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CONCURRENT VALIDATION OF A PROTOTYPE SELECTION TEST FOR ENTRY-LEVEL POLICE OFFICER

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ABSTRACT

CONCURRENT VALIDATION OF A PROTOTYPE SELECTION TEST

FOR ENTRY-LEVEL POLICE OFFICER

An entry-level police officer selection examination, measuring seven cognitive abilities, was developed from a job analysis based on interviews with incumbents and evaluated by experienced officers of all ranks (SME's). The test was statistically validated against three criteria: academic grades at six police academies; scores on a police knowledge examination; and global job performance ratings.

Results of stepwise multiple regression analysis demonstrated a strong, cross validated multiple R (.55) with academy grades for 203 recruits. Similarly, an R of .39 was observed with the police knowledge criterion using 89 incumbent officers and 196 recruits. Although the multiple R predicting job performance ratings of 89 officers was significant at .33, it failed to cross validate. In addition, a canonical correlation of .76 was obtained using all data for the 89 incumbent officers simultaneously. All predictors were found to provide useful selection information.

There was a general tendency for minority groups to perform less well than the "Other" group on all study variables. The difference was marked for the predictor total score and academy grades.

SUMMARY

CONCURRENT VALIDATION OF A PROTOTYPE SELECTION TEST

FOR ENTRY-LEVEL POLICE OFFICER

SECTION I: Introduction

Purposes of the study: (1) to perform a job analysis on the entry-level police officer title; (2) to develop a prototype selection test based on the job analysis; (3) to conduct a concurrent validity study of the selection test.

SECTION II: Job Analysis

Interviews were conducted with 50 entry-level police officers and several supervisors. More than 80 task statements were elicited from the interviews. A mail survey of all Civil Service jurisdictions was used to evaluate and to revise task statements. An advisory panel, constituting the study's Subject Matter Experts (SME's), was convened to select Knowledge, Abilities, Skills, and Other characteristics (KASO's) required to perform the job tasks. The SME's, in small consensus groups, linked KASO's to tasks. The tasks were rated for frequency and criticality.

SECTION III: Development of Study Tests and Measures

Of the six KASO's measured by the selection test, two, Information Processing and Deductive Reasoning, had two subparts each. Problem Solving, Following Rules and Procedures, Inductive

Reasoning, and Reading Comprehension were each represented by one subpart. A ninth subpart, a sample of written communication ability, was also included. These measures constituted the predictor variables of the prototype selection test.

A 60 item multiple-choice test of police knowledge, covering task statement areas, was assembled; this constituted a single criterion measure. A second criterion measure, only for incumbent officers at local jurisdictions, was a global rating score of job performance. Overall Academy Grade was a criterion measure only for those study participants then attending a training academy. Regular Civil Service Written test scores and Physical Performance test scores were additionally studied for those cases for which this information could be retrieved.

SECTION IV: Data Collection and Scoring

Data from officers at local New Jersey jurisdictions was collected by site visits. In most instances, three officers were tested at a time. Data sets, including job performance ratings, were collected from 89 officers representing 27 jurisdictions.

At six police training academies, data was collected from 205 candidates. The prototype selection test was administered early in the training; the police knowledge criterion test was administered late in the program. Academy grades, as well as Civil Service selection and physical performance test scores were

transformed to stanine scores based on the subjects' rank in their group. Scores for the writing sample in the prototype selection test were formed from holistic ratings made by two independent raters.

SECTION V: Analyses and Results

Item analysis results showed the prototype selection test to be relatively easy and the police knowledge criterion test to be quite difficult. Based on item validity summaries, both tests are pyschometrically sound even though the internal consistency reliability of the police knowledge test is very low because of its heterogeneity of subject matter.

In addition to standard statistical summaries and intercorrelations among all study variables, the predictors and each criterion were submitted to stepwise multiple regression analysis. The multiple correlation predicting academy grade was .55, double cross validated at .49 and .42. For the police knowledge criterion, corresponding results were .39, cross validated at .32 and .32. Although the multiple correlation for job performance rating (.33) was significant for the total incumbent police officer group, this criterion did not cross validate significantly.

The predictors and the three criteria were submitted to canonical correlation analysis, using the data for the incumbent police officers. A significant correlation of .76 demonstrates a strong

relationship between predictors and criteria, corroborating the earlier findings. Job performance rating was not crucial. In separate results of interest, the regular Civil Service selection test correlated .46 with academy grade and .32 with the police knowledge criterion; however, the correlation with job performance rating was not significant. The Civil Service physical performance test was not significantly correlated with any study variable except sex. Ethnic comparisons showed that the minority groups were lower than the "Other" group on most predictor variables and on the academic grade and police knowledge criteria.

SECTION VI: Discussion and Conclusions

The selection and criterion tests were judged to be pyschometrically sound, despite the easiness of the selection test and the difficulty of the police knowledge test.

The prototype selection test is clearly valid for predicting academy grades and police knowledge acquisition, based on cross validated stepwise regression and canonical correlation. All individual predictors contribute to predictive information.

The lack of a strong relation between the predictors and job performance ratings is attributed to the absence of measures in the areas of personality, biographical background, and other personal characteristics, all of which are precluded from Civil Service assessment.

Restriction of range, i.e., using a successful group only, most likely had its severest effect on the Civil Service physical performance test, a qualifying rather than ranking examination. Its failure to be statistically related to any of the study's criteria does not discount its content validity or the neccesity of physical ability to police work as stipulated by the advisory panel.

Acknowledgements

It is difficult to acknowledge all the sources and individuals who have been not only helpful but also instrumental in carrying out the goals of our two-year project. We have involved the police community from the Police Training Commission, Directors of Public Safety, and Chiefs to the Directors and recruits in training academies. To all the incumbent officers we interviewed or tested, we extend our deepest gratitude. The contribution of our advisory panel members was essential; we thank them all for allowing us to tap their vast experience. A number of appendices in this report list most persons and jurisdictions who have contributed in some way. However, what we would really like to do is shake every one's hand and personally say "thanks" with sincerity.

Many jurisdictions made men available to us for several hours at a time. We expect that other officers had to cover for them; we do not even know who they were. Some officers gave us their own time with no pay or other compensation.

Then, there were the police academies who had to put up with us for our many needs. We phoned them, mailed and received materials, tested twice, went through records and so on and on. In short, we "bugged" a lot of cops all over New Jersey. Not one complained.

Besides the police community, several colleagues of the Law Enforcement Unit and Local Government offices at Civil Service were helpful at several points in the study. Our unit supervisor, who has a way with words, did the principal editing and made this report far more readable than we could ever have done on our own. So without naming names--there are far too many--we say thank you all!

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SECTION I

INTRODUCTION

The Department of Civil Service develops open competitive examinations for Police Officer and administers them annually to approximately 30,000 candidates representing about 180 police jurisdictions. Many legal (court) challenges of these examinations have been made over the past several years. The Department's defense has been based on job analysis information and validity study data. The most recent study was completed and published in 1975.

Periodic replication of such studies would strengthen the Department's legal posture and help to maintain quality through appropriate control procedures. The police profession does not remain static; modern technological and social changes may make some tasks obsolete and introduce others. Our tests must reflect the most recent professional innovations and job alterations.

This study, and its companion study of professional firefighters, was federally funded under IPA Grant 79-NJ-01 and 80-NJ-07c with matching funds supplied by the State of New Jersey.

Objectives

The study had three primary objectives:

1. To conduct a thorough job analysis of the entry level Police Officer title. Information collected would be important in determining which knowledge, skills

and abilities are required for successful job performance and should be measured by the selection instrument and the criterion instruments developed for the validation study.

2. To develop a prototype examination. Instruments for measuring abilities were to be constructed according to findings derived from the job analysis information.

3. To carry out a concurrent validity study. A concurrent study was to be conducted for estimating the validity of the prototype examination. Criterion data would be available at test administration time rather than at some more distant future time.

Section II chronicles all aspects of the job analysis and reports their results. Section III discusses the development of the prototype written selection test and the other study measures. Section IV covers the data collection activities. Data analysis and results are reported in Section V. Conclusions, recommendations, and a general summary are given in Section VI.

SECTION II

JOB ANALYSIS

Advisory Meeting

To initiate the Police Validation Study, a meeting of an advisory group was held on August 7, 1979 at the Center for Health Affairs in Princeton. Invited attendees included a representative sample of police jurisdictions throughout the State, professional police organizations, police training academies, selected police chiefs and other individuals. In addition to the Division of Examinations, several other divisions within the Department of Civil Service were invited to send representatives. A list of the attendees and the minutes of the meeting are reported in Appendix B.

The meeting served as a forum to describe the study and to indicate how the various jurisdictions in the state would be involved. It was also intended to encourage the cooperation of all agencies of municipal law enforcement throughout the State. In this sense, the meeting was a success as cooperation throughout the study, particularly from local jurisdictions and police academies, was outstanding. Unfortunately multiple attempts to contact representatives of Black and Hispanic police organizations were unsuccessful. Their official representation was not available at the advisory panel meetings.

Job Analysis Literature

In an effort to become acquainted with recent job analyses of entry level Police Officer, use was made of the computer biographical search offered by the National Institute of Law Enforcement in Washington, D.C. Based on key words relevant to job analyses of police officers which were put into the system, we received over 135 abstracts whose content matched the key words. From a study of the abstracts, several microfiches of reports, thought to be potentially useful, were sent for and subsequently examined. An example of the abstracts is given in Appendix C.

Although the studies examined provided some examples of task statements related to police work and gave some good definitions of certain abilities and skills, there was little information or material that precluded any steps that would have to be undertaken by the staff carrying out the job analysis of the Police study. This literature search also provided no useful leads to alternative methods for assessing job elements or KASO's.

Method of Job Analysis Population and Sampling Methods

Among the ways of obtaining data for a job analysis are: job specification analysis; interviewing incumbents and/or their superiors; questionnaires; and direct observation. The plan for this study was to conduct interviews of fifty incumbent police officers at the entry level, i.e., those with less than three years of service. Supervisors of entry level officers were to be interviewed when such officers were not available. The interviews allowed for an in-depth collection of material and a face-to-face opportunity for probing when necessary. Further, it allowed for a more scientific representation (sampling) rather than having to depend on unpredictable response rates from a mail survey or questionnaire.

Selection of officers to interview was an involved process. First, the population of entry level officers was established from files made available to us by the New Jersey Police Training Commission in Newark. There, a data card was made for each officer who 1) attended a police academy in New Jersey, 2) had less than three years service, and 3) worked for a Civil Service police jurisdiction. The data card contained information as to the age, sex, education, and ethnic background of each potential interviewee. The approximately six hundred data cards were arranged according to jurisdiction.

For state-wide representation, the state was to be divided into geographical regions. On a 1978-79 highway map of New Jersey, the locations of all police jurisdictions within Civil Service were plotted to facilitate visual topographical inspection. The goal was to form geographical regions that would reflect police service characteristic of the area. By inspection and judgement, six regions were delineated. Presumably, the areas chosen reflect any regional differences that might exist in police services.

Area one: This is the highly populated and industrialized area in the northeast section of the state. It is that area bounded roughly by Ridgewood in the north, Paterson and Plainfield in the west, and New Brunswick and South Amboy in the south.

Area two: This area also is densely populated and industrialized although not as much so as area one. It is part of the metropolitan area frequently referred to as greater Philadelphia. This western area of the state includes Trenton and Lawrence Township in the north, Medford Township and Camden in the south, and Voorhees Township in the east.

Area three: This is the shore and resort area along the eastern coast of New Jersey below Raritan Bay. As one scans the map northward to Raritan Bay, the area includes all of Cape May Peninsula in the south and the towns east of the Garden State Parkway.

Area four: This area constitutes all of the north and northwestern portion of the State. It might easily be described as a microcosm of U.S. topography. There are mountains, agricultural areas, small towns, and industrial areas.

Area five: This is the southern portion of the state below the White Horse Pike (Route 30). It is primarily a flat agricultural area with a relatively small population. However, several urban areas are included.

Area six: This area, north of the White Horse Pike, is the wilderness portion of the state. It contains the "Pinebarrens" and several State forests. The area is scarcely populated and contains no large population centers.

After the State was divided into these six geographical regions, the number of jurisdictions in each region and the total number of jurisdictions was obtained. The proportion of jurisdictions represented by a given region was used to determine the number of interviews to be held within that region. The next step was to select jurisdictions where the interviews would be held. Through a series of random number assignments, the jurisdictions and the number of interviews per jurisdiction were determined.

Interview Method

The procedure for setting up and conducting an interview followed a planned system. For each jurisdiction to be contacted, the cards enumerating eligible candidates were placed in a random order (if there were more than one candidate). A notable exception to random order was made if either eligible females or minority officers were available. Such candidates were placed at the head of the list. It was known in advance that overriding steps would have to be taken to insure the inclusion of females and minority officers in the sample.

Arrangements were attempted that would allow us about an hour in which to interview each selected officer. A jurisdiction would be contacted by telephone and time was requested for an interview with the officer who was first on the list. If scheduling or other reasons precluded an interview with the first officer, the next officer on the list was requested, and so on.

At the interview, always conducted at the jurisdiction, the officer was asked to recall events that had occurred during his latest tour of duty. Sometimes this was extended to a report on the last several tours. Notes were taken and, when necessary, probing was used to extract as much information as possible. An interview typically took about an hour. Frequently, the interviewer was taken on a short tour of the facilities and given copies of pertinent forms used in the jurisdiction's work. Several of the interviews were with supervisors, when no entry level officers were available and inclusion of the jurisdiction was vital for representation in the sample, as was the case in Newark. Appendix D lists the jurisdictions where the interviews were held, along with ethnic and sex classification of those interviewed.

