

Spring 1988

Pre-Academy Placement in the Washington State Patrol: Factors Associated with Academy and Job Performance

Richard Franklin Hamack
Central Washington University

Follow this and additional works at: <https://digitalcommons.cwu.edu/etd>



Part of the [Criminology and Criminal Justice Commons](#), [Educational Assessment, Evaluation, and Research Commons](#), [Law Enforcement and Corrections Commons](#), and the [Vocational Education Commons](#)

Recommended Citation

Hamack, Richard Franklin, "Pre-Academy Placement in the Washington State Patrol: Factors Associated with Academy and Job Performance" (1988). *All Master's Theses*. 1828.
<https://digitalcommons.cwu.edu/etd/1828>

This Thesis is brought to you for free and open access by the Master's Theses at ScholarWorks@CWU. It has been accepted for inclusion in All Master's Theses by an authorized administrator of ScholarWorks@CWU. For more information, please contact scholarworks@cwu.edu.

PRE-ACADEMY PLACEMENT IN THE
WASHINGTON STATE PATROL: FACTORS ASSOCIATED
WITH ACADEMY AND JOB PERFORMANCE

A Thesis
Presented to
the Graduate Faculty
Central Washington University

In Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
Richard Franklin Hamack
May, 1988

APPROVED FOR THE GRADUATE FACULTY

Philip Tolin, COMMITTEE CHAIR

Dennis M. Dennis

James L. Eubanks

ABSTRACT

Washington State Patrol Trooper Cadets serve in a number of positions, a number of locations across the state and for varying lengths of time before they are selected to attend the academy. The purpose of the present research was to determine whether these factors were related to subsequent academy performance and job performance.

To that end, 255 cadets hired between 1979 and 1985 were studied. The results indicated that only pre-academy assignment duration was significantly correlated with academy completion and academy performance. Implications for further research and departmental policy are discussed.

ACKNOWLEDGEMENTS

This work would not have been possible without the love, care and support of Becky, Holly and Philip. I will always remember the joy they brought to the difficult times, and how they have helped me to grow.

I also wish to thank my committee for their support, encouragement and guidance.

Lastly, I wish to acknowledge the support of the Washington State Patrol, who provided the opportunity, the means, and the impetus to complete this work.

TABLE OF CONTENTS

CHAPTER I - Introduction	1
CHAPTER II - Methodology	13
CHAPTER III - Results	16
CHAPTER IV - Discussion	32
Bibliography	36
Appendix: Additional Factors	39
Introduction	40
Methodology	42
Results	45
Discussion	56

LIST OF TABLES

Table 1
Table of Analyses Performed and Outcomes . . . 17

Table 2
Crosstabulation of Academy Completion
by Number of Months as Cadet 19

Table 3
Crosstabulation of Academy Completion
by Pre-Academy Job Type 20

Table 4
Crosstabulation of Academy Completion
by Pre-Academy Assignment Location 22

Table 5
Academy Grade Point Average
with Duration of Cadet Assignment 24

Table 6
Academy Grade Point Average
by Pre-Academy Job Type 25

Table 7
Academy Grade Point Average
by Pre-Academy Assignment Location 26

Table 8
Confidential Ratings
with Pre-Academy Assignment Duration 28

Table 9

<u>Confidential Ratings</u>	
<u>with Pre-Academy Assignment Job Type</u> 29

Table 10

<u>Confidential Ratings</u>	
<u>with Pre-Academy Assignment Location</u> 30

Table A-1

<u>Resultant Variables</u> 41
----------------------------	--------------

Table A-2

<u>Crosstabulation of Academy Completion</u>	
<u>by Age at Hiring</u> 46

Table A-3

<u>Crosstabulation of Academy Completion</u>	
<u>by Education</u> 48

Table A-4

<u>Crosstabulation of Academy Completion</u>	
<u>by Military Branch</u> 50

Table A-5

<u>Academy Class Grade Point Average</u>	
<u>with Cadet Education Level</u> 52

Table A-6

<u>Academy Grade Point Average</u>	
<u>with Written Skills Test Scores</u> 54

CHAPTER I

Introduction

The Washington State Patrol has made it a priority to maximize the job performance of persons it selects and trains to be its officers. For this to occur, the agency desired to explore the relationships between the level of Troopers' performance and their personal characteristics as job candidates, their initial job assignments in the Patrol, and their performance in the Academy. By learning what factors are associated with high degrees of performance as Troopers, the department wished to optimize personnel selection, training and placement.

For example, if a certain level of college education were found to be related to a high level of performance, then applicants with that level of education would be considered as likely candidates for hiring. In another example, if certain pre-academy job placements consistently produced Troopers who perform at high levels, other pre-academy jobs could be designed similarly.

This study was designed to identify some of the factors which are associated with performance, whether the factors are drawn from candidates' backgrounds, their pre-hiring test scores or pre-academy job placements.

