consequences in communities that are least able to deal with them.

**Police Officer Selection and Hiring**

Unfortunately, law enforcement agencies have been unable to successfully develop a system that can identify which individuals will become the most effective officers during the recruitment process. Whether this has resulted from the failure of research to identify selection criteria that predict successful police officers or measurement issues related to operationalizing “quality” street-level performance is unknown (Sanders, 2003; White, 2008). In any case, selection systems used by police agencies have not changed substantially over time.

The majority of recent police research that has addressed the selection and performance of officers has focused on psychological screening tools (Hughes & Andre, 2007). These tools have been used to select new recruits from pools of applicants to filter out unsuitable candidates (Metchik, 1999). The emphasis of these efforts has been to “screen out” recruits who possess psychological traits associated with poor police performance. However, these tests are not as reliable for “selecting in” officers (Sanders, 2003). Most of the studies examining policing and selection criteria find a relationship between personality traits, negative predictors of police performance, and officer success (e.g., problem officers and poor performance; Sanders, 2003; White, 2008). At the same time, these tests are not successful at predicting quality performance. For example, Burkhart (1980) found a correlation between low IQ scores and poor performance; however, high IQ scores were not correlated with good performance (see comments by Sanders, 2003). Similarly, the Minnesota Multiphasic Personality Inventory (MMPI), used as a screening tool by many agencies, is primarily a screening-out tool, designed to discover psychological abnormalities (Metchik, 1999). Use of these various psychological screening tools often results in the elimination of the worst candidates without the ability to identify those that remain in the applicant pool who possess a set of characteristics and traits associated with successful police careers.

One of the recommendations offered by the President’s Commission on Law Enforcement and Administration of Justice was that police agencies seek to hire college-educated personnel. Seemingly, those achieving a higher level of educational attainment possess better decision-making skills and make better police officers (Worden, 1990). Although this assumption has received substantial attention, the empirical evidence is mixed (Riksheim & Chermak, 1993; Roberg, Novak, & Cordner, 2009; White,
Relatedly, the findings are also mixed for the relationship between intelligence and performance. Specifically, officers with higher IQs are likely to perform better in academy testing, but this may not translate into better job performance once in the field (Sanders, 2003; White, 2008).

Over the past 60 years, personality psychologists have used personality indices to predict certain life outcomes. Generally, studies using the Big Five personality dimensions (i.e., openness, conscientiousness, extraversion, agreeableness, neuroticism) have found that conscientiousness and openness predict school performance. In addition, conscientiousness has been determined to be a general predictor of job performance (Barrick & Mount, 1991; John & Srivastava, 1999). More recently, researchers in policing are beginning to examine the utility of the Big Five personality characteristics for predicting quality officer performance. A recent policing study found that officer performance may be influenced more by the culture of the department than by the officers’ individual personality traits (Sanders, 2007).

Many law enforcement agencies continue to use a “multiple hurdles” approach to selection, where the applicant must pass a series of tests. One of these hurdles involves psychological testing. Usually, prior to the psychological testing of candidates, applicants must pass character and medical evaluations and score above a designated threshold on a civil service examination. All of these hurdles are intended to eliminate applicants who do not meet recognized standards for officers (Metchik, 1999). As previously noted, the focus is often on removing applicants who appear to possess undesirable characteristics.

Other areas of the criminal justice system have been much more effective in their efforts to identify the potential for future success of individuals. Several areas, such as probation and parole, have developed assessment instruments for predicting successful outcomes. Over the years, the statistical sophistication of these prediction instruments has greatly improved, making them more accurate and reliable. In theory, similar techniques should be available to determine which candidates will be the best officers and will enjoy successful police careers. However, in contrast to probation and parole measures of success, successful policing is difficult to operationalize and varies across departments and agency strategies.

Measurement of “Quality” Policing

One problem with measuring effective police behavior centers on the difficult nature of quantifying “quality” while taking into account the multiple dimensions of police work. This has lead to a lack of consensus regarding how to measure quality performance on the street (Bartol, 1991; Sanders, 2003). Historically, police agencies have used counts of arrests and citations to measure officer productivity. As such, officer evaluations have largely been a “numbers game” (Bayley & Bittner, 1984; Fyfe, 1999; White, 2008), and quality officers are viewed as amassing certain levels of productivity.

Unfortunately, these measures, while easy to count, only assess the application of formal authority by officers, and law enforcement has been shown to consume only a
limited portion of police work (Parks, Mastrofski, DeJong, & Gray, 1999; Smith, Novak, & Frank, 2001). An additional limitation to the “numbers game” for measuring quality is that officer arrest and citation activity is likely to be influenced by officer assignment. That is, both variation in shift times and crime levels within the officers’ assigned geographical areas influence their arrest and citation opportunities (Bayley & Bittner, 1984; Fyfe, 1999; Muir, 1977; Skolnick & Fyfe, 1993; White, 2008). Finally, the number of arrests and citations may be influenced by officer choices to produce quantifiable numbers versus selecting the most appropriate intervention.

There are also qualitative dimensions to “good officers.” As Sanders (2003) contends, it is much easier to recognize and measure bad performance than good performance. Although there is a lack of consensus as to what is good, it is commonly recognized that nonfeasance, excessive use of force, discourteous and aggressive actions as well as other behaviors represent traits of bad officers. However, quality police action may depend on characteristics of the specific encounter and the people involved. For instance, is an arrest always better than a warning in an intervention with a citizen? Does the selection of one action produce consistently better final outcomes than another?