Writing Task Statements

Beginning during the interview collection period, and for some time afterward, task statement drafts based on the interview material obtained were written on 3" x 5" cards. Periodically the statements were rewritten, edited, amended, and in some cases discarded. The aim was to have task statements detailed sufficiently to delineate observable behavior yet general enough to be more than elemental fragments. For example, consider these two task statements:

1. Calls the fire department to inform them of an open fire hydrant in order to have the hydrant shut off.

2. Remediates miscellaneous hazardous conditions (e.g. road obstructions, malfunctioning signals, etc.) by direct action or by notifying appropriate agencies, in order to restore safe conditions in the assigned sector.

The first is an example of a task statement which is too elemental. The second is the more general task statement which encompasses the first in its more general coverage.

This process of writing task statements continued until it was professionally judged that a reasonable set existed. The more than 80 statements were then grouped into sets reflecting major areas of performance for the entry level Police Officer. The results of that process are given in Appendix E.

Evaluation of Task Statements

The Task Statements pool was submitted for evaluation using a mail survey. Only a portion of the task statements was assigned to any jurisdiction or individual. By limiting the amount of work for any one person, a higher quality of effort could be expected as well as a more satisfactory rate of returns. With this strategy in mind, an evaluation form was designed that would elicit information pertaining to a single category of task statements. Limited information was also to be collected on respondent judgement as to whether certain broad skills were required to perform individual tasks. Global judgement evaluating individual statements and category grouping was the principal information to be obtained.

The population to be surveyed consisted of all Civil Service jurisdictions in New Jersey, all police training academies, and certain selected individuals who had served as special advisors to the staff. A systematic distribution of task statement categories was mailed to jurisdictions dichotomized by population size of over and under 25,000. Academies were sent several or all task statement categories, however, a contact person at the academy was requested in order to assign each of the various categories to different staff members. Table 1 reports the mail distribution of assignments by task statement categories and the number of returns. The overall response rate was 45%. The task statements are given in Appendix E.

TABLE I

NUMBER OF TASK STATEMENT EVALUATIONS MAILED AND RETURNED

TASK STATEMENT CATEGORY	ASSIGNMENT CATEGORY: Jurisdictions Over 25,000		Jurisdictions Under 25,000		Academies & Selected Individuals		TOTAL	
	Mailed	Returned	Mailed	Returned	Mailed	Returned	Mailed	Returned
A. PREPARATION FOR WORK	7	2	15	4	9	4	31	10
B. FIGHTS & DOMESTIC DISPUTES	7	2	15	4	9	4	31	10
C. GENERAL PATROL	7	5	16	9	8	3	31	17
D. SERVICE CALLS	7	6	16	8	9	4	32	18
E. TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS	6	2	14	4	10	4	30	10
F. MOTOR VEHICLE ACCIDENTS	7	4	14	9	10	4	31	17
G. INVESTIGATIONS	6	2	14	6	10	2	30	10
H. ARRESTS	7	3	14	8	8	6	29	17
I. COURT TESTIMONY: PREPARATION & APPEARANCE	6	2	17	8	7	4	30	14
J. SUPPORTIVE DUTIES	6	2	17	8	7	4	30	14
TOTAL (Percentage Returned)	66	30 (45%)	152	68 (45%)	87	39 (45%)	305	137 (45%)

Results of the Mail Survey Evaluation of Task Statements

The mail survey analysis was accomplished by tabulating the responses for each item where such counts could be made. Free responses or comments were read. Special attention was paid when virtually the same comment or criticism was given by several independent raters. On that basis alone, several task statements were revised.

An inspection of the data form in Appendix F-3 reveals that all responses could be conceived of as either "yes", "unsure", or "no".

Once tabulations had been made, two summaries were constructed. The second was a scored condensation of the first and is reported in Table 2.

The first summary was based on an overall consensus score for each category and its individual task statements. Eighty percent agreement for any question or item on the evaluation form was considered a consensus. When a consensus was not obtained, a questionable or mixed result was concluded. In preparation for further summarization each question or item was scored: 2 for a "yes" consensus; 1 for a mixed result; and 0 for a "no" consensus. Thus, an average result could be computed for each task statement area and evaluated for appropriateness. The closer an average was to the value 2, the more each task statement or question was rated "yes", and the closer to 0, the more each task statement or question was rated "no". Table 2 reports these results.

TABLE 2

SUMMARY ANALYSIS OF TASK STATEMENT EVALUATION

Task Statement Area	No. of Task Statements in Area	Average Validity of Tasks in Area	Judged Representative of Area *	Average Task Requirement of Skill				
				Commun. Skill	Interp. Skill	Rdg. Comp.	Info. Proc.	Phy. Prow.
A PREPARATION FOR WORK	7	2.00	Y?	1.14	.86	.86	1.29	.86
B FIGHTS & DOMESTIC DISPUTES	4	2.00	Y?	2.00	2.00	.25	1.50	1.50
C GENERAL PATROL	11	2.00	Y?-	2.00	1.45	.81	1.55	1.00
D SERVICE CALLS	11	2.00	Y?-	1.55	1.64	.36	1.18	.91
E TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS	10	2.00	Y	1.50	1.60	.67	1.10	.50
F MOTOR VEHICLE ACCIDENTS	13	1.85	Y	1.31	1.00	.54	1.46	.23
G INVESTIGATIONS	11	1.73	Y?	1.36	1.18	.82	1.27	.09
H ARRESTS	10	2.00	Y?	1.40	1.50	1.00	1.40	.60
I COURT TESTIMONY: PREPARATION & APPEARANCE	3	1.67	Y?	1.67	1.33	1.33	1.67	0.00
J SUPPORTIVE DUTIES	6	1.83	Y?-	1.50	1.33	1.00	1.67	.50

* Y = yes
Y? = qualified yes
Y?- = yes, but perhaps too few statements

An examination of the table shows that for six of the ten areas, all task statements within the category were rated as valid (representing an observable behavior for an entry level officer in New Jersey). For the remaining areas, the average indicates that most of the task statements had been rated valid but a few were questionable. No task statement in the final set was rated as clearly invalid. In general, all categories were rated as reasonably covering the area of work.

From the portion of Table 2 reporting skills required, it can be seen for example, that Fights and Domestic Disputes and General Patrol are the categories which require the most communication skills while Preparation For Work requires the least.

Not surprisingly Interpersonal Skills are required most for the Fights and Domestic Disputes category and least in Preparation for Work. The need for Information Processing Skill is distributed quite evenly across the task categories at a fairly high level. Physical Prowess, generally, is the least required set of skills across all work areas. The requirement for Reading Comprehension, too, is generally low.

Working Meeting to Establish KASO's

Included with the mail survey materials was a questionnaire which elicited volunteers to attend a forthcoming meeting to obtain the KASO's based on the final set of task statements. The volunteers selected, of course, were qualified subject matter experts (SME's), according to their rank and police experience.

A working meeting was held on April 18, 1980 at the Center for Health Affairs in Princeton. The work panel consisted of 33 officers of various ranks, all highly experienced police officers, police administrators, or academy staff. (See Appendix B-3.) Assignments to seven tables were made at the meeting's start. A balance, by rank, jurisdiction size, and location, was sought. Each table was assigned several areas of task statements on which to work. This strategy was employed in order to keep the scope of work to a manageable level. Table assignments were made so that each area of task statements would be repeated at another table. All but two areas were successfully overlapped.

The work proceeded essentially in two stages: first, each participant worked independently; then, each table worked as a team with the object of responding as a consensus. In the independent portion, each participant, using a list of the assigned task statements, was asked to assess each task's frequency and criticality.

After the individual assessments had been made, the participants, as teams, were asked to identify the skills required to perform each task in the assigned work areas. To assist the participants, lists of skills taken or modified from a study by Wetrogran (1979) were given each evaluator. The identification of

skills was, largely, a judged selection from pre-defined lists. The lists, as shown in Appendix F-7 and F-8, were, however, by no means exhaustive. SME panelists were instructed to add knowledge, abilities, or other characteristics, according to their own experience and judgement. In addition to identifying KASO's, each table was asked to link the listed abilities to tasks included in the assigned list. The linkage was facilitated by using codes assigned to each task in a manner relatively easy to record.

Each participant, finally, was asked to rate his table's KASO's on (1) whether they are learned on the job or brought to the job; (2) whether the KASO is essential to the performance of the police officer; (3) whether the KASO is a ranking, or a qualifying KASO; and (4) what proficiency level of the KASO is required.

The enormous amount of data collected at the meeting greatly influenced the development of the prototype selection test for entry level police officers. All data collection forms are given in Appendices F-4 through F-9.

Analyzing Job Analysis Data

Analysis of the data collected from the study's SME panel, was carried out by constructing a series of indices, each of which attempted to reflect the relative measure of an important characteristic. It should be kept in mind that the obtained indices were based on pooled judgements of panel members and are, therefore, not infallible measures. An index has no absolute meaning; a comparatively large value indicates relatively more of some property, a smaller value relatively less.

Each task statement was rated independently by panel members for frequency of task performance and for task criticality. The data forms in Appendix F-5 and F-6 show the definitions or "rating set" that elicited judgements. Data were scored on a three point scale for both characteristics. For those ratings, means and standard deviations were calculated. A final index for each task was computed as the sum of the average frequency plus three times the average criticality).

Note that the index gives much greater weight to the criticality aspect of a task. This emphasis has been used in other departments. For example, an extensive municipal police job analysis (Friedman, 1977) gave greater weight to criticality by constructing a five point "task importance scale": critical and much performed; critical and not much performed; not critical and much performed; not critical and not much performed; not performed.

The final index scale of this study, reflecting task importance, allows for scores ranging from 4-12 as shown in Table 3. Table 4 reports the index results by task statement category.

TABLE 3

FINAL INDEX: POSSIBLE INDIVIDUAL TASK SCORES

Frequency Score	Criticality Score	Final Index
3	3	12
2	3	11
1	3	10
3	2	9
2	2	8
1	2	7
3	1	6
2	1	5
1	1	4

TABLE 4

INDEX RESULTS BY TASK STATEMENT CATEGORIES

Task Statement Category	Frequency Mean	Frequency Standard Deviation	Criticality Mean	Criticality Standard Deviation	Final Task Index
A. PREPARATION FOR WORK	2.5	.53	2.5	.14	10.0
B. FIGHTS & DOMESTIC DISPUTES	2.4	.15	2.5	.34	9.9
C. GENERAL PATROL	2.6	.50	2.5	.45	10.1
D. SERVICE CALLS	1.9	.50	2.4	.55	9.1
E. TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS	2.8	.30	1.9	.60	8.5
F. MOTOR VEHICLE ACCIDENTS	2.3	.59	2.2	.59	8.9
G. INVESTIGATIONS	1.8	.49	2.3	.46	8.7
H. ARRESTS	2.0	.40	2.1	.61	8.3
I. COURT TESTIMONY: PREPARATION & APPEARANCE	1.9	.33	2.5	.37	9.4
J. SUPPORTIVE DUTIES	1.8	.23	2.6	.27	9.6
Mean	2.2	.40	2.4	.44	

Inspection of the tables shows that two categories, Traffic Control and General Patrol, contain tasks performed most frequently (means greater than 2.5). Four categories contain tasks performed the least frequently (means less than 2.0).

According to the SME panels, the tasks in the Traffic Control area are the least critical, whereas those in Supportive Duties contain the most critical tasks, generally. The Final Task Index column indicates that General Patrol tasks are the most important for the entry level police officer and tasks performed in making arrests are the least important.

The other major analysis involved the linkage evaluation between each KASO and the total set of task statements. For each KASO, a tabulation was made for each task statement. The tabulation was either a 0, 1, or 2 depending on how many consensus tables linked the KASO and the task. Several task statement areas were assigned to only one table, therefore, a simple adjustment of doubling the frequency of linkage for that table put all results on the same scale. To score a KASO, a sum over tasks was computed that was the product of each task's final index and a 0, 1, or 2 value that linked each KASO with a task.

Table 5 reports the KASO scores by task statement category for (A) cognitive abilities and (B) physical abilities.

TABLE 5

KASO SCORES BY TASK STATEMENT CATEGORIES
PART A: COGNITIVE KASO's

Task Statement Category		ORAL COMM.	WRITTEN COMM.	INDUCT REAS.	DEDUCT REAS.	FOLLOWING RULES/PROC.	INFO PROC.	PROB SOLV.	READ COMP.
A	PREPARATION FOR WORK	47.8	58.3	48.6	37.4	138.8	37.8	87.7	58.4
B	FIGHTS & DOMESTIC DISPUTES	77.6	9.9	57.8	67.7	57.8	56.8	67.7	--
C	GENERAL PATROL	208.0	120.8	208.0	208.0	223.6	223.6	191.2	74.6
D	SERVICE CALLS	94.0	--	15.6	58.2	185.4	52.2	183.6	--
E	TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS	131.1	48.4	51.6	110.2	170.8	155.2	61.3	55.5
F	MOTOR VEHICLE ACCIDENTS	59.8	82.9	48.5	118.9	201.3	158.7	142.1	41.1
G	INVESTIGATIONS	96.6	143.3	113.9	145.7	194.2	173.5	89.5	82.4
H	ARRESTS	98.7	53.0	9.4	19.5	144.0	82.7	31.2	17.7
I	COURT TESTIMONY: PREPARATION & APPEARANCE	56.2	35.5	30.6	41.4	48.8	41.4	31.5	20.7
J	SUPPORTIVE DUTIES	19.9	44.7	48.4	48.4	95.8	86.3	46.5	--
	TOTAL	889.7	596.8	632.4	855.4	1460.5	1068.2	932.3	350.4

TABLE 5

KASO SCORES BY TASK STATEMENT CATEGORIES
PART B: PHYSICAL KASO's

Task Statement Category	STATIC STRGTH.	DYNAM. FLEX.	STAMINA	DYNAM. STRGTH.	GROSS BODY COORD.	RATE OF ARM MOVMT.	GOOD HEALTH
A PREPARATION FOR WORK	18.9	27.1	27.1	17.4	36.8	27.1	69.4
B FIGHTS & DOMESTIC DISPUTES	41.6	41.6	41.6	41.6	41.6	41.6	38.8
C GENERAL PATROL	44.2	65.2	84.0	44.2	105.8	23.6	223.6
D SERVICE CALLS	79.2	62.6	85.0	62.6	85.0	62.6	--
E TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS	--	11.5	23.0	--	49.5	11.5	--
F MOTOR VEHICLE ACCIDENTS	33.0	--	--	--	8.4	11.9	--
G INVESTIGATIONS	--	--	--	--	--	9.5	--
H ARRESTS	42.4	11.2	26.4	11.2	37.6	49.6	--
I COURT TESTIMONY: PREPARATION & APPEARANCE	--	--	--	--	--	--	--
J SUPPORTIVE DUTIES	32.1	32.1	40.7	32.1	32.1	40.6	--
TOTAL KASO SCORE	291.4	251.3	327.8	209.1	396.8	278.0	331.8

According to results in Part A, the KASO referred to as Following Rules and Procedures, received the highest score (as summed over all task statement categories) and Reading Comprehension scored the lowest. In part B, Gross Body Coordination received the highest score and Dynamic Strength, the lowest.