Construction of the study

The general order of the study was to consult the literature to determine how police performance has traditionally been measured, and to identify factors which may be predictive of such performance.

Next, the context of Washington State Patrol officer selection, placement and training was analyzed in light of the insights gained in the literature review. Measures and predictors of performance were identified within the Patrol. These predictors and measures were collected and analyzed to yield the results which follow later in the study.

Literature Review

Performance Measures

Academy scores serve as the most commonly used indicator of job performance in the police literature (Gruber, 1986). Several studies show an association of job performance with academy scores. Lefkowitz

(1977) indicated that there were significant associations between police academy training scores and later job performance. Cohen and Chaiken (1972) stated that academy scores are among the strongest measures of performance. Spielberger, Ward and Spaulding (1979) stated that academy scores are one of the best measures of police performance. In a review of the police literature, Kleiman and Gordon (1986) suggested that while job performance and academy test results are not directly related, the relationship between academy and job performance is moderated by personality variables of conformity and intelligence. The authors also stated that two studies (Cohen and Chaiken, 1972; McKinney, 1973) have established relationships between academy scores and job performance.

Probationary ratings also have been used as a measure of police performance. Cohen and Chaiken (1972), Gruber (1986) and Spielberger, Ward and Spaulding (1979), found probationary ratings to be important indicators of job performance. Spielberger, Ward and Spaulding (1979), while finding probationary ratings a good measure of performance, noted that such ratings often are subjective and arbitrary, and the raters' opinions are low in

reliability. While acknowledging the potential value of probationary rating data, the feasibility of collecting valid data has been questioned by Cohen (1973) and Gruber (1986).

Predictors of performance

Researchers have for some time attempted to logically relate biographical data with performance in the field (Holmes, 1942; Cohen, 1973; Cohen & Chaiken, 1972; Colarelli & Siegel, 1964; Draille & Baybrook, 1985; Fabricatore, 1979; Furcron, 1973; Gruber, 1986; Inwald & Shusman, 1984; Levy, 1967; Malouff & Schutte, 1986; Merian, Stefan, Schoenfeld & Kobos, 1980; Poland, 1978; Sparling, 1975; Spielberger, Spaulding, Jolley & Ward, 1979; and Spielberger, Ward & Spaulding, 1979). However, while a number of background predictors have been identified and operationalized, Poland indicated that there is no single selection model that yields a consistently strong correlation between selection factors and ultimate job performance.

While no single set of predictors for successful job performance has been identified, research has centered on the logical relationship between background factors affecting selection, recruit

training scores, and ultimately, job performance (Levy, 1967; Malouff & Schutte, 1986; Pugh, 1985; Lefkowitz, 1977; Spielberger et al. 1979a, 1979b).

Each biographical factor stated in the literature is disputed by at least one other study. For example, age and education were found by Cohen and Chaiken (1972) to correlate with performance, and age at time of employment was also cited in a negative sense by Levy (1967) as associated with police failure. However, age was not found to be a predictor of performance by Malouff and Schutte (1986); and Spielberger, Ward and Spaulding (1979) found age to be an inconsistent predictor of performance. Similarly, Sparling (1975) found education to be an inconsistent predictor of police performance.

Spielberger, Ward and Spaulding (1979) found that length and type of prior military service were linked to performance. These authors also found that marital status, number of dependents, highest prior salary, previous employment, traffic violations and birthplace were inconsistent predictors of performance. On the other hand, Cohen and Chaiken (1972) found that military service and marital status, including number of dependents, were not connected with performance. Levy's (1967) study of police failures linked

terminations to a greater degree of education, a greater number of marriages, citations for vehicle code and other violations, and a general pattern of impulsivity and mobility. Malouff and Schutte (1986) and Cohen and Chaiken (1972) confirmed most of Levy's conclusions; they did not confirm the relationship of petty violations and performance.

Civil service exam results were found to be positively correlated with successful job performance by Lefkowitz (1977). Cohen and Chaiken (1972), however, found that civil service exam results were not related to performance. Pugh (1985) indicated that situational tests relying on the officer candidate's verbal expressiveness are better performance predictors after the recruit has had two years of line police experience. After four-and-a-half years, skills measured at recruitment did not predict job performance. Fabricatore (1979) indicated that some sets of critical performance indicators are available by means of situational testing. Gruber (1986) found a correlation of job performance with scores on a police applicant test, but indicated that the predictive validity study was not generalizable beyond the Calgary (Alberta) Police Department.

Psychological tests such as the Minnesota Multiphasic Personality Inventory (MMPI) and the California Personality Inventory (CPI) have commonly been used by police agencies in the selection process (Inwald & Shusman, 1984; Kleiman & Gordon, 1986; Colarelli & Siegel, 1964; Draille & Baybrook, 1985; Merian et al., 1980; Spielberger et al., 1986). Some minor correlations have been discovered by Inwald and Shusman (1984) between psychological test results and performance. Colarelli and Siegel (1964) found that psychological testing served to identify the very good and very poor performers, but had less meaning for average performers. Merian et al. (1980) suggested a link between a group of MMPI indices and performance, but also stated that the most parsimonious explanation of current results simply is that they are subject to chance. In a replication of the preceding study, Draille and Baybrook found that there was no consistent relationship between the MMPI indices and performance. Cohen and Chaiken (1972) failed to correlate psychological history with performance. Spielberger, Ward and Spaulding (1979) found that psychological testing showed no different profile for police officers than for the general population.