Finally, measuring success is further complicated by issues surrounding data availability. Many agencies rely on annual personnel assessments made by supervisors that are designed to account for street-level enforcement activity, compliance with agency rules, and general work history. Two criticisms have been regularly voiced concerning annual evaluation processes. First, questions have been raised over whether the evaluation instruments measure the tasks officers regularly perform during their typical work shift. For instance, are assessments flexible enough to adapt to the changing demands placed on officers under community policing and/or problem-oriented policing? Second, there have always been questions about whether ratings reflect supervisor perceptions or actual police performance (Doerner & Hunter, 2006).

As policing on the street becomes more complex, it is imperative that agencies select individuals who are highly qualified and, over time, become quality officers. While limited research concerning the relationship between selection criteria and academy performance exists (White, 2008), the relationship between academy performance and street-level quality remains an empirical question. Using data collected from personnel files of recruits who entered the police academy of a Midwestern police agency between 1996 and 2006, this study examines whether personal qualifications predict performance in the training academy and whether performance in the training academy predicts success as an officer?

Data and Method

Using secondary data analysis, the main focus of this study is the relationship between individual officer characteristics and various dimensions of quality officer performance. Data were collected from a medium-sized department with approximately 1,050 sworn officers across five districts, serving about 330,000 citizens (Uniform Crime
Data were collected for all officers who entered the police department’s training academy program from 1996 to 2006 and eventually served with the agency. Individuals who resigned from the academy, failed to fulfill the requirements of the training academy, and/or ultimately were not hired for police work were removed from the sample. Likewise, those individuals who were listed on the academy roster but had no performance information recorded were treated as missing cases. That is, persons admitted to the academy who did not actually enter, complete, and/or join the police force were not included in the sample of officers. As a result of these conditions, approximately 30 officers were removed from the initial sample. The final sample consisted of 486 Cincinnati police officers.

For the current examination, a two-stage analysis technique was used. First, we examined the relationship between the officer demographic/experience variables and the academy performance variables. Next, we examined the relationship between the officer demographic/experience variables, and the two major academy performance variables—overall academy score and physical agility rating—and the active service performance variables. As performance during active service is one of the key measures of a quality officer, the active service performance variables represented the measures of success as an officer. That is, for this investigation, the demographic/experience variables, as well as the academy performance variables, were used as predictors of future officer success. This technique was adopted to determine if both direct and indirect correlations exist.

The basic model can be seen in Figure 1. The dashed lines represent the Stage 1 analysis, and the solid lines represent the Stage 2 analysis. For both stages of the analysis, multivariate regression was performed to examine all possible correlations between the independent and dependent variables. Before estimating equations to predict

**Figure 1. Path model for data analysis**
officer success, a number of exploratory analyses were conducted that primarily entailed computing correlation coefficients. The assessment of relationships between collected hiring criteria and officer quality was one of first impression for the police agency. As such, it was important that relationships be examined prior to developing a parsimonious model predicting officer success.

**Dependent Variables**

The dependent variables examined in this study include both academy performance measures and active service performance measures. As previously noted, scores generated during the police academy are the dependent variables for the first stage of the analysis, whereas department-generated measures serve as the dependent variables during the second stage of the analyses (see Figure 1).

For the first stage of the analysis, academy performance measures include the following training academy scores: mean score for quizzes, mean score for spelling exams, midterm exam score, notebook score, final exam score, and an overall final academy score. Within this particular police department and training academy, physical-agility training and scoring serve as a major component of the training experience. As a result, an additional academy score was calculated using physical-agility information. The physical-agility rating includes measures of timed running, push-ups, and sit-ups. The individual outcomes for each physical agility test were ranked, recoded, and combined to create an overall physical-agility rating. Specifically, for each activity (sit-ups, push-ups, and run), a mean officer performance score was first calculated and assigned a score of four. For each standard deviation above the mean, an additional point was added and the maximum score became a seven. A point was deducted for each standard deviation below the mean. For each physical activity, there was a possible score that ranged from 1 to 7, and a total physical agility rating score of 3 to 21 for all three measures. The scales and descriptive statistics for the academy performance measures can be seen in Table 1.

The creation of the dependent variables for the second stage of the analysis was much more difficult. One of the most critical issues in the selection and hiring literature involves questions about how to measure and operationalize officer success and quality. As this is a question of first impression, we explored a number of measures of success in an effort to create a measure that encompassed a variety of dimensions of police work. In creating the active service performance measures, variables were used that allow for examination of both department and community perceptions of officer activity. As many law enforcement agencies are pushing toward a community-oriented style of policing, it was believed important to include the perceptions held by those in the community regarding the police. Full descriptive statistics for all of the dependent variable measures can be seen in Table 1.

Included in the performance measures that independently describe the department’s perception of officer performance are the annual evaluation scores. As previously stated, annual evaluation scores were collected for each officer in the sample. Use of
these scores in a meaningful manner created several challenges. For instance, officers in the 1996 academy class had at least 10 evaluation scores, whereas the 2006 class only had 1 or 2 evaluation scores. To retain a sufficient number of officers in our sample and to make comparisons across officer evaluations, it was necessary to limit the number of annual evaluation scores used in the analyses. We therefore decided to use only scores from the officer’s 1st and 2nd years of service as well as the average evaluation score for the officers’ first 3 years of service. That is, our analysis using evaluation scores permitted us to examine the impact of officer-level characteristics and academy performance scores on their department performance evaluations for their first several years of active service.