SECTION III

DEVELOPMENT OF STUDY MEASURES

Considerations; Constraints; Limitations

Having conducted a Job Analysis on the entry level Police Officer title and armed with a set of KASO's, the staff proceeded to create an item pool that would, insofar as possible, measure the selected KASO's. A number of considerations, constraints, and limitations had a significant effect on the direction taken and in formulating measurement strategies.

Although the project was not precluded from attempting any innovative procedures, practicality had to be an overriding force if any of our successes were to be applied in the New Jersey Civil Service system. For example, measurement requiring special equipment such as motion picture projectors, or vehicles, etc. would not be practical, considering the usual candidate population of 4,000 persons to be tested at several centers. Similarly, measurement techniques such as simulated performance assessment would also have to be ruled out on practical grounds. Scoring 4,000 candidates on a technique that requires several hours per candidate is far beyond the modest effort that could be made by the staff and far beyond what could be handled financially.

In addition to practical considerations, a number of constraints exist with regard to the selection of municipal police officers. Assessments of personality and medical status are under the appointing authority, i.e., the individual jurisdiction. While background information such as residency, education, etc. may be part of the requirements for admission to an open competitive examination, it cannot be used to rank candidates. For selection

purposes, only skills and abilities brought to the job, not those learned on the job, are to be assessed. No prior knowledge of police work is required for or can be part of selection. Yet despite this constraint, selection measures must, insofar as possible, be "face valid", i.e. give the appearance of being related to police work.

A final limitation is the extent of creativity and talent available in the staff. Creating good test items is to a large part an art. Fluency of production, therefore, is as unpredictable as that of a skilled novelist.

Underlying the aforementioned, is the aim and hope that whatever measures are produced will not have an adverse impact on minorities. In this regard, use of a procedure such as that suggested by Rasch, for establishing item pools of specified difficulty, was considered. A training seminar in Rasch methodology, given by Benjamin Wright, was attended. However, the information gleaned could not be applied because of time and funding proscriptions.

Development of the Prototype Selection Examination

In the previous section the activities which resulted in the production of several lists of KASO's required for the entry level police officer were discussed and presented. The present portion of this report discusses the development of these KASO measures.

Oral Communication: the ability to communicate ideas with spoken words. This was not considered as measurable, for the purposes of this study, since no practical strategy could be suggested. The ability would be evaluated by local municipalities during routine candidate interviews.

Written Communication: the ability to write clear and concise letters, reports, descriptions, or instructions.

This ability was measured directly, using a three-paneled sequence prepared by graphic artists as a stimulus for producing a short narrative paragraph describing the events depicted. The holistic rating method used in scoring is described in Section IV.

Inductive Reasoning: the ability to find general concepts or rules which explain how a given series of individual items are related to each other. It involves the ability to logically proceed from individual cases to general principles.

Two types of multiple choice questions were constructed to measure this ability. One modified from virtually pure psychological measurement consisted of four series of letter sets. Three of the sets were linked by a common rule; the candidate was to induce which set did not belong. The second type grouped series of verbal stimuli with a common characteristic or property. The

candidate had to choose an additional stimulus, from a number of options, which shared the common characteristic of the given set.

Deductive Reasoning: the ability to apply broad, general ideas or principles effectively to a particular problem or case.

This ability was also measured in two ways. One was a direct psychological approach using "nonsense" syllogisms. Candidates, through deductive reasoning, were to select from a set of options the one that would follow from given absurd premises. A second type of question was constructed from the N.J. Criminal Code. Candidates were to read a modified version of a criminal code segment. The item stimuli were fictional situations pertaining to the code segment. The questions required the candidate to apply the material in the code segment to the fictional episode thereby deducing a specific conclusion from general principles.

Following Rules and Procedures: the ability to follow rules and procedures.

An item pool devised by the staff conducting the companion study of firefighters, measures the ability to follow (complex) rules and procedures. That pool was shared with this study. The stimulus presented to candidates was an extensive map (diagram) of a fictional city. The hypothetical passage of automobiles through streets was governed by a set of rules. The test item stems directed candidates about the city in a variety of ways. A candidate had to be able to follow the directions of the item while obeying the general rules set forth in the stimulus map.

Information Processing: the ability to gather, organize, and utilize information.

This was handled in several ways. In one measure, visual observation was simulated by presenting candidates with a photograph or a drawing for a short time period. The candidate was asked questions about the contents, once the stimulus was removed. To make the task more realistic, candidates were allowed to take and retain notes. In another measure, the stimulus materials were actual police forms, e.g., Arrest and Property forms used by many jurisdictions. In some instances items questioned candidates about information already placed in the form (retrieval) and in other instances the candidate had to supply information (storage).

Problem Solving: the ability to find practical ways of dealing with problems.

Problem solving test items characteristically have been quantitatively based. However, our job analysis results did not justify the requirement of quantitative or mathematical skills for the entry level police officer. This KASO was measured by constructing a number of fictitious problem situations that required the use of common materials and objects in an unusual manner. The materials/objects constituted the options. Candidates had to select those which would best solve the problem. In a sense, these items measured ingenuity in a problem situation.

Reading Comprehension: the ability to read with reasonable speed and understanding so as to absorb written information.

This KASO was measured in a standard way by having candidates respond to questions based on several reading passages. The passages were modified paragraphs taken from a documentary task on police (National Advisory Commission on Criminal Justice Standards and Goals, 1973). The paragraphs were edited to produce a FOG index at high school senior reading level, in order to reduce any potential adverse impact and to meet requirements of the job.

Try-out of the Prototype Written Examination

Portions of the prototype selection test were administered to three classes of an adult high school program, for a non-rigorous tryout, at the John F. Kennedy High School in Willingboro, New Jersey. The population was judged to be reasonably similar to that which might appear for regular administrations of municipal police officer examinations. The try-out was used to obtain information on the adequacy of instructions, how much time to allow for study of the observational stimuli, and to get some preliminary writing samples on which to base scoring criteria.

Each class was instructed to respond to the first three subtests and to the writing sample. Once the primary assignment was completed, the candidates were allowed to respond to any other portions of the test.

Data was obtained from thirty-eight candidates. Their answer sheets were processed through the regular scoring and analysis procedure at the New Jersey Department of Civil Service. Thirty-four of the papers went through the system successfully. The rejected scanned papers were hand scored without further processing. Some of the meaningful results are given in Table 6.

The proportion of try-out responses in the subtests beyond the third were too sparse to be interpreted. The point bi-serial distributions for each of the subtests are more than sufficient in magnitude. Half the items are in the range .4 and higher. Subtests 1 and 3 are easy for the group; subtest 2 is about middle difficulty.

TABLE 6

PARTIAL RESULTS TRY-OUT ANALYSIS
OF POLICE SELECTION TEST (N=34)

Point bi-serial Range	SUBTEST 1 Observation and Notes	SUBTEST 2 Police Forms	SUBTEST 3 Problem Situations
	ITEM FREQUENCIES		
.60 +	1	1	2
.40 - .59	5	3	4
.20 - .39	5	9	2
.00 - .19	2	2	0
Percent Passing Range			
	ITEM FREQUENCIES		
.80 +	6	1	3
.60 - .79	3	4	3
.40 - .59	3	7	0
.20 - .39	1	1	2
.00 - .19	0	2	0
No. Items	13	15	8
Score Range			
	STUDENT FREQUENCIES		
12 - 14	5	4	0
9 - 11	18	7	0
6 - 8	10	15	17
3 - 5	1	8	15
0 - 2	0	0	2
MEAN SCORE	9.4	7.6	5.2
AVG. PASSING PER ITEM	.72	.51	.65

Only a limited amount of information can be utilized from such a modest try-out. As a result of the try-out, the time limits in the observation subtests were shortened. The wording of directions was satisfactory, according to the class room teachers' comments and informal chats with some students. Study of the writing samples showed a wide range of writing skills.

The holistic type rating planned appeared to be appropriate.

A letter showing group results and individual scores was sent to each participating student. A copy of the letter and score report is given in Appendix G.

Development of the Written Criterion Test

In anticipation of the difficulty in obtaining suitable criterion measures for the entry level police officer examination, a written test reflecting acquired police knowledge was planned at the start of the study. When the job analysis had been completed and the prototype selection examination had been developed, development of the police knowledge examination began.

The general strategy was to use the work area categories such as General Patrol, Arrest, etc. as a plan to classify items. Existing item pools in the Civil Service files that had been used for promotion to Police Sergeant were examined. Items in those pools which could be classified into task statement groups, as in the present study, and those judged appropriate for police officers on the job for up to three years, were considered for use in the criterion test. The items were edited or modified as required to meet the goals set for the examination. Some items, of course, had to be generated in order for the test to be representative of the work areas. New items were confined chiefly to motor vehicle accidents, fingerprinting, and radio. Volunteer advisors in police academies were used to help create new items.

The final product evaluated knowledge in the areas of General Patrol, Service Calls, Traffic Control, Motor Vehicle Accidents, Investigations, Arrest, Court Testimony, and Supportive Duties. In all, this examination had 69 items. It was estimated that less than one hour would be needed for administration.

Measurement of Physical KASO's

In addition to the cognitive KASO's identified at the April 18, 1980 working meeting, the panel of police SME's also identified six physical KASO's and a general category of "Good Health". The panel agreed that these KASO's were required in the performance of the entry level Police Officer's job. (See Table 5B.)

The study proposal included an expectation that there would be two selection tests; a written and a physical. Before construction of a physical performance test de novo, it would be prudent to determine whether the (then) recently revised Civil Service physical performance test (PPT) measured the KASO's identified by the SME's of the study's advisory panel. This linkage, established on the basis of a conference with the specialists who designed and developed the PPT, is shown in Table 7.

The layout and description of the events in the PPT are given in Appendix H. The test's three events: a simulated pursuit, a simulated fire emergency rescue, and a speed and endurance run, are listed with their components at the left of Table 7. The six physical KASO's and their definitions are the table's column heads. An "X" at the juncture of a KASO column and an event component row indicates that the KASO is measured by that component. All the components which measure a specific KASO can be identified by sighting down the KASO column. Similarly, by sighting across a row, all the KASO's measured by that component can be identified.

Physical activity, such as that of the PPT involves the simultaneous use of different sets of muscles and body parts. Therefore, the measurement of any one

TABLE 7

LINKAGE OF KASO"S TO THE CIVIL SERVICE PHYSICAL PERFORMANCE TEST

Physical Test Content	Gross Body Coordination Ability to use the trunk, arms, and legs together in movement	Rate of Arm Movement Ability to make gross, rapid arm movements
Event One (Simulated Chase)		
A. Vault or climb over wall[a]	X	
B. Race through zig zag obstacle pattern[a]	X	
C. Crawl through 10' tube[b]	X	X
D. Climb step ladder; mount platform; jump off platform[a]	X	
E. Jump or climb through window	X	X
F. Run to mannikin and handcuff wrists	X	X
Event Two (Simulated Rescue)		
A. Run to telephone and touch	X	X
B. Pick up and carry fire extinguisher while running to the opposite end of the course; place the extinguisher in upright position	X	X
C. Grasps victim mannikin under arms and drags it while running backwards to far end of the course	X	
Event Three (Endurance Run)		
A. Runs a continuous series of laps around a course while being timed	X	

[a] This component occurs 2 times
[b] This component occurs 3 times

TABLE 7 (cont.)

LINKAGE OF KASO"S TO THE CIVIL SERVICE PHYSICAL PERFORMANCE TEST

Physical Test Content	Static Strength Ability to maintain a high level of muscular exertion for some minimum period of time. Involves muscular force against a fairly immovable or heavy object in order to lift, push or pull that object.	Dynamic Flexibility Ability to make repeated trunk and/or arm/leg bending or stretching movements where speed as well as degree counts--including ability of these muscles to recover from the strain and distortion of repeated flexing.
Event One (Simulated Chase)		
A. Vault or climb over wall[a]		X
B. Race through zig zag obstacle pattern[a]		X
C. Crawl through 10' tube[b]		X
D. Climb step ladder; mount platform; jump off platform[a]		X
E. Jump or climb through window		X
F. Run to mannikin and handcuff wrists		
Event Two (Simulated Rescue)		
A. Run to telephone and touch		
B. Pick up and carry fire extinguisher while running to the opposite end of the course; place the extinguisher in upright position		
C. Grasps victim mannikin under arms and drags it while running backwards to far end of the course	X	
Event Three (Endurance Run)		
A. Runs a continuous series of laps around a course while being timed		

TABLE 7 (cont.)