The Washington State Patrol context

In many respects, the Washington State Patrol is similar to agencies which previously have been studied. While the primary focus of the agency is to enforce traffic laws, members of the Patrol are vested with full police authority. Departmental basic training standards exceed the minimum requirements of other police agencies in the state. Internal departmental standards require extended training in areas of traffic law enforcement, to ensure a high degree of expertise in this field. Officers of the State Patrol may be called upon, and expected to act proficiently, in the field of criminal law as well as traffic law.

Background factors of Patrol Officers

While no single set of predictors emerged from the literature, the Patrol remained concerned with its cadet program, that it provide the best possible pre-academy placement to maximize the performance potential of the future troopers. To examine its role as predictive of future success, the cadet period was broken into three variables: Duration of assignment; location of assignment; and job type. These three variables were then examined in light of the success

criteria.

Since, as noted above, no single set of clearly identified predictors of success has emerged from previous research, (Poland, 1978; Lefkowitz, 1977), most predictors evaluated in the earlier literature were not considered in the present study. Some background factors, including age at time of employment, education, prior military service, and written and oral examination scores were collected, and summaries of these data are presented in the appendix and included as supplementary.

A unique feature of the Washington State Patrol's system of hiring potential troopers involves placing them in non-line related functions prior to academy attendance. Each candidate is placed in one of four areas: communications, commercial vehicle enforcement, operations or miscellaneous headquarters assignments (including providing security for the Governor's mansion).

The duration of these pre-academy assignments varies with the length of time between academy classes, and with the academy selection process. Cadets are assigned, as needed, to various locations around the state, ranging from rural to metropolitan areas. In summary, the assignments vary in terms of

function performed, duration and location.

Measuring performance in the WSP

Consistent with Meadows' (1987) findings, performance in the Washington State Patrol Academy is measured as an overall mean for core curriculum test scores. Core curriculum classes are defined as areas of high liability, areas where mandatory certification is required to perform in the field, and those which are absolutely basic to ability to perform the job of trooper. Passage of all core classes is required for graduation from the academy.

At the most rudimentary level, academy success was measured as either graduation or failure. While it is understood that persons may fail to finish the academy for a variety of reasons, some of which are unrelated to their suitability as officers, selected candidates were not graduated and placed on the street. Regardless of the reason for failure, the department has shown interest in identifying predictors for potential academy non-finishers.

After the academy, performance is gauged by other means. Officers in the Patrol are rated through their probationary period (and beyond) for both promotion potential and job performance. Four distinct systems

are in place to collect promotional and job performance data.

The first system is a series of annual performance appraisals. These appraisals are conducted by the officer's immediate supervisor subjectively. Results from this appraisal have no effect on promotability (by law).

The second system consists of biannual promotion potential ratings. These ratings are established through a "forced choice" evaluation system. The officer's immediate supervisor selects phrases which he believes most closely describe his subordinate, not knowing the weightings of the phrases. The phrases were drawn from critical incidents describing behaviors of effective supervisory officers.

The third and fourth systems, which are not well known in the Patrol, are supervisors' confidential promotion potential and job performance ratings, to which the employee does not have access. Each of these ratings consists of a single scale describing the supervisor's impressions of each subordinate's performance and promotability. These scales were established in order to provide validation for the first two systems.

Scope of Study

The purpose of this study was to determine whether the nature of the pre-academy assignment is related to officers' subsequent performance.

CHAPTER II

Methodology

Subjects

The subjects were the 255 cadets who entered the Washington State Patrol Academy during the period from November, 1982 to January, 1987. Each of the seven academy sessions during that time lasted approximately 17 weeks.

Collection Methods

The following data were collected for all subjects: location, duration and type of pre-academy assignment; academy test scores; and confidential job performance ratings. The data were available from several sources, including the department's personnel computer database, paper personnel files, academy training records (both automated and paper-based) and the department's industrial psychologist.

The predictor variables also were placed into groups. Assignment location was coded by Patrol District, of which there are eight across the state. Job type was coded into four categories:

Communications, commercial vehicle enforcement, operations, and headquarters assignments. Assignment duration was coded into six categories: Less than one month, one to six months, six to 12 months, 12 to 24 months, 24 to 36 months, and more than 36 months.

The criterion variables of academy completion, academy performance and confidential job performance ratings were derived as follows:

Academy completion was determined from personnel records which showed that the cadet entered the academy, but had no completion date. These non-finishers were verified with academy records.