To examine the community’s perception of officer performance, a variable was also created that measures the number of complaints filed against individual officers. While some of these complaints could have been filed by members of the department,

Table 1. Variables, Scales, and Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quiz average score</td>
<td>0-100</td>
<td>86.538</td>
<td>6.054</td>
<td>61.60-99.20</td>
<td>458</td>
</tr>
<tr>
<td>Spelling exam score</td>
<td>0-101</td>
<td>93.703</td>
<td>5.809</td>
<td>60.00-100.67</td>
<td>407</td>
</tr>
<tr>
<td>Midterm score</td>
<td>0-100</td>
<td>85.073</td>
<td>6.975</td>
<td>60.70-98.67</td>
<td>432</td>
</tr>
<tr>
<td>Notebook score</td>
<td>0-100</td>
<td>87.120</td>
<td>11.069</td>
<td>38.09-100.00</td>
<td>290</td>
</tr>
<tr>
<td>Final exam score</td>
<td>0-100</td>
<td>83.978</td>
<td>6.262</td>
<td>61.38-98.66</td>
<td>376</td>
</tr>
<tr>
<td>Overall academy score</td>
<td>0-100</td>
<td>86.439</td>
<td>5.710</td>
<td>70.00-97.21</td>
<td>420</td>
</tr>
<tr>
<td>Physical agility rating</td>
<td>3-21</td>
<td>12.265</td>
<td>3.315</td>
<td>3.00-21.00</td>
<td>358</td>
</tr>
<tr>
<td>First evaluation score</td>
<td>0-25</td>
<td>11.861</td>
<td>1.334</td>
<td>8-20</td>
<td>472</td>
</tr>
<tr>
<td>Second evaluation score</td>
<td>0-25</td>
<td>13.730</td>
<td>1.459</td>
<td>10-21</td>
<td>440</td>
</tr>
<tr>
<td>3 year evaluation average</td>
<td>0-25</td>
<td>13.637</td>
<td>1.230</td>
<td>9.5-21</td>
<td>396</td>
</tr>
<tr>
<td>Complaints</td>
<td>Total number of complaints</td>
<td>0.229</td>
<td>0.706</td>
<td>0-14.00</td>
<td>486</td>
</tr>
<tr>
<td>Commendations</td>
<td>Total number of commendations</td>
<td>0.555</td>
<td>0.725</td>
<td>0-5.82</td>
<td>485</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>0 = male, 1 = female</td>
<td>0.210</td>
<td>0.406</td>
<td>0-1</td>
<td>486</td>
</tr>
<tr>
<td>Age</td>
<td>Age at recruitment</td>
<td>29.210</td>
<td>5.555</td>
<td>21-55</td>
<td>486</td>
</tr>
<tr>
<td>Race</td>
<td>0 = White, 1 = non-White</td>
<td>0.370</td>
<td>0.483</td>
<td>0-1</td>
<td>486</td>
</tr>
<tr>
<td>Education</td>
<td>0 = high school diploma, 1 = college experience</td>
<td>0.854</td>
<td>0.354</td>
<td>0-1</td>
<td>486</td>
</tr>
<tr>
<td>Foreign language skills</td>
<td>0 = no, 1 = yes</td>
<td>0.080</td>
<td>0.278</td>
<td>0-1</td>
<td>486</td>
</tr>
<tr>
<td>Military experience</td>
<td>0 = no, 1 = yes</td>
<td>0.310</td>
<td>0.464</td>
<td>0-1</td>
<td>486</td>
</tr>
<tr>
<td>Prior law enforcement experience</td>
<td>Number of years of prior experience</td>
<td>0.473</td>
<td>1.261</td>
<td>0-8</td>
<td>486</td>
</tr>
<tr>
<td>Civil service exam</td>
<td>Civil service exam score</td>
<td>87.539</td>
<td>6.719</td>
<td>69.00-101.47</td>
<td>341</td>
</tr>
</tbody>
</table>
the overwhelming majority of them were filed by citizens within the community. Complaints vary widely in terms of the nature of the complaint against the officer. The typology used in this examination includes complaints for misuse of force, racial profiling, missing court appearances, unlawful activity (e.g., driving under the influence, domestic violence), legal issues (e.g., illegal searches), sexual misconduct, and an “other” category (which consists of complaints of unprofessional behavior such as cursing).

It was ultimately decided to use the total number of complaints against the officer, rather than measures of individual types of complaints. This decision was made primarily because most of the categories of complaints did not have sufficient numbers to allow for separate statistical analysis. In an attempt to eliminate any possible time period or history effects, the number of complaints was standardized by the number of years of service as an officer. Thus, the complaints measure is the total number of all complaints standardized by years on the force.

Finally, a measure that combines both department and community perception of performance was also included—commendations. Commendations may be received for a variety of reasons and may be initiated by citizens or department personnel. Citizens may send letters to the police department in response to a positive encounter with an officer (e.g., the officer helped me unlock my car), which may ultimately result in a commendation. If an officer exceeds expectations in the course of his/her duties (e.g., the officer voluntarily led a neighborhood crime prevention meeting), commendations may also be generated by department supervisors. Finally, commendations can be the result of bravery in the line of duty or some other meritorious behavior. Citizen-based commendations were much more common than official department commendations. For example, 52.5% of the sample did not receive an official commendation, whereas only 21.8% of the officers were without a single citizen-based commendation.