LINKAGE OF KASO"S TO THE CIVIL SERVICE PHYSICAL PERFORMANCE TEST

Physical Test Content	Stamina Ability involves the capacity to maintain physical activity over prolonged periods of time	Dynamic Strength Ability to hold up or move body's own weight repeatedly or at one time without stopping, using the force of arm and trunk muscles.
Event One (Simulated Chase)		
A. Vault or climb over wall[a]		X
B. Race through zig zag obstacle pattern[a]		
C. Crawl through 10' tube[b]		
D. Climb step ladder; mount platform; jump off platform[a]		
E. Jump or climb through window		X
F. Run to mannikin and handcuff wrists		
Event Two (Simulated Rescue)		
A. Run to telephone and touch		
B. Pick up and carry fire extinguisher while running to the opposite end of the course; place the extinguisher in upright position		
C. Grasps victim mannikin under arms and drags it while running backwards to far end of the course		X
Event Three (Endurance Run)		
A. Runs a continuous series of laps around a course while being timed	X	

KASO is confounded. The table, however, does establish that the KASO's identified by the Police SME's are measured by the events of the PPT.

The measurement of "Static Strength", as defined in Table 7, is exemplified by Event Two, Component C. Here, the candidate grasps a heavy mannikin under the arms and drags it while running backwards. At the same time, this component also measures "Dynamic Strength" and "Gross Body Coordination". Thus, one component measures several KASO's.

"Dynamic Flexibility" is measured by five components of Event One. The measurement of "Gross Body Coordination" is involved with all event components. "Stamina", while measured primarily by the single component of Event Three, is also measured by the components of Events One and Two.

The "Good Health" category designated by the SME panel is not a knowledge, skill, or ability. It is, however, a characteristic deemed important for the performance of the Police Officer's job. It is not feasible for the Department of Civil Service to evaluate candidates on this factor; this is the responsibility of the municipality which is the candidate's prospective employer.

It is evident that the physical performance test presently being used by the Department of Civil Service measures the KASO's identified by the panel of SME's as being job related. This establishes the content validity of the PPT and obviates the need for development of a "new" examination of physical abilities.

Development of the Job Performance Rating and Other Data Collection Material

The process of one human rating another is not highly regarded by professional researchers. Thorndike and Hagan (1955) discuss two main factors accounting for the difficulty in obtaining sound ratings: the rater's willingness to rate honestly and conscientiously in accordance with instructions; and most of the circumstances that limit one's ability to rate consistently and correctly even with the best of intentions. With all the limitations of ratings in mind, it was decided to use as simple a rating procedure as possible while controlling the standard of reference raters would use in assigning a score.

A seven point scale (0-6) was chosen as the score range. To control the frame of reference, each score point was defined and an expected frequency was suggested. The form is shown in Appendix I.

A relative scale was used in the same form. The categories to be rated were made to correspond to the task statement groupings. These ratings were to be forced choice; the rater had to identify each candidate's relative high and low proficiency areas regardless of the candidate's global scale score.

The simplicity of the instrument was intended to increase the probability of a cooperative and thoughtful response. Better one good simple score rather than perfunctory responses to a tedious and repetitive instrument. The global scale constructed is analogous to the ordinary A, B, C, rating given by instructors in schools or colleges.

Another instrument developed was a form on which a variety of background information such as ethnicity, sex, educational level, etc. was collected. The instrument is shown in Appendix J. No special measurement strategy was required--only consideration for practicality in handling the data once it was obtained.

SECTION IV

DATA COLLECTION AND SCORING

Administering the Test to Police Officers

One of the gravest problems in a study of police officers is that of amassing a group of sufficient size to make testing practical. In this study, it was virtually impossible to arrange a central testing plan. Therefore, the strategy used for collecting data was to visit individual jurisdictions if at least three eligible officers were made available for testing at the site. Such action is, of course, time consuming and expensive. The potential advantages, e.g., an increased likelihood of obtaining candidates and more control with respect to geographical representation, however, outweighed the expense and loss of time. Initially, a letter was sent to police chiefs of those jurisdictions judged to be large enough to accommodate the study's needs. The letter stated the objectives and necessary requirements and indicated that a call to make suitable arrangements would be forthcoming.

In due time, appointments were made and staff members carried out site visits according to schedule.

Generally, the examiner drove to the test site with the test materials. In a small office (which was usually provided), the candidates filled out their personal data sheets before being administered the prototype selection test. There were no time limits, except for the observation subtest which was administered first. After the first test was completed, candidates were given a few minutes break after which the written criterion police knowledge test was administered. A typical test session took 2½ to 3 hours.

Global performance rating sheets were given to the candidates' supervising officers during the site visit. If the supervising officer completed the ratings before the examiner left, they were taken back with the rest of the test material. Otherwise, addressed envelopes were left in which to mail the ratings back to Civil Service.

Later in the study, a second mailing was made to smaller jurisdictions, in order to cover areas not adequately represented and to increase the sample size. Procedurely, everything was similar to the first wave except that the minimum number of candidates required at any jurisdiction site was reduced to two.

Data collection at individual jurisdictions continued until data was obtained for eighty-nine candidates. Appendix K lists the jurisdictions, sex, and ethnic classification by geographical regions.

An independent sample of police officers was obtained at six police training academies. Here, there was a significant difference in procedure in that the data was collected in a pretest-posttest manner. Arrangements were made with the cooperating academies to collect data, with the prototype selection test, as early in the training program as possible. At a second test administration, held as close to the end of the program as mutually convenient, data on the written police knowledge criterion test were obtained. Job performance ratings were not obtained but, when the training program was completed, academy grades were obtained for all who took the examinations. It should be noted that not all academy trainees were members of Civil Service jurisdictions. For purposes of the study this was not essential, since academy grades were given on the same basis regardless of the candidate's jurisdiction.

Data was collected from 205 candidates at the academies. Appendix L reports the number tested, sex, and ethnic classification of the trainees at each academy.

In an attempt to validate physical performance against the study criterion-written performance, academy grades, and/or job performance ratings, Civil Service promulgated lists for municipal police officers were obtained or inspected at several sources. One source was the archive files on Civil Service premises, the other sources were the files at three local government offices at Newark, Trenton, and Camden. Using information given by candidates in the present study, actual written Civil Service scores were located. Success in location of scores depended on several factors: accuracy of information recalled by the candidates, the age of the scores, and availability of the list. The staff succeeded in obtaining Civil Service written scores for 127 candidates and physical performance scores for 71 candidates. A large portion of performance scores were of no value in the case where the candidates took the old version of the test. In those instances only a pass indication was on the list with no possibility of ranking the performance. The current physical performance data, however, were to become part of the candidate's record and, when possible, these scores were to be compared with the present study scores or analyzed as supplementary information.

Scoring

Once data collection had been completed, a number of scoring and/or clerical procedures were required before data analysis could begin. The responses to both written tests, the prototype police selection test and the police knowledge criterion test, had been recorded on machine optical scanning sheets. Therefore, other information could be inserted in the unused portions of those sheets. Several study variables were re-coded. For example, both age and education were coded into five ordered interval categories; ethnic membership was re-coded into three variables. Each category was dichotomized for inclusion in the correlations matrices. For example, the ethnic variable "Black" was scored "2" for black candidates and "1" for all others. Similarly for the variables "Hispanic" and "Other". Each candidate then had a single "2" score and two "1" scores for those three variables.

Since police academies did not necessarily grade their candidates identically, a scoring transformation was applied that would put each set of academy grades on the same scale and score distribution. Each candidate's final academy grade was put in rank order, by academy. The rank was converted to a percentile rank and then to a stanine score. This transformation normalizes the data and tends to ignore trivial differences between original scores. As a check, final average percentage scores, upon which the ranks were based, were retained and posted to the candidates' records.

A similar transformation to stanine scores was applied to the data from regular Civil Service lists. As mentioned previously, a candidate's regular Civil Service written score and physical performance score was retrieved when possible. To handle the problem of scores being based on different populations,

i.e., separate lists, the scoring procedure ranked the candidate with respect to all candidates on the list, then converted the rank to a stanine score.

The writing sample collected as part of the prototype selection test was submitted to holistic scoring (rating). Twenty-four members of the professional staff in the Division of Examinations volunteered to read and rate candidates' writing samples.

Each reader/rater was given an instruction sheet which included actual writing samples; one at each end of a five-point scale and one in the center. These illustrations were intended to give readers a similar frame of reference for rating. The instruction sheet is shown in Appendix M.

The readers were given an assignment of eight to twelve papers and a sheet on which to record ratings. The papers were identified by a code for jurisdiction or academy and for the individual candidate.

Each candidate's writing sample was given two independent ratings. The score was the sum of the ratings minus one. Thus, the final score ranged from 1 to 9. To insure consistency, if the two readers did not have at least adjacent ratings, e.g., 5-4 or 3-2, the writing sample was given to a third independent reader. The score was then either the sum of the two ratings which agreed or twice the average rating. Only about ten percent of the papers needed a third reader.

When all clerical processing was complete and data posted onto the machine optical scanning sheets, the sheets were scored and the scores put onto magnetic tape.

SECTION V

DATA ANALYSIS AND RESULTS

Data collected with the prototype police selection test and the police knowledge criterion test were item analyzed using the regular Civil Service Test Processing Package. General descriptive information and intercorrelations were obtained on all study variables. Regression analyses were performed using each of the three criterion measures separately as the dependent variable. All regression analyses were followed by double cross validation. For further rigor, a canonical correlation analysis was performed using the police selection variables and the study criterion variables simultaneously. Several additional supportive and ethnic breakdown analyses were also conducted, in conjunction with the main analyses.

Analysis of the Prototype Police Selection Examination

Table 8 reports the item analysis results by subparts of the test, each of which measured a specific KASO. Data for the total test is also given.

In addition to the mean, median, and standard deviation of each subpart, the mean point bi-serial correlation and mean percent passing (P+) along with their respective ranges are also reported. In computing the bi-serial correlations, results for the subparts are based on their own total as a criterion, while the results of the total test used the total score as a criterion. Thus, subpart mean bi-serials are somewhat spuriously high.

Inspection of the mean P+ column reveals a notable characteristic of the test--its easiness for the study group. Only the subpart measuring the KASO Following Rules and Procedures is of middle difficulty. However, this general

result is partially a consequence of using a selected group, i.e., job incumbents. If this test were administered to an unselected candidate group, it is likely that the P+'s would decrease substantially. All mean bi-serial correlations are over .3; several subparts have means over .5. Comparison of the means and medians reveals few differences; however, all observed differences show a lower mean indicating the negative skew which is characteristic of easy tests. The lower portion of the table reports results by ethnic classification and for the total group. As expected, the mean bi-serial correlation for the total test is lower than that for subparts. The total score is less internally-consistent than are the individual subparts. Though the test is easy for all ethnic subgroups, the group labelled "Other", which is virtually all Caucasian, has a mean almost six points higher than that for either the Black or the Hispanic group. The internal consistency reliability (Kuder-Richardson formula 20) is .80. This is not necessarily the appropriate reliability for the test--it is, however, the index available in the Civil Service package.

TABLE 8

SUMMARY RESULTS OF ITEM ANALYSES BY SUBPARTS AND TOTAL
PROTOTYPE SELECTION TEST (MULTIPLE CHOICE)

Predictor Test (N=277) KASO NAME	Subpart Name	N. Items	Mean	Mdn.	S.D.	Mean R_{pb}	Mean P+	High R_{pb}	Low R_{pb}	High P+	Low P+
Information Processing	Observation	13	10.6	10.7	1.3	.311	81.6	.52	.15	97	27
Information Processing	Police Forms	15	12.0	12.4	2.1	.379	80.1	.50	.22	98	28
Problem Solving	Problem Solving	8	6.0	6.1	1.1	.345	75.4	.45	.10	97	28
Deductive Reasoning	Criminal Codes	8	5.5	5.7	1.2	.400	69.4	.58	.20	92	11
Deductive Reasoning	Nonsense Syllogisms	4	3.1	3.1	0.7	.550	76.5	.68	.43	95	30
Following Rules & Procedures	City Map	10	5.3	5.3	2.6	.542	53.5	.62	.32	81	29
Inductive Reasoning	Letter Sets & Stimulus Groups	11	7.5	7.7	1.9	.404	68.5	.56	.20	90	25
Reading Comprehension	Reading Comprehension	7	5.2	5.3	1.5	.501	73.7	.57	.35	88	54

Ethnic Group	Score	N. Items	Mean	Mdn.	S.D.	Mean R_{pb}	Mean P+	High R_{pb}	Low R_{pb}	High P+	Low P+
Black (N=29)	Total Test	76	50.3	50.0	8.4	.233	66.2	.59	-.32	100	14
White (N=244)	Total Test	76	56.1	56.8	6.8	.228	73.9	.49	-.10	99	10
Hispanic (N=18)	Total Test	76	51.4	50.5	8.1	.240	67.7	.73	-.43	100	11
Total (N=292)	Total Test	76	55.2	55.8	7.3	.243	72.7	.49	-.11	98	11

Analysis of the Police Knowledge Criterion Test

Table 9 reports information similar to that in Table 8. The results for the police knowledge test are quite different from those of the prototype selection test. Inspection of the mean P+ column shows that, for the study group, this test was very difficult. Only the subpart Motor Vehicle Accidents was in the middle difficulty range. Apparently more police knowledge is gained through experience on the street than had been anticipated by the study's test development staff.

The mean bi-serial correlations, while in a satisfactory range of magnitude, generally are lower than those of the prototype test. Nine items pertaining to radio codes were excluded from the operational portion of the test, reducing the length to sixty items, when it became apparent that these codes were not standardized across jurisdictions.

A comparison of the mean and median columns reveals that the medians, while close in value to the means, are consistently lower. The indication of slight positive skew is characteristic of difficult tests. The standard deviations are very small and as such probably affected the reliability. The internal consistency reliability is very low (r=.39). The test, of course, is certainly not homogeneous nor was it designed to be. A more appropriate reliability estimate, however, was not available in the standard analysis package.