Those who finished the academy were classified as having finished above or below the median academy grade point average. Test scores were obtained from the academy in paper form.

Confidential job performance ratings were recorded by the supervisor concurrently with the promotion potential evaluation process. For the purpose of this study, job performance ratings were taken one year following academy graduation. For each subordinate, the supervisor selected one of five ratings (exceptional, competent/dependable, acceptable, limited, or low caliber) from a single-item scale. While the confidential job performance

ratings are not behaviorally anchored, as recommended by Lefkowitz (1977), and are highly subjective, they have the advantage of confidentiality. To ensure confidentiality of the sensitive data, the records' custodian entered the scores into the database personally, made a copy of the computer file for his records, and then erased the names from the file to be analyzed.

The data were analyzed using SPSS PC+ statistical software. Results of the analyses are presented in Chapter III and the Appendix.

CHAPTER III

Results

This chapter focuses separately on each of the criterion variables. Academy completion was first treated dichotomously, as either passage or failure. As those who failed to complete the academy no longer have job performance potential as officers in the Washington State Patrol, their data were not considered further. Those completing the academy were divided by grade point averages into groups above and below the median.

Each of the predictor variables was crosstabulated with each of the criterion variables, and chi square tests of independence were applied to each combination of predictor and criterion. An overview of each of the chi square test results is presented in Table 1.

Table 1

Table of Analyses Performed and Outcomes

Criterion	Predictor	n	χ^2	df	p
Academy Completion (Pass/Fail)					
	Duration	249	20.08	5	.0012
	Job Type	204	1.90	3	.5927
	Location	223	10.81	7	.2121
Academy GPA (Above/Below Median GPA)					
	Duration	217	15.06	5	.0101
	Job Type	185	1.93	3	.5875
	Location	200	13.49	7	.0958
Confidential Job Performance					
	Duration	87	17.12	15	.3116
	Job Type	75	11.89	9	.2194
	Location	83	18.72	24	.7667

Academy Completion Criterion

When academy completion was crosstabulated against the number of months spent in pre-academy placement, 32 (12.9%) of the 249 cadets did not finish the academy, while 217 (87.1%) graduated. Six records contained missing values for either of the two variables, and were not included in the calculations. Table 2 presents the crosstabulation of these two variables. The significant ($p = 0.0012$) chi square statistic suggests that there is a higher likelihood of academy completion when duration in the cadet program is longer than one month. The modal category (40.6 percent) of academy failures had less than one month's tenure in the cadet position prior to entering the academy. More than 68 percent of those failing to graduate had less than six months as a cadet prior to entering the academy. Pearson's correlation coefficient was also calculated, and supports the claim of association between pre-academy assignment duration and academy completion ($r = .17, p < .01$).

Crosstabulation of job type by academy completion (see Table 3) did not reveal a significant association of academy completion with job type ($\chi^2 = 1.90, df = 3, p > .05$).

Table 2

Crosstabulation of Academy Completion
by Number of Months as Cadet

Duration	Did Not	
	Finish	Finished
Under 1 Month	13	27
1 to 6 Months	9	54
6 to 12 Months	4	54
12 to 24 Months	3	31
24 to 36 Months	1	39
Over 36 Months	2	12

$\chi^2 = 20.08$, df = 5, p = .0012.

Table 3

Crosstabulation of Academy Completion
by Pre-Academy Job Type

Job Type	Did Not	
	Finish	Finished
Communications	3	53
Truck Enforcement	5	35
Operations	3	34
Headquarters	8	63

$\chi^2 = 1.90, \underline{df} = 3, p = .5927.$

Table 4 shows the crosstabulation of job location and academy completion. These data do not suggest that job location was associated with academy completion ($\chi^2 = 10.81$, df = 8, p = .21).

Table 4

Crosstabulation of Academy Completion
by Pre-Academy Assignment Location

District	Did Not Finish	Finished
1	0	9
2	3	25
3	0	16
4	1	27
5	6	17
6	1	10
7	2	20
8	1	11
Headquarters	9	65

$\chi^2 = 10.82$, df = 8, p = .2121.

Academy Grade Point Average

Academy grade point averages of the 217 cadets who successfully completed the academy were divided at the median. Table 5 shows the relationship of job duration and grade point average. The data suggest that the likelihood for success was greater for those with more than two years of pre-academy cadet work ($\chi^2 = 15.06$, df = 5, p = .0101). This relationship was also supported by Pearson's correlation coefficient, which was calculated with the variables ungrouped (r = .32, p < .001).

When academy grade point averages were considered as a function of the type of job held (Table 6), there was no apparent relationship ($\chi^2 = 1.93$, df = 3, p = .59).

Similarly, the relationship of academy grade point average and the job location (Table 7), revealed no evidence of a statistical association ($\chi^2 = 13.49$, df = 8, p = .10).