As with complaints, the number of commendations for individual officers was standardized by the officer’s total number of years of service with the police agency. This decision was made because each year on the force represents additional opportunities for officers to receive commendations. Thus, to account for differences in opportunity, there was a need to standardize this measure. In addition, specific years seemed to produce an unusual number of commendations across the entire department.

**Independent Variables**

The independent variables examined in this study consisted of both general demographic information and more specific police-related information. The individual officer characteristics examined included gender, age at time of recruitment, race, college education, foreign language skills, military experience, prior law enforcement experience, and civil service exam scores. Gender, race, college education, foreign language skills, and military experience were each coded as dichotomous (yes/no) measures. With college education, any college experience—not just obtaining a college degree—was counted as college education. Age at time of recruitment, prior law enforcement
experience, and civil service exam scores were each coded as metric variables, representing the actual number of years or raw scores, respectively. Unfortunately, there were no available data describing officer personality characteristics. As a result, our examination is limited to demographic, experience, and performance data. A more detailed description of these variables can be seen in Table 1.

Results

Initially, correlation coefficients were computed to explore relationships among the variables and to inform the multivariate analysis. Thereafter, the relationships were explored further by developing models used to predict academy and performance success. This analysis follows the strategy of first examining academy outcomes and then active service measures. We first present the bivariate correlations between officer characteristics and academy scores, followed by the bivariate correlations between all variables and several service measures.

Bivariate Models

As can be seen in Table 2, two variables have significant relationships with each of the academy measures. Civil service test scores have a positive relationship with each of the six academy scores, so that higher civil service scores are associated with higher academy scores. In contrast, officer race has a negative relationship with each of the scores, indicating that being non-White was associated with lower scores. Education level had a significant and positive association with five of the six scores. The physical agility measure was positively associated with three of the academy measures, whereas officer gender was negatively related to three academy outcomes. Finally, age and prior law enforcement experience were not significant with any of the academy outcome

Table 2. Bivariate Correlations Between Officer Characteristics and Academy Outcome Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>Quiz</th>
<th>Spelling</th>
<th>Midterm</th>
<th>Notebook</th>
<th>Final</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>ns</td>
<td>-.134**</td>
<td>-.106***</td>
<td>ns</td>
<td>-.102***</td>
<td>ns</td>
</tr>
<tr>
<td>Age</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Race</td>
<td>-.509**</td>
<td>-.332**</td>
<td>-.453**</td>
<td>-.323**</td>
<td>-.440**</td>
<td>-.526**</td>
</tr>
<tr>
<td>Education</td>
<td>.267**</td>
<td>.257**</td>
<td>.264**</td>
<td>ns</td>
<td>.308**</td>
<td>.321**</td>
</tr>
<tr>
<td>Foreign language</td>
<td>ns</td>
<td>ns</td>
<td>.122****</td>
<td>ns</td>
<td>.144**</td>
<td>ns</td>
</tr>
<tr>
<td>Military experience</td>
<td>.093***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Prior law enforcement experience</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Civil service</td>
<td>.510**</td>
<td>.394**</td>
<td>.530**</td>
<td>.296**</td>
<td>.621**</td>
<td>.617**</td>
</tr>
<tr>
<td>Physical agility rating</td>
<td>ns</td>
<td>.154***</td>
<td>.122***</td>
<td>ns</td>
<td>ns</td>
<td>.113***</td>
</tr>
</tbody>
</table>

**p ≤ .01. ***p ≤ .001.
measures. Overall, the coefficients indicate that most of the observed relationships are weak to modest at best.

Table 3 presents the bivariate correlations between the officer and academy measures and active service outcomes. Several findings are important to note. First, only three of the variables are significantly related to the 1st-year evaluation scores. Prior law enforcement experience and higher physical agility scores are positively associated with officer evaluations in their 1st year. Officer gender (being female) was negatively associated with 1st-year evaluation scores. Second, in contrast, many more variables were positively related to the second annual evaluation scores, and all but two of the relationships (officer gender and race) were positive. Third, both officer gender and physical-agility ratings were significantly related to all three annual evaluation scores. Furthermore, statistically significant associations existed between use of force complaints and military experience, prior law enforcement experience, physical agility, and the notebook exam score.

We also examined bivariate correlations between the same officer variables and alternative measures of officer performance in the field. Only a limited number of the computed relationships are statistically significant. Of interest are the findings that prior law enforcement and military experience were positively related to more total complaints, though when complaints are standardized by years on the force the relationships disappear. Civil service test scores were negatively related to complaints suggesting that officers with higher scores were less likely to have large numbers of complaints filed against them. Only two variables exerted relationships across both complaint measures (gender, with women having fewer complaints; and higher physical agility scores, which were related to more complaints). Overall, coefficients for relationships that were statistically significant indicate that the associations were modest at best, while most would be considered weak.