For the total test, mean bi-serial correlations are considerably lower than those for the individual subparts. This is a further demonstration of the very heterogeneous nature of the test items. Note that the total group size is slightly larger than the group used for subpart analysis. In comparing ethnic

TABLE 9

SUMMARY RESULTS OF ITEM ANALYSES BY SUBPARTS AND TOTAL
POLICE KNOWLEDGE CRITERION TEST (MULTIPLE CHOICE)

Criterion Test (N=268)	N. Items	Mean	Mdn.	S.D.	Mean R_{pb}	Mean P+	High R_{pb}	Low R_{pb}	High P+	Low P+
General Patrol	13	5.6	5.5	1.7	.294	43.2	.46	.10	84	2
Traffic Control & Enforcement of Traffic Laws	7	2.5	2.4	1.1	.377	35.1	.52	.23	81	9
Service Calls	6	2.3	2.3	1.2	.425	38.5	.52	.08	65	1
Motor Vehicle Accidents	8	4.1	4.0	1.6	.441	53.0	.69	.06	86	4
Investigations	11	3.6	3.5	1.5	.305	32.6	.52	.07	71	7
Arrests	8	2.4	2.4	1.2	.333	30.3	.47	.14	62	3
Court Testimony: Preparation & Appearance	4	1.6	1.5	0.9	.498	39.3	.61	.33	68	26
Finger Prints	3	1.4	1.3	0.8	.613	45.7	.66	.56	83	21

Criterion Test Total Test	N. Items	Mean	Mdn.	S.D.	Mean R_{pb}	Mean P+	High R_{pb}	Low R_{pb}	High P+	Low P+
Black (N=29)	60	21.9	21.4	3.8	.143	36.5	.56	-.17	90	0
White (N=234)	60	23.9	23.7	4.2	.153	39.8	.39	-.10	86	1
Hispanic (N=17)	60	21.5	20.3	3.7	.134	35.8	.54	-.37	94	0
Total Group (N=281)	60	23.5	23.4	4.2	.155	39.3	.45	-.09	85	1

groups for the total test, the White (Caucasian) group scored, on average, two points higher than either the Black or Hispanic group.

For general reference, Table 10 presents the frequency distributions and summary statistics for both the prototype selection test and the police knowledge criterion test.

TABLE 10

FREQUENCY DISTRIBUTIONS AND SUMMARY STATISTICS
FOR THE PROTOTYPE AND POLICE KNOWLEDGE TESTS

Prototype Selection				Police Knowledge			
Score Interval	Freq.	Cum. Freq.	% Below	Score Interval	Freq.	Cum. Freq.	% Below
69-72	3	292	99	34-35	2	285	99
66-68	16	289	93	32-33	6	283	97
63-65	29	273	84	30-31	13	277	93
60-62	42	244	69	28-29	31	264	82
57-59	47	202	53	26-27	39	233	68
54-56	40	155	39	24-25	47	194	52
51-53	38	115	26	22-23	64	147	29
48-50	31	77	16	20-21	33	83	18
45-47	19	46	9	18-19	29	50	7
42-44	15	27	4	16-17	12	21	3
39-41	6	12	2	14-15	4	9	2
36-38	4	6	1	12-13	2	5	1
33-35	2	2	0	10-11	2	3	0

Mean	55.16	Mean	23.52
Median	55.68	Median	23.38
S.D.	7.39	S.D.	4.24

General Description and Intercorrelations of Study Variables

Table 11 reports the means, standard deviations, number of cases, and the intercorrelations among the study variables. Some of the variables are dummy indices. For example, the variable "Black" is scored "2" if a candidate is Black and "1" if he is not. The result is a binary variable suitable for correlational analysis. Some means may seem incorrect because they are means of grouped information (see Age and Education). However, since the intervals are ordered, the correlation coefficients are meaningful. The correlation coefficients themselves convey the most important information. The relationship among variables is paramount, particularly the relationship between predictors and criteria.

Since the table is a reproduction of computer output composed by the Statistical Package for Social Sciences (SPSS), it may be difficult to grasp the variable names. The labels are mnemonics limited to eight characters. Multiple choice predictors start with "P" followed by the corresponding test order. For example, P10B is the first subpart of the predictor test, Observations. Similarly, the written criterion police knowledge multiple choice variables start with "C" and relative ratings start with "R". The principal criterion variables are the academic total (A3 FINAL), the police knowledge criterion (CTOTL) and the global rating (GLOBAL). FINPCT is the final academic grade in percent form.

All data in Table 11 reflects results from two samples, i.e., the candidates from jurisdictions and the candidates from police academies. A dummy variable "TYPE" quantitatively records the distinction. Some of the variables are mutually exclusive and, thus, no correlation can be computed between mutually exclusive sets. This is noted by a "99". Correlations within mutually exclusive sets are computed using, of course, only the cases that have the data.

TABLE 11

GENERAL STATISTICS AND INTERCORRELATIONS – POLICE VALIDATION
INTERCORRELATIONS USING ALL AVAILABLE CASES OR DATA
(CREATION DATE = 1/25/82

VARIABLE	CASES	MEAN	STD DEV
P10B	292	10.5753	1.3126
P2FORMS	292	12.0205	2.0508
P3PROB	292	6.0240	1.0759
P4CRIM	292	5.5479	1.2440
P5SYLG	292	3.0514	0.7185
P6MAPS	292	5.2911	2.5581
P7INDCT	292	6.5856	1.8133
P8READ	292	6.0685	1.5428
WRITING	292	4.2026	2.1728
PTOTL	292	55.1644	7.3905
C1PTOL	285	5.6105	1.6718
C2TRAF	285	2.4982	1.1341
C3SRV	285	2.3228	1.1990
C4MVA	285	4.1263	1.6092
C5INVST	285	3.6140	1.4505
C6ARRST	285	2.4105	1.1882
C7COURT	285	1.5544	0.9201
C8SUPRT	285	1.3825	0.7583
CTOTL	285	23.5193	4.2415
TYPE	292	1.6952	0.4611
SEX	292	1.0616	0.2409
EDUC	289	1.9236	0.7749
AGE	290	2.8172	0.8711
BLACK	292	1.1027	0.3041
OTHER	292	1.8356	0.3713
HISPANIC	292	1.0651	0.2471
CSWRT	127	5.2677	1.9084
CSPHYS	71	5.1408	2.0515
R1PREP	89	2.3708	0.7290
R2FGHTS	89	2.1685	0.5273
R3PTRL	89	2.4831	0.6761
R4SVR	99	2.1011	0.5232
R5ARRST	89	1.8202	0.5947
R6INVST	88	2.0114	0.5968
R7MVA	89	1.9101	0.4431
R8TRAF	89	1.7865	0.5533
R9SUPRT	89	1.6067	0.5563
R10COURT	90	1.7667	0.5204
GLOBAL	89	3.5169	1.4311
A3FINAL	203	4.9751	1.9562
FINPCT	203	846.2956	46.3224

TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	P1OB	P2FORMS	P3PROB	P4CRIM	P5SYLG	P6MAPS
P1OB	1.0000	0.1539*	0.1362	0.0946	0.1835*	0.2027**
P2FORMS	0.1539*	1.0000	0.0979	0.2286**	0.3095**	0.3310**
P3PROB	0.1362	0.0979	1.0000	0.0980	0.1362	0.0736
P4CRIM	0.0946	0.2286**	0.0980	1.0000	0.1222	0.1797*
P5SYLG	0.1835*	0.3095**	0.1362	0.1222	1.0000	0.1377
P6MAPS	0.2027**	0.3310**	0.0736	0.1797*	0.1377	1.0000
P7INDCT	0.2709**	0.3608**	0.1372	0.2485**	0.3698**	0.3232**
P8READ	0.3148**	0.3884**	0.2143**	0.2400**	0.3626**	0.3772**
WRITING	0.1301	0.2137**	0.0666	0.0573	0.1489	0.2468**
PTOTL	0.4763**	0.6718**	0.3306**	0.4481**	0.4702**	0.6864**
C1PTRL	-0.0152	0.0289	0.0647	0.0553	0.0306	0.0513
C2TRAF	-0.0135	-0.0053	-0.0345	0.0945	0.0130	0.0907
C3SRV	0.1162	0.2385**	0.0584	0.0772	0.1528*	0.0980
C4MVA	0.1266	0.1177	0.0365	0.1864*	0.1405	0.0683
C5INVST	0.0535	0.1206	0.0227	0.1156	0.1126	0.1277
C6ARRST	0.0364	0.0645	-0.0558	0.1390	0.0216	0.1376
C7COURT	0.1439	0.0751	0.0908	0.0777	0.0172	0.0482
C8SUPRT	0.0550	0.1871*	-0.0003	0.0505	0.1460	0.1279
CTOTL	0.1406	0.2311**	0.0584	0.2440**	0.1864*	0.2137**
TYPE	0.0750	-0.1351	0.0494	-0.0433	-0.0044	-0.1605*
SEX	0.0939	0.0878	0.0075	0.0818	-0.0581	0.0377
EDUC	0.1729*	0.1370	0.1021	0.1213	0.1532*	0.0432
AGE	-0.1733*	-0.0385	-0.0070	-0.0446	-0.1995**	-0.0156
BLACK	-0.2591**	-0.1246	-0.0496	-0.0857	-0.1343	-0.0960
OTHER	0.2512**	0.1263	0.1390	0.1734*	0.0962	0.1193
HISPANIC	-0.0417	-0.0366	-0.1352	-0.1499	0.0392	-0.0627
CSWRT	0.0992	0.2256	0.2360*	0.2571*	0.2387*	0.2307*
CSPHYS	0.1212	0.0762	0.0525	0.0032	0.1040	0.0696
R1PREP	-0.1575	-0.2187	-0.1175	0.0755	-0.1226	0.0283
R2FGHTS	-0.0400	-0.1349	-0.0031	-0.1084	0.0914	-0.1155
R3PTRL	-0.1733	-0.0356	-0.0715	0.1391	-0.1449	-0.0685
R4SVR	0.1367	0.0465	-0.1306	0.0671	-0.0439	-0.0095
R5ARRST	0.1155	-0.0420	0.1079	-0.0342	0.1258	-0.0590
R6INVST	0.2157	0.3227*	0.2507	0.1500	0.1272	0.2669
R7MVA	-0.0116	0.0919	0.1080	0.0483	0.0500	0.0683
R8TRAF	-0.1408	0.1168	0.1508	-0.1529	0.0571	-0.0354
R9SUPRT	0.2779	0.0263	-0.2073	-0.2075	-0.0009	-0.0609
R10COURT	0.0480	-0.0290	-0.0234	0.0060	-0.0463	-0.0148
GLOBAL	0.0757	0.0868	0.0190	0.2043*	0.1112	0.0149
A3FINAL	0.2855**	0.3774**	0.2615**	0.2115*	0.3429**	0.2359**
FINPCT	0.1774	0.3263**	0.1895*	0.1113	0.2396**	0.2689**

* — SIGNIF. LE .01 ** — SIGNIF. LE .001 -54-

TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	P7INDCT	P8READ	WRITING	PTOTL	C1PTRL	C2TRAF
P1OB	0.2709**	0.3148**	0.1301	0.4763**	-0.0152	-0.0135
P2FORMS	0.3608**	0.3884**	0.2137**	0.6718**	0.0289	-0.0053
P3PROB	0.1372	0.2143**	0.0666	0.3306**	0.0647	-0.0345
P4CRIM	0.2488**	0.2400**	0.0573	0.4481**	0.0553	0.0945
P5SYLG	0.3698**	0.3626**	0.1489	0.4702**	0.0306	0.0130
P6MAPS	0.3232**	0.3772**	0.2468**	0.6864**	0.0513	0.0907
P7INDCT	1.0000	0.4573**	0.2154**	0.6987**	0.0101	0.0274
P8READ	0.4573**	1.0000	0.2467**	0.7220**	0.0562	0.0951
WRITING	0.2154**	0.2467**	1.0000	0.3060**	0.0576	0.0799
PTOTL	0.6987**	0.7220**	0.3060**	1.0000	0.0589	0.0661
C1PTRL	0.0101	0.0562	0.0576	0.0589	1.0000	0.1436
C2TRAF	0.0274	0.0951	0.0799	0.0661	0.1436	1.0000
C3SRV	0.3100**	0.2742**	0.0502	0.2867**	0.0612	0.1351
C4MVA	0.2599**	0.1969**	0.0783	0.2374**	-0.0118	-0.0983
C5INVST	0.0774	0.2195**	0.0931	0.1811*	0.0772	0.0403
C6ARRST	0.0129	0.0519	0.0154	0.1012	0.1907*	0.0828
C7COURT	0.0582	0.1442	0.1216	0.1369	-0.0011	-0.0666
C8SUPRT	0.2222**	0.0591	0.0872	0.1972**	-0.0154	0.0274
CTOTL	0.2800**	0.3313**	0.1661*	0.3669**	0.5222**	0.3523**
TYPE	-0.0488	-0.1251	-0.0979	-0.1154	-0.0257	-0.1315
SEX	0.0665	0.0626	0.0015	0.0927	-0.0034	-0.0192
EDUC	0.1579*	0.2330**	0.2272**	0.2214**	0.0848	0.1303
AGE	-0.1683*	-0.0911	-0.0152	-0.1340	-0.0035	0.0689
BLACK	-0.1593*	-0.2128**	-0.1669*	-0.2318**	0.0526	-0.0298
OTHER	0.1996**	0.2237**	0.1391	0.2714**	-0.0074	0.0118
HISPANIC	-0.0930	-0.0658	-0.0050	-0.1169	-0.0356	0.0131
CSWRT	0.3377**	0.2889**	0.3150**	0.3912**	0.2606*	0.1094
CSPHYS	-0.0290	-0.0477	0.0423	0.0643	0.0562	0.0568
R1PREP	0.0116	0.0118	0.0758	-0.0813	0.1681	0.0158
R2FGHTS	-0.1110	-0.0778	-0.1345	-0.1420	0.0259	-0.0307
R3PTRL	-0.0682	0.0398	-0.1322	-0.0750	0.1070	0.0916
R4SVR	0.0831	-0.0325	-0.0530	0.0309	-0.1391	0.0092
R5ARRST	-0.0167	-0.0543	0.0282	-0.0002	0.1189	0.1145
R6INVST	0.2502	0.1623	0.3360*	0.3777**	-0.0449	-0.1032
R7MVA	0.0414	-0.0708	0.0135	0.0612	-0.2545	-0.0051
R8TRAF	-0.1124	0.0252	-0.0341	-0.0242	-0.0939	0.1093
R9SUPRT	-0.0935	-0.1014	-0.1956	-0.1041	-0.0312	-0.1441
R10COURT	0.0432	0.1001	0.0831	0.0116	-0.0306	-0.0491
GLOBAL	0.2091	0.1300	0.0437	0.1697	-0.0152	0.0185
A3FINAL	0.3123**	0.4130**	0.1346	0.5173**	0.1793	0.1682
FINPCT	0.2597**	0.3137**	0.1294	0.4207**	0.1330	0.1346