Table 5

Academy Grade Point Average with Duration of Cadet
Assignment

Duration	Academy Grade Point Average	
	Above Median	Below Median
Under 1 Month	12	15
1 to 6 Months	20	34
6 to 12 Month	24	30
12 to 24 Months	15	16
24 to 36 Months	28	11
Over 36 Months	9	3

$n = 217$, $\chi^2 = 15.06$, $df = 5$, $p = .0101$.

Table 6

Academy Grade Point Average by Pre-Academy Job Type

Job Type	Academy Grade Point Average	
	Above Median	Below Median
Communications	26	27
Truck Enforcement	14	21
Operations	18	16
Headquarters	34	29

$\chi^2 = 1.93$, df = 3, p = .5875.

Table 7

Academy Grade Point Average
by Pre-Academy Assignment Location

District	Academy Grade Point Average	
	Above Median	Below Median
1	3	6
2	10	15
3	5	11
4	12	15
5	11	6
6	9	1
7	9	11
8	5	6
Headquarters	36	29

$\chi^2 = 13.50, \underline{df} = 8, \underline{p} = .0958.$

Confidential Job Performance Ratings

The remainder of the statistical tests used the confidential job performance ratings as the criterion variable. Subjects were grouped into one of five job performance categories (exceptional, competent/dependable, acceptable, limited, or low caliber) by their supervisor at the end of their first year out of the academy. The distribution of this criterion was crosstabulated against the distributions of each of the predictor variables. Chi-square statistics were calculated to determine if the predictors were associated with this criterion.

As displayed in Table 8, with pre-academy placement duration as a predictor variable, the data showed no significant relationship between confidential rating categories and duration of pre-academy assignment ($\chi^2 = 17.12$, $df = 15$, $p = .3116$).

Neither job location ($\chi^2 = 18.72$, $df = 24$, $p = .77$) nor type of job ($\chi^2 = 11.89$, $df = 9$, $p = .22$) was significantly associated with confidential job performance rating categories. These results, as displayed in Tables 9 and 10, failed to show an association between confidential job performance ratings and either job location or job type.

Table 8

Confidential Ratings with Pre-Academy Assignment Duration

Duration	Confidential Performance Rating			
	Exceptional	Competent	Acceptable	Limited
Under 1 Month	4	4	3	0
1 to 6 Months	10	9	4	1
6 to 12 Months	5	15	2	0
12 to 24 Months	3	5	2	1
24 to 36 Months	7	6	1	1
Over 36 Months	4	0	0	0

$\chi^2 = 17.12$, df = 15, p = .3116.

Table 9

Confidential Ratings with Pre-Academy Assignment Job Type

Confidential Performance Rating				
Job Type	Exceptional	Competent	Acceptable	Limited
Communications	10	10	2	1
Truck Enforcement	10	3	3	0
Operations	3	10	1	1
Headquarters	5	12	3	1

$\chi^2 = 11.89$, df = 9, p = .2194.

Table 10

Confidential Ratings with Pre-Academy Assignment Location

District	Confidential Performance Rating			
	Exceptional	Competent	Acceptable	Limited
1	3	1	0	1
2	2	4	3	0
3	4	3	2	1
4	6	7	1	0
5	3	3	1	0
6	2	1	0	0
7	4	3	2	0
8	1	3	0	0
Headquarters	5	13	3	1

$\chi^2 = 18.72$, df = 24, p = .7667.

Criteria Association

Just as none of the crosstabulations of predictors with confidential performance ratings yielded significant results, the association of academy grade point average, as a dichotomous (above and below the median) variable and confidential performance results yielded a non-significant ($\chi^2 = 1.35$, $df = 5$, $p = .72$) chi square statistic. Thus, there is no evidence present to link the two criterion variables statistically.

CHAPTER IV

Discussion

The duration of cadet assignment, as expected, was statistically associated with both academy completion and academy grade performance, indicating that this factor is indeed predictive of academy completion and academy success. These results are consistent with anecdotal observations within the agency, that cadets hired "off the street" to go immediately to the academy do not fare as well as those who have had benefit of the cadet program for a longer duration. There are at least two possible explanations for this relationship.

The first explanation may simply be a matter of exposure to, and experience with, departmental procedures and the criminal justice system. According to this explanation, cadets who have spent more time in the field prior to academy selection have more extensive working knowledge of the subjects taught at the academy. Further research is needed to determine the knowledge level brought to the agency at hiring, at academy placement, and at academy completion.

Another explanation is that the Washington State Patrol is a highly traditional organization, which in the past has stressed identification with its traditions as values the members "should" share. These traditions often take the form of unwritten norms that are passed to new members by individual contact.

Each cadet is assigned a coach, who is responsible for teaching the cadet about the agency's procedures, policies and standards. The coach also passes on the social norms of the organization. During their tenure prior to the academy, cadets determine if these norms are consistent with their personal values. If so, they may continue to the academy and succeed. If the cadet finds that his/her personal values are incongruent with the norms of the department, he or she may elect to leave the agency prior to academy selection.