**Multivariate Models**

Multivariate regression analysis was used to assess the independent effects of included variables. As can be seen in Table 4, several key findings stand out from the first stage of the analysis. First, there is a consistent relationship between officer race and academy performance. This relationship is significant and negative for every measure of academy performance. Essentially, non-White officers did not perform as well in the academic aspects of the training academy. Potential reasons for this finding will be discussed later. There is also a significant relationship between prior law enforcement experience and several of the academy performance measures. The relationships between prior experience and quiz average, final exam score, and overall academy score are both significant and positive, indicating that individuals with prior law enforcement experience perform better on the training academy measures. Finally, and possibly most importantly, a positive and significant relationship was found between civil service exam scores and every measure of academy performance. This indicates that individuals who score higher on the civil service exam perform better in
Table 3. Bivariate Correlations Between Individual Demographic/Experience Variables, Academy Performance Variables, and Active Service Performance Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Year-1 evaluation</th>
<th>Year-2 evaluation</th>
<th>3-Year evaluation average</th>
<th>Use of force complaints</th>
<th>Total complaints</th>
<th>Standardized complaints</th>
<th>Commendations</th>
<th>Standardized commendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.151***</td>
<td>-.169**</td>
<td>-.219***</td>
<td>-.178**</td>
<td>-.198***</td>
<td>-.209***</td>
<td>-.139**</td>
<td>-.091***</td>
</tr>
<tr>
<td>Age</td>
<td>ns</td>
<td>ns</td>
<td>.107***</td>
<td>ns</td>
<td>.093**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Race</td>
<td>ns</td>
<td>-.139***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>-.114***</td>
<td>-.097***</td>
</tr>
<tr>
<td>Education</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Foreign language</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Military experience</td>
<td>.133**</td>
<td>.119***</td>
<td>.160***</td>
<td>.184***</td>
<td>ns</td>
<td>.107***</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Prior law enforcement</td>
<td>.110***</td>
<td>ns</td>
<td>.179**</td>
<td>.133**</td>
<td>.161***</td>
<td>ns</td>
<td>.124**</td>
<td>ns</td>
</tr>
<tr>
<td>Civil service exam</td>
<td>ns</td>
<td>.190**</td>
<td>ns</td>
<td>ns</td>
<td>-.141***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Physical agility rating</td>
<td>.115***</td>
<td>.146**</td>
<td>.188**</td>
<td>.127***</td>
<td>.134**</td>
<td>.129**</td>
<td>ns</td>
<td>.104***</td>
</tr>
<tr>
<td>Quiz average</td>
<td>ns</td>
<td>.208**</td>
<td>.181**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>.182**</td>
<td>ns</td>
</tr>
<tr>
<td>Spelling average</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>-.128***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>ns</td>
<td>.153**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>.148**</td>
<td>.105***</td>
</tr>
<tr>
<td>Notebook score</td>
<td>ns</td>
<td>.172**</td>
<td>.233**</td>
<td>.128***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Final exam</td>
<td>ns</td>
<td>.207**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Overall academy score</td>
<td>ns</td>
<td>.198**</td>
<td>.116***</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>.118**</td>
<td>ns</td>
</tr>
</tbody>
</table>

***p ≥ .01. **p ≥ .001.
Table 4. OLS Regression Analysis Between Individual Demographic/Experience Characteristics and Academy Performance Measures

<table>
<thead>
<tr>
<th>Variables</th>
<th>Quiz average</th>
<th>Spelling average</th>
<th>Midterm exam</th>
<th>Notebook score</th>
<th>Final exam</th>
<th>Overall academy score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.421 (0.625)</td>
<td>1.490 (0.784)</td>
<td>-0.091 (0.792)</td>
<td>4.822 (1.805)**</td>
<td>-0.320 (0.723)</td>
<td>0.546 (0.573)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.014 (0.044)</td>
<td>-0.012 (0.056)</td>
<td>-0.123 (0.056)**</td>
<td>-0.036 (0.122)</td>
<td>0.047 (0.049)</td>
<td>-0.042 (0.040)</td>
</tr>
<tr>
<td>Race</td>
<td>-3.567 (0.612)*</td>
<td>-2.114 (0.793)**</td>
<td>-2.811 (0.777)*</td>
<td>-5.172 (1.941)**</td>
<td>-2.345 (0.678)*</td>
<td>-3.064 (0.556)*</td>
</tr>
<tr>
<td>Education</td>
<td>0.422 (0.773)</td>
<td>1.664 (0.983)</td>
<td>1.218 (0.975)</td>
<td>-0.700 (2.462)</td>
<td>1.527 (0.878)</td>
<td>1.014 (0.717)</td>
</tr>
<tr>
<td>Foreign language skills</td>
<td>-1.323 (0.935)</td>
<td>-0.384 (1.218)</td>
<td>1.132 (1.179)</td>
<td>-0.540 (2.719)</td>
<td>0.341 (1.077)</td>
<td>-0.621 (0.853)</td>
</tr>
<tr>
<td>Military experience</td>
<td>0.246 (0.556)</td>
<td>-0.523 (0.753)</td>
<td>0.158 (0.702)</td>
<td>-0.119 (1.887)</td>
<td>-1.593 (0.615)**</td>
<td>-0.607 (0.503)</td>
</tr>
<tr>
<td>Prior law enforcement experience</td>
<td>0.753 (0.234)*</td>
<td>-0.922 (0.462)**</td>
<td>0.448 (0.298)</td>
<td>2.666 (2.345)</td>
<td>0.567 (0.257)**</td>
<td>0.547 (0.222)**</td>
</tr>
<tr>
<td>Civil service exam</td>
<td>0.291 (0.044)*</td>
<td>0.259 (0.056)*</td>
<td>0.420 (0.056)*</td>
<td>0.394 (0.144)**</td>
<td>0.498 (0.051)*</td>
<td>0.403 (0.041)*</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.345</td>
<td>.192</td>
<td>.332</td>
<td>.126</td>
<td>.427</td>
<td>.455</td>
</tr>
</tbody>
</table>

Note: OLS = ordinary least squares.