* — SIGNIF. LE .01 ** — SIGNIF. LE .001 -55-

TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	C3SRV	C4MVA	C5INVST	C6ARRST	C7COURT	C8SUPRT
P1OB	0.1162	0.1266	0.0535	0.0364	0.1439	0.0550
P2FORMS	0.2395**	0.1177	0.1206	0.0645	0.0751	0.1871*
P3PROB	0.0584	0.0365	0.0227	-0.0558	0.0908	-0.0003
P4CRIM	0.0772	0.1864*	0.1156	0.1390	0.0777	0.0505
P5SYLG	0.1528*	0.1405	0.1126	0.0216	0.0172	0.1460
P6MAPS	0.0980	0.0683	0.1277	0.1376	0.0482	0.1279
P7INDCT	0.3100**	0.2599**	0.0774	0.0129	0.0582	0.2222**
P8READ	0.2742**	0.1969**	0.2195**	0.0519	0.1442	0.0591
WRITING	0.0502	0.0783	0.0931	0.0154	0.1216	0.0872
PTOTL	0.2887**	0.2324**	0.1851*	0.1032	0.1349	0.1942**
C1PTRL	0.0612	-0.0118	0.0772	0.1907*	-0.0011	-0.0154
C2TRAF	0.1351	-0.0983	0.0403	0.0828	-0.0669	0.0274
C3SRV	1.0000	0.1558*	0.0881	0.0451	0.0383	0.0651
C4MVA	0.1558*	1.0000	0.0421	0.1717*	0.0905	0.0757
C5INVST	0.0881	0.0421	1.0000	0.0105	0.0263	-0.0222
C6ARRST	0.0451	0.1717*	0.0105	1.0000	0.1035	0.0205
C7COURT	0.0383	0.0905	0.0263	0.1035	1.0000	-0.0072
C8SUPRT	0.0651	0.0757	-0.0222	0.0205	-0.0072	1.0000
CTOTL	0.4647**	0.4882**	0.4287**	0.4850**	0.2806**	0.2238**
TYPE	0.0299	0.2604**	-0.0960	0.1758*	0.0523	-0.1196
SEX	-0.0154	-0.0198	0.0057	-0.0247	0.0899	0.0489
EDUC	0.1363	0.0793	0.1892*	0.0884	0.1118	0.0558
AGE	-0.0701	-0.1279	-0.0525	-0.1348	-0.1053	-0.0324
BLACK	-0.0638	-0.1978**	-0.0507	-0.0609	-0.0826	0.0079
OTHER	0.0962	0.2880**	0.0317	0.0661	0.0932	-0.0003
HISPANIC	-0.0580	-0.1731*	0.0194	-0.0291	-0.0311	0.0022
CSWRT	0.0800	0.0915	0.2808*	0.0225	0.0291	0.0887
CSPHYS	-0.0842	-0.0713	0.1628	0.0953	0.1254	-0.0114
R1PREP	0.0426	-0.0877	-0.0616	-0.0498	-0.0521	0.1788
R2FGHTS	-0.1337	0.1708	0.0800	0.2152	-0.1284	-0.1167
R3PTRL	0.0800	-0.1379	-0.0358	-0.0860	-0.1102	-0.0055
R4SVR	-0.0655	0.0631	0.0654	0.0227	0.0407	-0.1145
R5ARRST	0.0894	0.1140	0.1012	-0.0436	0.0376	-0.0201
R6INVST	0.1641	0.0726	0.0897	-0.1681	0.2075	0.2353
R7MVA	0.0261	0.0010	0.1264	-0.0292	0.0252	-0.0320
R8TRAF	0.0746	-0.0556	-0.0457	-0.0409	0.0508	-0.0053
R9SUPRT	-0.1540	-0.0224	-0.2435	0.0697	-0.1181	-0.1153
R10COURT	-0.1748	0.0250	-0.0419	0.1725	0.1334	-0.1021
GLOBAL	0.3048*	0.1854	0.0376	-0.1113	-0.1553	0.0943
A3FINAL	0.2292*	0.0698	0.1780	0.1591	0.1263	0.0843
FINPCT	0.1675	-0.0996	0.1409	0.1138	0.0002	0.1055

* – SIGNIF. LE .01 ** – SIGNIF. LE .001

TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	CTOTL	TYPE	SEX	EDUC	AGE	BLACK
P1OB	0.1408	0.0750	0.0939	0.1729*	-0.1733*	-0.2691**
P2FORMS	0.2311**	-0.1351	0.0876	0.1370	-0.0385	-0.1246
P3PROB	0.0584	0.0494	0.0075	0.1021	-0.0070	-0.0496
P4CRIM	0.2440**	-0.0433	0.0818	0.1213	-0.0446	-0.0857
P5SYLG	0.1864*	-0.0044	-0.0581	0.1532*	-0.1995**	-0.1343
P6MAPS	0.2137**	-0.1605*	0.0377	0.0432	-0.0156	-0.0960
P7INDCT	0.2800**	-0.0488	0.0665	0.1579*	-0.1683*	-0.1593*
P8READ	0.3313**	-0.1251	0.0026	0.2330**	-0.0911	-0.2128**
WRITING	0.1661*	-0.0979	0.0015	0.2272**	-0.0152	-0.1669*
PTOTL	0.3669**	-0.1184	0.0427	0.2214**	-0.1360	-0.2331**
C1PTRL	0.5222**	-0.0257	-0.0034	0.0845	-0.0035	0.0526
C2TRAF	0.3523**	-0.1315	-0.0192	0.1303	0.0689	-0.0293
C3SRV	0.4647**	0.0299	-0.0184	0.1363	-0.0701	-0.0638
C4MVA	0.4882**	0.2604**	-0.0198	0.0793	-0.1279	-0.1978**
C5INVST	0.4287**	-0.0960	0.0057	0.1892*	-0.0525	-0.0507
C6ARRST	0.4850**	0.1758*	-0.0247	0.0884	-0.1348	-0.0409
C7COURT	0.2806**	0.0523	0.0899	0.1118	-0.1053	-0.0826
C8SUPRT	0.2238**	-0.1196	0.0489	0.0558	-0.0324	0.0079
CTOTL	1.0000	0.0683	0.0041	0.2603**	-0.1354	-0.1312
TYPE	0.0683	1.0000	-0.1396	0.0020	-0.2241**	-0.2170**
SEX	0.0041	-0.1396	1.0000	0.0440	0.0048	0.0540
EDUC	0.2603**	0.0020	0.0440	1.0000	-0.0409	-0.0104
AGE	-0.1354	-0.2241**	0.0048	-0.0409	1.0000	0.2154**
BLACK	-0.1312	-0.2170**	0.0540	-0.0104	0.2154**	1.0000
OTHER	0.1863*	0.2885**	-0.0016	0.0522	-0.2000**	-0.7629**
HISPANIC	-0.0966	-0.1571*	-0.0076	-0.0642	0.0396	-0.0435
CSWRT	0.3203**	-0.1171	-0.0365	0.0801	-0.0043	-0.0627
CSPHYS	0.1007	0.0056	-0.3043*	0.0782	-0.2309	0.1042
R1PREP	0.0425	99.0000	-0.0838	0.0534	0.1113	0.0126
R2FGHTS	0.0566	99.0000	-0.1822	-0.1941	-0.1988	0.0515
R3PTRL	-0.0131	99.0000	0.0089	0.0751	-0.0224	0.0126
R4SVR	-0.0343	99.0000	0.1360	-0.1305	-0.1499	0.1172
R5ARRST	0.1894	99.0000	-0.0723	0.0187	-0.0566	0.0112
R6INVST	0.1038	99.0000	0.0535	0.1293	0.1054	-0.0572
R7MVA	-0.0578	99.0000	-0.0082	0.1142	0.0323	-0.0877
R8TRAF	-0.0184	99.0000	-0.0559	0.1222	-0.0203	-0.1097
R9SUPRT	-0.2492	99.0000	0.1243	-0.0743	0.0332	0.1051
R10COURT	-0.0305	0.2526	0.0911	-0.1669	0.1289	-0.0966
GLOBAL	0.1185	99.0000	-0.0042	-0.0774	-0.0592	-0.0453
A3FINAL	0.3392**	99.0000	0.0654	0.3398**	-0.1226	-0.1385
FINPCT	0.1853*	99.0000	0.0180	0.2065*	-0.1044	-0.0753

* – SIGNIF. LE .01 ** – SIGNIF. LE .001

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TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	OTHER	HISPANIC	CSWRT	CSPHYS	R1PREP	R2FGHTS
P1OB	0.2512**	-0.0417	0.0992	0.1212	-0.1575	-0.0400
P2FORMS	0.1263	-0.0366	0.2256	0.0762	-0.2187	-0.1849
P3PROB	0.1390	-0.1352	0.2360*	0.0525	-0.1175	-0.0031
P4CRIM	0.1734*	-0.1499	0.2571*	0.0032	0.0755	-0.1084
P5SYLG	0.0962	0.0392	0.2387*	0.1040	-0.1226	0.0914
P6MAPS	0.1193	-0.0627	0.2307*	0.0696	0.0283	-0.1155
P7INDCT	0.1996**	-0.0930	0.3377**	-0.0290	0.0116	-0.1110
P8READ	0.2237**	-0.0658	0.2889**	-0.0477	0.0118	-0.0778
WRITING	0.1391	-0.0050	0.3150**	0.0423	0.0758	-0.1345
PTOTL	0.2754**	-0.1169	0.3932**	0.0643	-0.0833	-0.1420
C1PTRL	-0.0074	-0.0258	0.2606*	0.0562	0.1661	0.0259
C2TRAF	0.0118	0.0131	0.1094	0.0569	0.0158	-0.0307
C3SRV	0.0962	-0.0580	0.0800	-0.0842	0.0426	-0.1337
C4MVA	0.2880**	-0.1731*	0.0915	-0.0713	-0.0877	0.1708
C5INVST	0.0317	0.0194	0.2808*	0.1629	-0.0616	0.0800
C6ARRST	0.0661	-0.0291	0.0225	0.0953	-0.0498	0.2162
C7COURT	0.0932	-0.0311	0.0291	0.1254	-0.0521	-0.1284
C8SUPRT	-0.0003	0.0022	0.0887	-0.0114	0.1788	-0.1167
CTOTL	0.1863*	-0.0966	0.3203**	0.1007	0.0425	0.0566
TYPE	0.2885**	-0.1571*	-0.1171	0.0056	99.0000	99.0000
SEX	-0.0016	-0.0675	-0.0365	-0.3043*	-0.0838	-0.1822
EDUC	0.0522	-0.0642	0.0801	0.0782	0.0534	-0.1941
AGE	-0.2000**	0.0396	-0.0043	-0.2309	0.1113	-0.1988
BLACK	-0.7629**	-0.0435	-0.0627	0.1042	0.0126	0.0515
OTHER	1.0000	-0.5948**	0.1282	-0.1719	-0.0743	-0.0966
HISPANIC	-0.5948**	1.0000	-0.0876	0.1395	0.0905	0.0746
CSWRT	0.1282	-0.0876	1.0000	0.0800	0.2540	-0.1252
CSPHYS	-0.1718	0.1395	0.0800	1.0000	0.0309	0.2288
R1PREP	-0.0743	0.0905	0.2540	0.0309	1.0000	-0.4305**
R2FGHTS	-0.0966	0.0746	-0.1252	0.2288	-0.4305**	1.0000
R3PTRL	0.1074	-0.1683	0.0152	-0.2464	0.3241*	-0.2629
R4SVR	-0.1413	0.0582	0.0314	-0.2924	-0.2186	0.0199
R5ARRST	-0.0492	0.0564	0.1050	-0.0170	-0.2639	0.4238**
R6INVST	0.1356	-0.1230	0.2977	-0.0805	0.1414	-0.2638
R7MVA	0.0214	0.0766	-0.4018*	0.1121	-0.2474	-0.0803
R8TRAF	0.0788	0.0216	-0.1304	0.1132	-0.1959	0.0079
R9SUPRT	-0.0609	-0.0416	-0.2122	0.1437	-0.2248	-0.1201
R10COURT	0.1026	-0.0284	0.0626	-0.0160	-0.0567	-0.0550
GLOBAL	0.0840	-0.0644	0.2626	-0.1807	0.1519	0.0489
A3FINAL	0.2159*	-0.1163	0.4593**	0.1812	99.0000	99.0000
FINPCT	0.1719	-0.1557	0.3492*	0.2389	99.0000	99.0000