If the duration of cadet assignment is less than necessary for the person to make this evaluation, then that person may be selected to the academy before he/she is aware that he/she is not properly matched to the employer. When at the academy, extreme stress conditions are imposed which further exacerbate the incongruence between the cadet's values and the

departmental norms. Finding this incongruence, the cadet quits, is dismissed, or simply does not perform at the same level as the cadets who have been socialized in the agency.

Further research is needed to identify the role of the cadet's values prior to selection, and to identify and define the department's norms.

Regardless of the research that follows, the department would be well advised to continue to place cadets in the field for a duration of at least one month, in order to maximize academy performance.

With no significant relationships identified between academy success and type or location of cadet job, placement prior to the academy does not appear to be associated with increased academy performance.

As none of the predictors were associated with confidential job performance ratings, this raises the question of the relationship between academy success and later job performance. There may be possible implications in designing academy curricula which more closely relate to job performance dimensions. Another possible avenue is to examine the relevance of job performance rating scales, and possibly design more appropriate or meaningful measurements.

Clearly, further research is necessary in order to determine relationships between job performance and placement factors. A limited discussion of other contextual factors is presented in the Appendix.

Bibliography

- Adair, Charles H. (1970). The importance of selected individual and organizational variables to the utilization of learnings and retrospective evaluations of management training programs in India (Doctoral dissertation, University of Kansas, 1970). Dissertation Abstracts International, 31, 3033A.
- Cohen, Edwin. (1973). Training time as a selection criterion for entrants to individualized training programs. Psychological Reports, 32, 715-718.
- Cohen, Bernard & Chaiken, Jan M. (1972). Police background characteristics and performance. New York: Rand Institute.
- Cohen, Bernard & Chaiken, Jan M. (1972). Police background characteristics and performance: Summary. New York: Rand Institute.
- Colarelli, Nick J. & Siegel, Saul M. (1964). A method of police personnel selection. Journal of Criminal Law, Criminology and Police Science, 55, 287-289.
- Draille, Penelope W. & Baybrook, Rebecca M. (1985). Screening of police applicants: A replication of a 5-item MMPI research index validity study. Psychological Reports, 57, 1031-1034.
- Fabricatore, Joseph M. (1979). Preentry assessment and training: Performance evaluation of police officers. In C. D. Spielberger (Ed.), Police Selection and Evaluation: Issues and Techniques (pp. 77-85). New York: Praeger.
- Furcron, John E. (1973). The relationship of selected psychological tests to measures of police officer job performance in the State of Illinois: Results of the Illinois local community police officer selection process. Chicago: Industrial Relations Center, University of Chicago.
- Gruber, Gerald. (1986). The police applicant test: A predictive validity study. Journal of Police Science and Administration, 14, 121-129.

- Holmes, Benjamin. (1942). Selection of patrolmen. Journal of Criminal Law and Criminology, 32, 575-594.
- Inwald, Robin E. & Shusman, Elizabeth J. (1984). The IPI and MMPI as predictors of academy performance for police recruits. Journal of Police Science and Administration, 12, 1-11.
- Kleiman, Lawrence S. & Gordon, Michael E. (1986). An examination of the relationship between police training academy performance and job performance. Journal of Police Science and Administration, 14, 293-299.
- Landy, Frank J., Farr, James L., Saal, Frank E. & Freytag, Walter R. (1976). Behaviorally anchored scales for rating the performance of police officers. Journal of Applied Psychology, 61, 750-758.
- Lefkowitz, Joel. (1977). Industrial-organizational psychology and the police. American Psychologist, 32, 346-364.
- Levy, Ruth J. (1967). Predicting police failures. Journal of Criminal Law, Criminology and Police Science, 58, 265-276.
- Malouff, John M. & Schutte, Nicola S. (1986). Using biographical information to hire the best new police officers: Research findings. Journal of Police Science and Administration, 14, 175-177.
- McKinney, T. S. (1973). The criterion-related validity of entry level police officer selection procedures (TRI-75). Phoenix, AZ: City of Phoenix, Personnel Department.
- Meadows, Robert J. (1987). Beliefs of law enforcement administrators and criminal justice educators toward the needed skill competencies in entry-level police training curriculum. Journal of Police Science and Administration, 15, 1-9.
- Merian, Elizabeth M., Stefan, David, Schoenfeld, Lawrence S. & Kobos, Joseph C. (1980). Screening of police applicants: A 5-item MMPI research index. Psychological Reports, 47, 155-158