*p $\geq$ .05. **p $\geq$ .01. ***p $\geq$.001.
the training academy. This conclusion supports the purpose of the civil service exam—to determine which individuals have the abilities for potential future success. These findings provide some support for the first stage of the analysis, as presented in Figure 1, especially since the $R^2$ suggests some success in explaining model variation. Certain individual demographic/experience measures (especially civil service scores) can be used to predict, with some accuracy, potential success in the police training academy, though most of the variables in the model were not significant predictors of the academy success outcomes.

For Stage 2 of the analysis, the demographic/experience measures and the major academy performance measures—overall academy score and physical agility rating—were examined in relation to active service performance measures. Again, multivariate regression analysis was used to assess the independent effect of variables in the model while controlling for other factors. As can be seen in Table 5, few relationships are significant in this stage of the analysis. First, in examining the relationships between the individual demographic/experience measures and the active service performance measures, three specific relationships are significant. Gender is shown to be significantly and negatively associated with both the evaluation score variables and the variable measuring the number of complaints. These findings indicate that female officers generally receive lower evaluation scores; however, they also receive fewer complaints. A similar relationship is seen with the variable measuring age at time of recruitment. Officers who were older at the time of recruitment generally received lower evaluation scores. Finally, as with female officers, they tend to have fewer complaints filed against them.

Two additional variables are also worthy of mention. There is some evidence that civil service scores are positively and significantly associated with evaluation scores. However, the relationship is no longer significant once the officer’s overall academy performance score and physical-agility rating are included in the models. In these situations, the civil service exam score does not retain its significance. When the correlations between the academy performance variables and the active service performance variables are examined, the only significant finding is the positive relationship between the overall academy score and two of the evaluation measures. This finding indicates that officers who performed well during the academic portion of the training academy generally receive higher evaluation scores.

Taken as a whole, these findings provide limited support for the path model previously described. Several findings are noteworthy. First, the reported $R^2$ suggest that the models are only explaining a limited proportion of the overall variance in the dependent variables. Second, most of the individual demographic/experience variables are not significantly related to the active service measures. The exceptions, as noted, are officer gender and age at the time of recruitment. Third, where relationships are observed, many are not consistent across the officer performance outcomes. Fourth, of all the variables examined in the second stage of the analysis, only commendations were not significantly related to any of the predictor variables. The limited variation in the number of commendations given could be responsible for lack of significance and indicates that commendations may not be an effective measure of officer success.
### Table 5. OLS Regression Analysis Between Individual Demographic/Experience Variables, Academy Performance Variables, and Active Service Performance Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Year-1 evaluation</th>
<th>Year-2 evaluation</th>
<th>3-year evaluation average</th>
<th>Complaints</th>
<th>Commendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.376 (.193)****</td>
<td>-.467 (.235)****</td>
<td>-.548 (.277)****</td>
<td>-.367 (.209)</td>
<td>-.389 (.254)</td>
</tr>
<tr>
<td>Age</td>
<td>-.032 (.013)****</td>
<td>-.037 (.014)****</td>
<td>-.028 (.015)</td>
<td>-.019 (.017)</td>
<td>-.036 (.014)****</td>
</tr>
<tr>
<td>Race</td>
<td>-.040 (.185)</td>
<td>.296 (.217)</td>
<td>-.134 (.205)</td>
<td>.009 (.254)</td>
<td>-.044 (.185)</td>
</tr>
<tr>
<td>Education</td>
<td>.149 (.230)</td>
<td>-.015 (.267)</td>
<td>-.135 (.254)</td>
<td>-.119 (.310)</td>
<td>.005 (.232)</td>
</tr>
<tr>
<td>Foreign language skills</td>
<td>-.695 (.298)****</td>
<td>-.695 (.334)****</td>
<td>-.132 (.340)</td>
<td>-.283 (.388)</td>
<td>-.388 (.317)</td>
</tr>
<tr>
<td>Military experience</td>
<td>.286 (.167)</td>
<td>.132 (.200)</td>
<td>.176 (.186)</td>
<td>.027 (.235)</td>
<td>.218 (.171)</td>
</tr>
<tr>
<td>Prior law enforcement experience</td>
<td>.124 (.071)</td>
<td>-.007 (.096)</td>
<td>.078 (.076)</td>
<td>.055 (.111)</td>
<td>.060 (.066)</td>
</tr>
<tr>
<td>Civil service exam</td>
<td>.016 (.014)</td>
<td>.004 (.019)</td>
<td>.036 (.015)****</td>
<td>.011 (.022)</td>
<td>.032 (.014)****</td>
</tr>
<tr>
<td>Overall academy score</td>
<td>.043 (.022)****</td>
<td>.027 (.026)</td>
<td>.061 (.025)****</td>
<td>.032 (.014)****</td>
<td>-.007 (.020)</td>
</tr>
<tr>
<td>Physical agility rating</td>
<td>-.008 (.032)</td>
<td>.033 (.037)</td>
<td>-.012 (.033)</td>
<td>-.012 (.033)</td>
<td>.021 (.017)</td>
</tr>
</tbody>
</table>

Note: OLS = ordinary least squares.