* – SIGNIF. LE .01 ** – SIGNIF. LE .001

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TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	R3PTRL	R4SVR	R5ARRST	R6INVST	R7MVA	R8TRAF
P1OB	-0.1733	0.1367	0.1155	0.2157	-0.0116	-0.1408
P2FORMS	-0.0356	0.0485	-0.0420	0.3227*	0.0919	0.1168
P3PROB	-0.0713	-0.1306	0.1079	0.2507	0.1080	0.1508
P4CRIM	0.1391	0.0671	-0.0342	0.1500	0.0483	-0.1529
P5SYLG	-0.1449	-0.0439	0.1258	0.1272	0.0500	0.0571
P6MAPS	-0.0685	-0.0095	-0.0590	0.2669	0.0683	-0.0354
P7INDCT	-0.0682	0.0831	-0.0187	0.2502	0.0414	-0.1124
P8READ	0.0398	-0.0325	-0.0543	0.1623	-0.0708	0.0252
WRITING	-0.1322	-0.0530	0.0282	0.3360*	0.0135	-0.0341
PTOTL	-0.0760	0.0310	-0.0032	0.3737**	0.0682	-0.0242
C1PTRL	0.1070	-0.1391	0.1189	-0.0449	-0.2545	-0.0939
C2TRAF	0.0816	0.0092	0.1145	-0.1032	-0.0051	0.1093
C3SRV	0.0800	-0.0655	0.0894	0.1641	0.0261	0.0745
C4MVA	-0.1378	0.0631	0.1140	0.0726	0.0010	-0.0586
C5INVST	-0.0358	0.0654	0.1012	0.0997	0.1264	-0.0457
C6ARRST	-0.0660	0.0227	-0.0436	-0.1681	-0.0292	-0.0409
C7COURT	-0.1102	0.0407	0.0376	0.2075	0.0252	0.0508
C8SUPRT	-0.0065	-0.1145	-0.0201	0.2353	-0.0320	-0.0053
CTOTL	-0.0131	-0.0343	0.1894	0.1738	-0.0578	-0.0184
TYPE	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
SEX	0.0089	0.1360	-0.0723	0.0535	-0.0082	-0.0559
EDUC	0.0751	-0.1805	0.0187	0.1293	0.1142	0.1222
AGE	-0.0224	-0.1499	-0.0566	0.1054	0.0323	-0.0203
BLACK	0.0126	0.1172	0.0112	-0.0572	-0.0877	-0.1097
OTHER	0.1074	-0.1413	-0.0492	0.1356	0.0214	0.0788
HISPANIC	-0.1683	0.0582	0.0564	-0.1230	0.0766	0.0216
CSWRT	0.0152	0.0314	0.1050	0.2977	-0.4018*	-0.1304
CSPHYS	-0.2464	-0.2924	-0.0170	-0.0805	0.1121	0.1132
R1PREP	0.3241*	-0.2186	-0.2639	-0.1414	-0.2474	-0.1959
R2FGHTS	-0.2629	0.0199	0.4238**	-0.2638	-0.0803	0.0079
R3PTRL	1.0000	-0.0754	-0.2055	-0.2695	-0.1189	-0.1464
R4SVR	-0.0754	1.0000	-0.1966	0.0329	-0.2054	-0.3563**
R5ARRST	-0.2055	-0.1966	1.0000	-0.1914	-0.1051	0.0547
R6INVST	-0.2695	0.0329	-0.1914	1.0000	0.0472	-0.0964
R7MVA	-0.1189	-0.2054	-0.1051	0.0472	1.0000	0.0599
R8TRAF	-0.1464	-0.3563**	0.0547	-0.0964	0.0599	1.0000
R9SUPRT	-0.3955**	0.2163	-0.2161	-0.1252	0.0394	-0.0543
R10COURT	-0.2115	-0.1190	-0.2247	0.0473	-0.1002	-0.1905
GLOBAL	0.3380*	0.0963	0.1638	0.1432	-0.1947	-0.1174
A3FINAL	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000
FINPCT	99.0000	99.0000	99.0000	99.0000	99.0000	99.0000

* – SIGNIF. LE .01 ** – SIGNIF. LE .001

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TABLE 11 (cont.)

---PEARSON CORRELATION COEFFICIENTS---

	R9SUPRT	R10COURT	GLOBAL	A3FINA	FINPCT
P1OB	0.0779	0.0480	0.0757	0.2855*	0.1774
P2FORMS	0.0263	-0.0290	0.0868	0.3774*	0.3263**
P3PROB	-0.2073	-0.0234	0.0190	0.2615*	0.1695*
P4CRIM	-0.2075	0.0060	0.2943*	0.2115	0.1113
P5SYLG	-0.0009	-0.0463	0.1112	0.3429*	0.2396**
P6MAPS	-0.0609	-0.0148	0.0149	0.2359*	0.2689**
P7INDCT	-0.0938	0.0432	0.2091	0.3123*	0.2597**
P8READ	-0.1014	0.1001	0.1300	0.4130*	0.3137**
WRITING	-0.1956	0.0831	0.0437	0.1346	0.1294
PTOTL	-0.1041	0.0186	0.1697	0.5173*	0.4207**
C1PTRL	-0.0312	-0.0306	-0.0152	0.1793	0.1330
C2TRAF	-0.1441	-0.0491	0.0185	0.1682	0.1348
C3SRV	-0.1540	-0.1743	0.3048*	0.2292*	0.1676
C4MVA	-0.0224	0.0250	0.1854	0.0698	-0.0996
C5INVST	-0.2435	-0.0419	0.0376	0.1780	0.1409
C6ARRST	0.0692	0.1725	-0.1113	0.1591	0.1138
C7COURT	-0.1181	0.1334	-0.1553	0.1263	0.0002
C8SUPRT	-0.1153	-0.1021	0.0943	0.0843	0.1055
CTOTL	-0.2492	-0.0305	0.1185	0.3392**	0.1853*
TYPE	99.0000	0.2526	99.0000	99.0000	99.0000
SEX	0.1243	0.0911	-0.0042	0.0654	0.0180
EDUC	-0.0743	-0.1669	-0.0774	0.3398**	0.2085*
AGE	0.0332	0.1259	-0.0592	-0.1226	-0.1044
BLACK	0.1051	-0.0966	-0.0453	-0.1385	-0.0763
OTHER	-0.0609	0.1026	0.0840	0.2159*	0.1719
HISPANIC	-0.0416	-0.0284	-0.0644	-0.1163	-0.1557
CSWRT	-0.2122	0.0626	0.2626	0.4593**	0.3492*
CSPHYS	0.1437	-0.0160	-0.1807	0.1812	0.2389
R1PREP	-0.2248	-0.0567	0.1519	99.0000	99.0000
R2FGHTS	-0.1201	-0.0550	0.0489	99.0000	99.0000
R3PTRL	-0.3955**	-0.2115	0.3380*	99.0000	99.0000
R4SVR	0.2153	-0.1190	0.0963	99.0000	99.0000
R5ARRST	-0.2161	-0.2247	0.1638	99.0000	99.0000
R6INVST	-0.1252	0.0473	0.1432	99.0000	99.0000
R7MVA	0.0394	-0.1002	-0.1947	99.0000	99.0000
R8TRAF	-0.0543	-0.1905	-0.1174	99.0000	99.0000
R9SUPRT	1.0000	0.0544	-0.4126**	99.0000	99.0000
R10COURT	0.0544	1.0000	-0.3862**	99.0000	99.0000
GLOBAL	-0.4126**	-0.3862**	1.0000	99.0000	99.0000
A3FINAL	99.0000	99.0000	99.0000	1.0000	0.8474**
FINPCT	99.0000	99.0000	99.0000	0.8474**	1.0000

* – SIGNIF. LE .01 ** – SIGNIF. LE .001

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Written police knowledge is significantly correlated with all the predictor subparts and the writing sample, except for Problem Solving and Observations. Among other variables, it is correlated with candidate educational level, the regular Civil Service written selection test, and with academic total, another criterion measure.

Overall academic standing in police academies is correlated substantially with all predictors except for a relatively low result with the subpart Criminal Codes. The writing sample failed to correlate significantly with academic standing. As with the written police knowledge criterion, academic standing correlated with educational background and the regular Civil Service written selection test. (CSWRT)

Criminal Codes is the only predictor subpart to correlate significantly with the global rating. Several of the relative ratings also are correlated with the global rating; patrol duties are correlated positively, while supportive and court related duties are negatively correlated. There is also a significant correlation of global rating with the Service Calls subpart in the written police knowledge criterion test.

Except for sex classification, the Civil Service physical performance standing did not significantly relate to any other study variable. Ethnic classification seems to be related to the total criterion measures except the global rating. (See correlations under "Other".)

Regression Analysis

The study variables, the prototype selection test, the writing sample, and the three principal criterion measures: Global Performance Rating; Overall Academic Grade; and the Police Knowledge Test were submitted to regression analysis, a procedure available in the SPSS system. Each criterion measure was used separately as the dependent variable. In addition, the total group was randomly split into two groups, each group constituting a cross-validation sample. For each criterion measure three forward stepwise regression analyses were performed.

Results of the regression analyses are reported in Table 12. Part A reports the validity estimates for the total group, the cross-validation samples, and two combinations of ethnic classification. Part B gives the final regression equations used to obtain estimates of the criterion measures from the predictor variables.

The stepwise aspect of the analysis was halted when the next variable to enter failed to produce either a significant F or at least a one percent increase in predicted variance. All such results in Table 12 reflect those criteria. To obtain data for Part A, estimates were computed for all cases using each set of weights available, i.e., each case had criterion scores estimated from the total sample regression weights and those for Sample 1 and Sample 2. Subsequently, the groups were separated as designated in Table 12A and correlations were obtained between estimated and actual scores.

The first horizontal panel in Table 12A, i.e., Total Group estimates, reports the most stable validity coefficients for each of the study criteria. Each

TABLE 12

VALIDATION RESULTS

PART A: MULTIPLE CORRELATION COEFFICIENTS BY TOTAL AND CROSS VALIDATION GROUPS

CRITERION	GLOBAL PERFORMANCE RATING			OVERALL ACADEMIC GRADES			WRITTEN POLICE KNOWLEDGE		
Group on Which Estimates Are Calculated	Source of Weights			Source of Weights			Source of Weights		
	Total	One	Two	Total	One	Two	Total	One	Two
Total Group	.33	(89)[a]		.55	(203)		.39	(285)	
Cross Validation Sample One	.46	.48 (46)	.22[ns]	.53	.54 (100)	.42	.33	.38 (145)	.32
Cross Validation Sample Two	.24[ns]	.16[ns] (43)	.34	.56	.49 (103)	.60	.45	.32 (140)	.45
Black Candidates	.38[ns]	.40[ns] (18)	.25[ns]	.62	.55 (12)	.63	.50	.25[ns] (30)	.52
Pooled Minority Candidates	.49	.54 (29)	.23[ns]	.62	.57 (19)	.65	.44	.28 (47)	.45

[a] Number of cases in parentheses

[ns] $p > .05$

TABLE 12

VALIDATION RESULTS
PART B: REGRESSION EQUATIONS

CRITERION	GROUP ON WHICH WEIGHTS ARE DERIVED	REGRESSION EQUATION
Global Performance Rating	Total	EX = .297 P4 + .114 P7 + 1.115
	Cross Validation Sample One	EX = .484 P4 + .121 P8 - .071
	Cross Validation Sample Two	EX = .335 P5 + .223 P4 - .180 P8 + .109 P7 + 1.749
Overall Academic Grade	Total	EY = .432 P5 + .288 P3 + .245 P8 + .210 P1 + .206 P2 - 4.238
	Cross Validation Sample One	EY = .645 P5 + .291 P2 + .218 P3 + .175 P8 - 2.792
	Cross Validation Sample Two	EY = .387 P5 + .335 P8 + .305 P3 + .303 P4 + .302 P1 - 4.882
Written Police Knowledge	Total	EZ = .639 P8 + .527 P4 + .317 P7 + 14.635
	Cross Validation Sample One	EZ = .707 P8 - .490 P3 + .414 P1 - .350 P4 + 15.929
	Cross Validation Sample Two	EZ = .687 P4 + .648 P8 + .514 P7 + 12.400

Notation:

EX = Estimated Global Performance Rating
EY = Estimated Overall Academic Grade
EZ = Estimated Written Police Knowledge Score
P1 = Observation subpart
P2 = Police Forms subpart
P3 = Problem Solving subpart
P4 = Criminal Codes subpart
P5 = Nonsense Syllogisms subpart
P6 = City Maps subpart
P7 = Inductive Reasoning subpart
P8 = Reading Comprehension subpart
P9 = Writing Sample Rating

coefficient is significant at least at the .05 level. The next two lower panels report results based on the cross validation samples. Inspection shows that two of the criteria, Overall Academic Grades and Police Knowledge do indeed cross validate. However, Global Performance Rating fails to cross-validate, i.e., when each sample uses the regression weights of the other sample. The remaining two panels report results when only Black candidates and pooled Black and Hispanic candidates are used to obtain validity coefficients. Again, Global Performance Rating did not cross validate nor did Police Knowledge for Black candidates only. The latter results, however, should be regarded cautiously since the number of cases is quite small.

Part B of Table 12 reports the equations used to obtain the criterion estimates based on the regression analyses. B weights are shown rather than beta weights--these equations are for raw rather than for standardized data. All predictor variables except the City Maps and the Writing Sample subparts are used in at least one equation. The predictors most often appearing in the equations were the Criminal Codes and Reading Comprehension subparts.

Canonical Correlation Analysis

In addition to standard regression analysis, the predictor and criterion variables were further analyzed using the SPSS procedure for canonical correlation analysis. Canonical analysis evaluates how closely two sets of variables, a set of predictor variables and a set of criterion variables, measure individuals in the same multi-dimensional space, and whether the sets are in the same multi-dimensional space initially. The latter characteristic is indicated by the number of significant canonical correlations produced. In canonical correlation analysis it is also possible, as in factor analysis, for more than one dimension (factor) to be present.