- Mullins, Wayman C. & Kimbrough, Wilson W. (1986). Determining job similarity/difference: The use of MANOVA and discriminant analysis with critical incident job analysis technique results. Journal of Police Science and Administration, 14, 130-136.
- Poland, James M. (1978). Police selection methods and the prediction of police performance. Journal of Police Science and Administration, 6, 374-393.
- Pugh, George. (1985). Situation tests and police selection. Journal of Police Science and Administration, 13, 30-35.
- Pugh, George M. (1986). The good police officer: Qualities, roles, and concepts. Journal of Police Science and Administration, 14, 1-5.
- Sparling, Cynthia L. (1975). The use of education standards as selection criteria in police agencies: A review. Journal of Police Science and Administration, 3, 332-335.
- Spielberger, Charles D., Spaulding, Harry C., Jolley, Margie T. & Ward, John C. (1979). Selection of effective law enforcement officers: The Florida police standards research project. In C. D. Spielberger (Ed.), Police Selection and Evaluation: Issues and Techniques (pp. 231-251). New York: Praeger.
- Spielberger, Charles D., Ward, John C. & Spaulding, Harry C. (1979). A model for the selection of law enforcement officers. In C. D. Spielberger (Ed.), Police Selection and Evaluation: Issues and Techniques (pp. 11-29). New York: Praeger.
- Steinman, Michael. (1986). Managing and evaluating police behavior. Journal of Police Science and Administration, 14, 285-292.
- Talley, Richard A. (1986). A new methodology for evaluating the curricula relevancy of police academy training. Journal of Police Science and Administration, 14, 112-120.

Appendix: Additional Factors

Introduction

While the main text examined the relationships between pre-academy placement factors and performance indices (academy success and confidential job performance ratings), additional predictor variables were collected for the same subjects. The purpose of the appendix is to display relationships between these additional predictor variables and the performance indices.

The additional predictor variables were drawn from examples found in the literature. These examples focused on police applicants' biographical data which appeared to be related to performance.

The variables which were considered are presented in Table A-1. Table A-1 shows the identity of the variable; the type of variable (predictor or criterion); the research which cited the variable as a predictor or criterion variable; and whether the prediction was positive or negative in direction.

Table A-1

Resultant Variables

<u>Variables</u>	<u>Type^a</u>	<u>Prior study indicating use</u>
Age at time of employment	P	Cohen and Chaiken (1972) ¹
	P	Levy (1967) ²
Education	P	Cohen and Chaiken (1972) ¹
	P	Levy (1967) ²
	P	Sparling (1975) ³
Military service	P	Spielberger, Ward and Spaulding (1979) ¹
	P	Malouff and Schutte (1986) ²
	P	Cohen and Chaiken (1972) ²
	P	Lefkowitz (1977) ¹
Written exam score	P	Gruber (1986) ¹
	P	Pugh (1985) ¹
Oral exam score	P	Gruber (1986) ¹
	P	Fabricatore (1979) ¹
	C	Spielberger, Ward and Spaulding (1979)
Academy performance	C	Lefkowitz (1977)
	C	Gruber (1986)
	C	Cohen and Chaiken (1972)
Confidential job ratings	C	Cohen (1973)
	C	Spielberger, Ward and Spaulding (1979)
	C	Lefkowitz (1977)
	C	McKinney (1973)
	C	Cohen and Chaiken (1972)

^aType of variable: P = predictor; C = criterion.

¹Indicates the variable had positive effect on criterion.

²Indicates the variable had negative effect on criterion.

³Indicates the variable had both positive and negative effect on criterion.

Methodology

The subjects studied in this portion are the same 255 cadets as in the main text. Data collection for these variables occurred simultaneously with the collection efforts for variables in the main study.

Predictor variables

Three of the predictor variables centered on prior military service. These variables included the branch of service, where those who had served were grouped into the four major service branches (Army, Navy, Marines and Air Force). The length of prior military service was collected and grouped into categories of under two years, two to five years, five to ten years, 10 to 15 years, and over 15 years. Military rank achieved was grouped into nine categories, from E-2 (lowest rank recorded) to Lieutenant Colonel.

Selection exam scores were another set of variables. These scores were collected from each cadet's written exam, physical agility test, oral board exam, memory retention test, writing skills test and personal reference test. The subjects were placed into one of five groups for each of these variables.

The groups were divided considering the overall mean of each variable, and the number of standard deviations above or below the mean.

Each subject's level of education was also collected, and subjects were grouped into five categories: 12 years, more than 12 and up to 14 years, more than 14 and up to 16 years, more than 16 and up to 18 years, and more than 18 years.

The age of each subject when he/she was hired was also considered. Age was categorized into five groups: Twenty-one years old or less; more than 21 and up to 25 years old; more than 25 and up to 30 years old; more than 30 and up to 35 years old; and more than 35 years old.

Each of these predictors was analyzed with regard to each of the four criteria mentioned earlier.

Criterion variables

The criterion variables (academy completion pass/fail, academy grade point average and confidential job performance ratings) are the same as

discussed in the main text. In summary, the criteria to be considered as indices of performance are:

Academy completion (pass/fail); academy grade point average (grouped dichotomously around the median); and confidential job performance ratings.

Results

Each of the predictors was crosstabulated against each of the criteria. The results are ordered by what criterion was specified. To conserve space, only the significant relationships are reported in the text and tables.