*p ≥ .05. **p ≥ .01. ***p ≥ .001.
Conclusion and Discussion

The purpose of this study was to answer three primary research questions; each of these will be discussed below. The first research question was “Do personal qualifications predict performance in the training academy?” There is some support for the assertion that personal characteristics or qualifications are related to success in the police training academy. Two variables were consistently related to the academy success measures—race and civil service exam score. One possible explanation for the effect of the race variable may be that the model is misspecified and that the variable is instead masking an effect of socioeconomic status or another intervening variable that unfortunately was not considered in the analysis. However, others have (White, 2008) found similar effects for applicant race using other data. They explain this finding by suggesting that “police academy training curriculum [that] favor the values and characteristics of white males” (White, 2008, p. 34; see also Kappeler, Sluder, & Alpert, 1994).

Three additional plausible explanations can be offered aside from the potential middle-class bias to account for our finding that officer race influences academy performance but not supervisor evaluation scores. First, it is possible that supervisors are reluctant to highlight differences in the performance of minority and White officers due to fears of being accused of being biased. Second, it is just as likely that experience in the field addresses the issues that existed at the time of entry into the academy. For example, although minority recruits may not have the same test-taking skills at the time they enter the academy, they may develop these skills through their performance over time. Last, it is also possible that academy scores tap into the recruits’ natural intelligence while supervisors are more concerned with how officers carry out their job. Kappeler et al. (1994) suggested that selection criteria are often unrelated to actual police performance. However, all of these contentions are subject to further empirical inquiry.

Findings for officer gender also deserve additional attention. Unlike race, gender was not related to academy performance (with the exception of notebook score) but was negatively associated with 1st- and 2nd-year performance evaluation scores and the 3-year annual evaluation average. Despite the increase in the number of female officers over time, policing remains a male-dominated profession. Moreover, while there is no evidence to substantiate this assertion, it appears that the evaluation process may be biased against women. Alternatively, female officers may be better adept at handling disputes without invoking their arrest powers. Since performance evaluations are often based on producing numbers (i.e., tickets issued, people arrested), female officers may be assigned lower evaluation scores due to their reliance on other strategies than arrest to resolve disputes.

The predictive power of the civil service exam variable makes intuitive sense because many of the same skills required for excelling on the civil service exam are similar to those necessary for performing well on academy testing. More importantly, the civil service exam variable predicted higher evaluations (second and 3-year average)
suggesting that continued use of the civil service exam should remain common practice, at least until a better measure is created/found. A third variable measuring prior law enforcement experience was moderately successful at predicting success in the academy. This relationship is expected considering those with prior law enforcement experience also are likely to have had prior police academy experience as well.

The failure of applicant’s education level to attain significance in predicting quality officers, although disappointing, was not unexpected. It should first be noted that our measure was simplistic as we dichotomized the variable to contrast officers with some college education to those without any such educational experience, due to a lack of variation in our sample’s level of education.

The second research question was “Does performance in the training academy predict success as an officer?” There is mixed support for the claim that success in the training academy may equate to success as a police officer. The academy score variable, which is meant to tap overall success in the academy, is significantly related to the officers’ first evaluation and their 3-year evaluation average. The physical-agility score variable was not significantly related to any measure of active service success. Interestingly, neither of these academy variables was significantly related to complaints or commendations. This suggests that perhaps these variables are not the most desirable measures of officer success. As previously mentioned, however, the effectiveness of current evaluation instruments/measures is somewhat controversial. There are questions about whether these ratings reflect supervisor perceptions or true police performance (Doerner & Hunter, 2006). It would be careless to overlook the possibility that the evaluation system is flawed, which may account for the current findings. The only variables that were related to complaints and commendations were gender, age, and military experience. Female officers received fewer complaints against them than did their male counterparts, whereas younger officers and those with military experience received more complaints against them. A possible explanation for this could be that female officers are more adept at resolving conflicts, thereby avoiding the possibility of a citizen complaint. Another possibility may be that assignments and patrol areas vary by gender or age; unfortunately, this information was not measured in this study. The receipt of commendations by officers was not significantly related to any variable in the model.

Other interesting findings involve those variables that are often considered good predictors of officer success. Higher education is often thought of as a desirable quality for incoming police recruits to possess. However, education did not prove to be related to any of the measures of academy or on the job success used in these analyses. Similarly, foreign language skills were equally unable to predict academy or officer job success. The only significant effects of military experience were related to the final exam variable and the complaints variable. Prior law enforcement experience adequately predicted academy success, but it had no effect in the officer performance model. As discussed, civil service scores were a good predictor of academy success; they were also significantly related to officers’ second evaluation and 3-year evaluation average. This suggests that one of the best criteria for police departments to base hiring decisions on may be high civil service scores.
The third research question was “What are the most appropriate and effective measures of officer success?” This is likely the most difficult question due to the ambiguity involved in police work. For example, number of complaints would appear to be a valid measure of officer quality, as an officer with many complaints would not likely be viewed as a quality officer. However, complaints may actually indicate that the officer is active and willing to interact with citizens—factors that increase the likelihood of a complaint being lodged against an officer. In contrast, few complaints may indicate that the officer is unwilling to intervene.

We attempted to differentiate between complaints that were unfounded versus those sustained by the department. The assumption was that officers with sustained complaints are likely more problematic than officers who have fewer sustained complaints and also those officers with unfounded complaints. Unfortunately, no significant relationships were discovered using these alternative measures.

Measuring quality by counting the number of arrests and citations by officers also has problems. The number of officer arrests is likely influenced by shift assignment and neighborhood assignment. Furthermore, arrest counts are likely influenced by discretionary choices to engage in arrest behavior versus using other strategies when interacting with citizens. Even with these potential problems, citation and arrest activity should be considered only one measure of quality street behavior. If available, other measures of street activity (e.g., citizen meetings, dispute resolutions) should be used to supplement counts of more formal actions, especially in the community policing era.

We attempted to create a measure of quality that accounted for the various dimensions of police work (i.e., arrests, stops, investigations, officer commendations, complaints, evaluation scores, etc.). Unfortunately, due to missing data, the measure was incomplete, and what we were able to include did not produce any additional information beyond what is reported for the separate outcome measures.

Several additional considerations are worthy of mention concerning the selection process and the hiring of quality officers. First, there is a need to reform the process so that selection criteria are related to success, if possible. This may require developing hiring criteria that are empirically related to the tasks that officers actually perform on the street. The purpose would be to create a validated job-related selection process.

Second, the department may need to determine whether to continue the selection process as it is now conducted. The general presumption as seen in Figure 2 is that officer characteristics and academy behavior will predict success. The one promising finding was that the overall academy score was positively related to an officer’s 1st-year evaluation and both the 3- and 5-year evaluation average. Thus, academy scores are positively related to the department evaluation of the officer as the person begins his/her career, though this relationship apparently fades over time as the recruit gains experience in the field. However, we are unsure as to why overall academy performance was unrelated to the 2nd-year evaluation score. This finding deserves attention in future research because of concerns over the legitimacy of the evaluation process.

Unfortunately, our findings suggest that most of the information collected during the application process and information generated during the academy is not related to the service outcome measures used in our study. This may be due to organizational
factors that intervene after completion of the academy so that organizational factors mediate the effects of the officer-level factors (see Figure 2). If so, then it may be important to identify and examine those organizational factors that intervene and influence officer success. Alternatively, it may be that information associated with the hiring of quality officers is not collected during the present hiring process. If this is correct then efforts should be made to determine whether this information can be identified and collected. Finally, it is possible that the necessary information is not available and/or easily collected. As one lieutenant advised us, if given the chance to talk to a recruit for 15 min, the lieutenant would be able to tell if he/she would be a quality officer—suggesting the key factors cannot be captured using quantitative data.

**Authors’ Note**

The findings and recommendations expressed within this article are from the authors and do not necessarily represent the official positions of the Office of Criminal Justice Services.

**Declaration of Conflicting Interests**

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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**Notes**

1. Initially, we were provided limited personal data on officers who entered the police academy during the years 2001-2006. These data were later supplemented with demographic information, training academy scores, and subsequent officer performance data. The same
information was also collected on officers who entered the academy and joined the police force during the previous 5 years (1996-2001). The end result was a data set containing officer characteristics, academy information, and performance data on all officers who joined the Cincinnati Police Department during a 10-year period (1996-2006). Unfortunately, psychological testing scores were not available.

2. Initial examinations of the score frequencies highlighted the fact that scores tended to increase for most officers over their tenure on the force. For instance, mean officer evaluation scores increased almost two points when the 1st- and 2nd-year evaluations are compared (11.861 vs. 13.730), a trend that remained until officers tended to level off at a higher score after several years (see Table 1).

3. The most common type of complaint—improper use of force—was still relatively rare. The mean total number of use of force complaints for officers was 1.2, and 56% of the officers were not the subject of such a complaint. Almost 30% (29.3%) of the officers had one or two complaints lodged against them. In contrast, the other types of complaints were much less likely to occur as evidenced by their mean frequency scores (racial discrimination = .07, legal complaints = .37, missing court complaints = .43, law violations = .26, sexual misconduct = .06).

4. An attempt was also made to measure officer activity on the street by examining the number of arrests by each officer in the sample. When the data were cleaned and sorted by officer badge number, we encountered a substantial problem involving missing data. Specifically, two critical problems emerged. First, for each year in our data set, between 25% and 30% of the arrests were missing badge numbers. Second, when arrest entries that contained badge numbers were examined, there were often multiple names (1 to 5) associated with the badge number in a given year. Our intent was to match the arrest information with the officer-level data in our data set. Because a considerable portion of the arrest related information could not be matched (almost one third of the data in each study year), we did not have confidence in our ability to create a meaningful measure of this activity using the provided data and therefore did not employ a measure of officer activity in any of the estimated models.

5. Additional analyses were performed using the 5-year, 6-year, and 8-year annual evaluation averages as the dependent variable. In the 5-year model, overall academy score was positive and significant, similar to the 3-year average evaluation model. None of the other variables in the model were significant. In the 6- and 8-year evaluation models, none of the academy variables were significant.

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