Academy Completion (Pass/Fail)

The age of the candidate at hiring was the first significant predictor of academy completion. For 251 subjects, those over 30 years old tended to not finish the academy at the same rate as their counterparts who were hired at a younger age ($\chi^2 = 11.01$, $df = 4$, $p = .0263$). Table A-2 depicts this relationship. Four of the 10 cells had an expected frequency of less than 5, possibly diminishing the importance of the chi square statistic. This relationship is also supported by the Pearson correlation coefficient ($r = -.21$, $p < .001$).

Table A-2

Crosstabulation of Academy Completion
by Age at Hiring

Age	Did Not	
	Finish	Finished
Under 21	0	2
21 to 24	12	133
25 to 29	12	66
30 to 34	6	13
35 and Over	2	5

$\chi^2 = 11.01$, df = 4, p = .0263.

Education also had a significant association with academy completion (see Table A-3) ($\chi^2 = 57.86$, $df = 4$, $p < .0001$). Those with 13 to 14 years of education were least likely to complete the academy. Cadets with 12 years of education showed the greatest degree of completion. Again, however, 5 of the 10 cells had an expected frequency of less than 5, and this may have contributed to the large value of the chi square statistic. This relationship was supported by Pearson's correlation coefficient ($r = -.23$, $p < .001$).

Table A-3

Crosstabulation of Academy Completion by Education

Education	Did Not	
	Finish	Finished
12 Years	13	170
13, 14 Years	10	3
15, 16 Years	7	27
17, 18 Years	5	19
Over 18 Years	1	0

$n = 255$, $\chi^2 = 57.86$, $df = 4$, $p = .0000$.

Sixty-two cadets served in the military prior to selection to the Patrol. The particular branch that the subject served in appeared to be related to academy completion ($\chi^2 = 9.53$, $df = 3$, $p = .0229$): it appears that the Army produced the highest proportion of academy graduates, and the Marine Corps, the smallest proportion. Four of the 8 cells had expected frequencies of less than 5. These results are presented in Table A-4.

Table A-4

Crosstabulation of Academy Completion by Military
Branch

Branch	Did Not	
	Finish	Finished
Army	2	26
Navy	1	4
Marines	8	11
Air Force	1	9

$n = 62$, $\chi^2 = 9.53$, $df = 3$, $p = .0229$.

None of the other background variables were significantly associated with academy completion ($p > .05$).

Academy Grade Point Average (Above/Below Median Groups)

The subjects' education levels appeared to be reflected in the academy grade point average ($\chi^2 = 9.12$, $df = 3$, $p = .0276$). Those with 15 or more years of education were more likely to have grade point averages above the median than were those with less education. Two of the 10 cells had expected frequencies of less than 5. The results are shown in Table A-5. Education was also moderately correlated to academy grade point average ($r = .21$, $p < .001$).

Table A-5

Academy Class Grade Point Average
with Cadet Education Level

Academy Grade Point Average		
Education	Above Median	Below Median
12 Years	77	93
13, 14 Years	1	2
15, 16 Years	16	11
17, 18 Years	15	4
Over 18 Years	0	0

$n = 219$, $\chi^2 = 9.12$, $df = 3$, $p = .0276$.

The next significant predictor of academy success (above or below the median) are the written skills test score ($\chi^2 = 14.56$, $df = 4$, $p = .0057$). Those whose written skills test scores were one or more standard deviations above the mean, were more likely to finish the academy in the top half than those with lower test scores. Two of 10 cells have expected frequencies of less than 5. The results are shown in Table A-6. These data were also moderately correlated ($r = .36$, $p < .001$).

Table A-6

Academy Grade Point Average
with Written Skills Test Scores

Test Score	Academy Grade Point Average	
	Above Median	Below Median
Over 2z below mean	1	6
2z to 1z below mean	3	8
Within 1z of mean	13	23
1z to 2z above mean	39	33
Over 2z above mean	22	9

$n = 157$, $\chi^2 = 14.56$, $df = 4$, $p = .0057$.

None of the other background factors were significantly related to academy success ($p > .05$).

Continuous Variable Correlations

When the subjects' education (number of months, ungrouped) was correlated with the criterion of academy grade point average (ungrouped), the subjects' academy grade point averages were positively correlated to the subjects' years of education ($r = .2105$, $p < .001$).

The written skills test scores (ungrouped) were correlated positively with the ungrouped academy grade point averages ($r = .3629$, $p < .001$).

Confidential Job Performance Ratings

None of the background factors produced significant results when crosstabulated with confidential job performance ratings as the criterion variable.

Discussion

While all of the crosstabulations listed in this appendix contain expected cell frequencies of less than 5, there are at least two predictors arising from these variables which appear to be related to academy success.

These predictors, prior education and the written skills test score, were significantly associated with academy completion and academy success, as categorized as above or below the median. These associations also were significant when correlated as continuous variables.

As in the main text, it was interesting to note that none of the predictors showed a significant relationship with the confidential job performance rating criterion. This bears further research.