For a technical discussion of canonical correlation, one may refer to Cooley and Lohnes (1962) and/or Morrison (1967).

The analysis could be performed only with those candidates for whom Global Performance Ratings were available, i.e., those from the jurisdictions. Academy grades for these candidates had to be retrieved. Usable data were obtained for 70 of the 89 officers tested in the jurisdictional sample. Information on an additional three officers came after the analysis had been performed.

The analysis was conducted in two ways. One used the Police Knowledge total score in the criterion set of variables, whereas, the second used Police Knowledge subpart scores rather than the total.

CONTINUED

1 OF 2

TABLE 13

PART A

CANONICAL CORRELATIONS USING A SUBSET OF JURISDICTIONAL OFFICERS 12/14/81 PAGE

FILE NONAME (CREATION DATE = 12/14/81)

- - - - - - - - - - - - - - - - C A N O N I C A L C O R R E L A T I O N - - - - - - - - - - RELATE LIST

NUMBER	EIGENVALUE	CANONICAL CORRELATION	WILK S LAMBDA	CHI-SQUARE	D.F.	SIGNIFICANCE
1	0.57107	0.75569	0.34128	67.19153	27	0.000
2	0.11712	0.34223	0.79564	14.28807	16	0.577
3	0.09881	0.31434	0.90119	6.50242	7	0.482

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

	CANVAR 1
P1OB	0.06686
P2FORMS	0.11445
P3PROB	-0.00324
P4CRIM	0.04891
P5SYLG	-0.03234
P6MAPS	0.46057
P7INDCT	0.37346
P8READ	0.13653
WRITING	0.20164

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1
CTOTL	0.31370
GLOBAL	-0.08065
A3FINAL	0.82537

TABLE 13

PART B

CANONICAL CORRELATIONS USING A SUBSET OF JURISDICTIONAL OFFICERS 12/14/81 PAGE

FILE NOVAME (CREATION DATE = 12/14/81)

- - - - - - - - - - - - - - - - CANONICAL CORRELATION - - - - - - - - - - RELATE LIST

NUMBER	EIGENVALUE	CANONICAL CORRELATION	WILK S LAMBDA	CHI-SQUARE	D.F.	SIGNIFICANCE
1	0.63053	0.79406	0.08103	148.26190	90	0.000
2	0.36883	0.60731	0.21932	89.51634	72	0.079
3	0.28145	0.53052	0.34748	62.36592	56	0.260
4	0.25266	0.50266	0.48359	42.86510	42	0.434
5	0.16481	0.40596	0.64708	25.68198	30	0.691
6	0.10577	0.32522	0.77476	15.05655	20	0.773
7	0.07889	0.28087	0.86640	8.46101	12	0.748
8	0.03618	0.19022	0.94060	3.61272	6	0.729
9	0.02408	0.15519	0.97592	1.43838	2	0.487

COEFFICIENTS FOR CANONICAL VARIABLES OF THE SECOND SET

	CANVAR 1		CANVAR 1
C1PTRL	-0.00598	P1OB	-0.05536
C2TRAF	0.22032	P2FORMS	0.18111
C3SRV	0.32655	P3PROB	-0.00526
C4MVA	0.13702	P4CRIM	-0.00690
C5INVST	0.08099	P5SYLG	-0.06339
C6ARRST	-0.05604	P6MAPS	0.39469
C7COURT	0.09652	P7INDCT	0.53452
C8SUPRT	0.07803	P8READ	0.12648
GLOBAL	-0.16928	WRITING	0.16066
A3FINAL	0.74365		

COEFFICIENTS FOR CANONICAL VARIABLES OF THE FIRST SET

Table 13, a reproduction of computer output, reports the results of the analysis. Part A gives results when the Police Knowledge total score was used; Part B reports results when the Police Knowledge subpart scores were used.

Inspection of the upper portion of Table 13 Part A shows several important results. The maximum canonical correlation, i.e., for the first dimension, is .76; significant beyond the .001 level. This is the only correlation that is significant, therefore, all the study variables can be said to be unidimensional. Additionally, both sets of variables--the predictors and criteria--are substantially related to one another.

The lower portion of the table reports the canonical coefficients for each variable. These may be interpreted as one interprets factor loadings in factor analysis. The important variables in the underlying factor are the Map, Inductive Reasoning, and Writing subparts of the predictor set and Police Knowledge (CTOTL) and Academic Grades (A3FINAL) in the criterion set. It is interesting to note the contribution of the Map and the Writing subparts which were not contributors in the standard regression analysis. As implied in the standard regression, Global Performance Rating is unrelated to the general set of variables.

Results shown in Table 13 Part B, as would be expected, are similar to results in Part A. Here, however, one can observe which subparts of the Police Knowledge Test are most related to the predictors. Two subparts stand out in this respect: Traffic Control and Enforcement of Traffic Laws and Service Calls. The overall canonical correlation, given the composition in Part B, is slightly higher than the corresponding coefficient in Part A.

Ethnic Comparisons

An implicit aim in developing a prototype selection test for police officers and other sensitive Civil Service titles, is to avoid "adverse impact". Such results have political implications but do not necessarily mean that the measures involved have inadequate psychometric properties. Several tables are presented to facilitate an evaluation of ethnic differences on the major variables of the study.

Table 14 summarizes results from a series of analyses of variance with ethnic classification as the single factor investigated. Also shown are the individual ethnic group means. Results of a posteriori comparisons are indicated by underscoring those means not significantly different from one another. In several instances, the a posteriori comparison failed to show any significant differences although the analysis of variance produced a significant F. To make the comparisons, a harmonic mean had to be computed because the number of cases per group varied considerably. This effectively reduced the power of the comparisons. In those cases, however, it is not unreasonable to infer that the mean for the group "Other" is in fact significantly higher than the mean for one or both of the minority groups.

Some important differences are evident in Table 14. Most notable are those for the subparts Observation and Reading Comprehension and for the total prototype selection test. For these variables, the mean, for "Other" is significantly higher than that for "Black". Generally, for the 15 variables examined, the mean for "other" is highest (13 of 15) and the mean for "Black" is lowest (11 of 15).

TABLE 14

COMPARISON OF RESULTS BY ETHNIC CLASSIFICATION [a]

	ANALYSIS OF VARIANCE				NEWMAN KEULS COMPARISON			
VARIABLE	MEAN SQ BETWEEN (df=2)	F	MEAN SQ WITHIN	df	MEANS Black	Hispanic	Other	
Observation	20.32	12.7***	1.59	289	9.5	10.4	10.7	
Police Forms	11.2	2.7ns	4.2	289	11.2	11.7	12.1	
Problem Solving	4.0	3.5ns	1.1	289	5.8	5.5	6.1	
Criminal Codes	7.5	5.0**	1.5	289	5.2	4.8	5.6	b
Syllogisms	1.8	3.5ns	0.5	289	2.7	3.2	3.1	
City Maps	13.7	2.1ns	6.5	289	4.6	4.7	5.4	
Inductive Reasoning	19.6	6.2**	3.2	289	5.7	5.9	6.7	b
Reading Comprehension	19.8	8.7***	2.3	289	5.0	5.7	6.2	
Writing	20.5	4.2ns	4.9	273	3.1	4.2	4.4	
Prototype Total	629.8	12.4***	50.6	289	49.7	51.9	56.1	
Police Knowledge Total	89.2	5.1**	17.5	282	21.6	21.9	23.9	b
Overall Academic Grade	18.3	5.0**	3.7	200	3.5	3.9	5.1	b
Global Performance Rating	0.7	0.3ns	2.1	86	3.4	3.3	3.6	
Regular Civil Service Written	7.8	1.1ns	3.6	124	4.9	4.7	5.4	
Regular Civil Service Physical Performance	9.4	1.1ns	4.2	68	5.6	6.0	4.9	

ns - not significant ** P<.01 ***P<.001

a A common underscore indicates no significant difference

b The Newman-Keuls procedure was applied using the harmonic mean for the number of cases per group. This greatly lessened the power of some a posteriori comparisons.

Table 15 compares means obtained from the regression equations (estimated means) and the observed (actual) means for each criterion measure by ethnic classification. The regression weights are those derived on the total group.

As expected, when there are significant differences between subgroups in a total population, those who do less well are over-predicted by regression equations and those who perform relatively better are underpredicted. This is manifested in Table 15 for the criteria Overall Academic Grade and Police Knowledge; the actual mean is higher than the estimated mean for the "Other" group while for the "Black" and "Hispanic" groups the estimated mean is higher than the actual. There is no special pattern for the Global Performance Rating criterion; there were no significant difference between ethnic classifications.

TABLE 15

COMPARISON OF CRITERION ESTIMATES
BY ETHNIC CLASSIFICATION

Criterion	Ethnic Classification	Estimated Criterion Mean[a]	Actual Criterion Mean
Global Performance Rating (Scale: 0 to 6)	Black	3.31	3.39
	Hispanic	3.23	3.27
	Other	3.43	3.60
Overall Academic Grade (Scale: 1 to 9)	Black	4.15	3.55
	Hispanic	4.69	3.88
	Other	5.12	5.13
Police Knowledge (Scale: 0 to 60)	Black	22.39	21.62
	Hispanic	22.70	21.94
	Other	23.72	23.87

[a] Estimates based on weights for the total group

SECTION VI

DISCUSSION AND CONCLUSIONS

This study had three objectives: to perform a job analysis; to develop a prototype selection test; and to conduct a concurrent validity study using the prototype selection test as the predictor. In this section each of the objectives is reviewed, some results are discussed, some issues are addressed, and several conclusions are drawn.

Job Analysis

The first major objective of the present study was to perform a job analysis of the entry level police officer title. This objective was attained effectively by extracting task statements from interviews with incumbent entry level officers or their superiors. Corroborative information was obtained, by some limited direct observation, riding in a unit with an entry level officer and his partner for three day and two night tours. Based on those observations, it was concluded that none of the information from interviews was misleading or grossly inaccurate. The direct observations provided a "feel" for the actual time involved in many important activities--something not acquired through the interviews.

Although the process of obtaining and evaluating KASO's was thorough, resulting indices or scores that affect test construction must be treated with caution. SME's are clearly knowledgeable with respect to their own areas of expertise; however, their training and experience does not equip them to extract or to describe job KASO's in the sense mandated by psychometric needs. Such

limitations are heightened with respect to a complicated and varied profession such as Police Officer. To overcome these shortcomings, the study's SME's were directed to select rather than to create KASO's. There was, however, no apparent strategy that could monitor unintentional distortions other than using consensus and forming averaged indices, as was done.

A useful outcome of this study, based largely on statistical results, is the direction given for future production of operational forms. With regression weights suggesting contribution, more efficient and effective test blueprints can be developed. Thus, test development need not rely solely on the subjectivity that accompanies development of tests by content analysis.

Development of the Prototype Selection Test

Establishing a pool of untried items can be a frustrating task. Until a trial with a sample of the population for whom the items are intended has been held and the results analyzed, the reliability and the difficulty of the items are unknown.

In this study, the prototype selection test was quite easy for the group. This suggests several interpretations. A pre-selected group of incumbents would be expected to have an easier time with these items than would an unselected candidate group, or it might have been by chance that the sample in the study was inordinately bright. There is no evidence that suggests or even implies the latter possibility; general experience supports the former explanation.

Based on the results of the test analysis, the Observation subpart should have shorter time limits and the Problem Solving subpart should have items with

less-obvious correct answers. The City Maps subpart, the most difficult for the group, probably should contain fewer items.

Aside from a section of one subpart consisting of letter sets for measuring inductive reasoning, and another subpart, Nonsense Syllogisms, for measuring deductive reasoning, the test is reasonably face valid. This judgement is drawn in spite of the fact that there is no ostensible index to reflect the property.

The remaining evidence in Section V leads to the judgement that the prototype examination is psychometrically sound.

Recommendations for Operational Testing

1. Written Selection Test. Information from the SME panel enabled us to judge the relative importance of the KASOs but was insufficient for determining subpart length, i.e., number of items. For this we would need item statistics, e.g., item variance. However, this in turn would require pre-testing the items; something the study could not accomplish.

Other factors were considered in estimating the number of items per subpart. These were the estimated time for candidates to respond to each item type, the ease (difficulty) of creating items for each type, maximization of use of elaborate stimuli such as city maps.

With the empirical data from three regression analyses and a canonical correlation, in addition to the KASO importance scores, we now have an improved data base on which to make decisions concerning subpart length. These information sources are given in Part A of Table 16.

TABLE 16

DERIVATION OF OPERATIONAL SUBPART WEIGHTS

Subpart	Part A: Sources — Regression beta weights by criteria[a]			Canonical Weights[b]	KASO Scores[c]	Part B: Proportions and Final Weights — Pooled Regression	Canonical	KASO	Final[d]
	Global Rating	Academic Grades	Police Knowledge						
Observation	.0	.140	.0	.067	534.1	.078	.048	.091	.07
Police Forms	.0	.216	.0	.114	534.1	.121	.081	.091	.10
Problem Solving	.0	.158	.0	.0	932.3	.088	.0	.159	.08
Criminal Codes	.258	.0	.155	.049	417.7	.230	.035	.071	.11
Syllogisms	.0	.159	.0	.0	417.7	.089	.0	.071	.05
City Maps	.0	.0	.0	.461	1460.5	.0	.329	.249	.19
Inductive Reasoning	.144	.0	.137	.373	632.4	.157	.266	.108	.18
Reading Comprehension	.0	.193	.232	.137	350.4	.237	.098	.060	.13
Writing	.0	.0	.0	.202	596.8	.0	.144	.102	.08
Sums	.402	.866	.524	1.403	5876.0	1.000	1.000	1.000	1.00

[a] Corresponding to B weights of the Total Group in Table 12.

[b] From weights in Table 13, Part A. Negative weights given a zero.

[c] From Table 5, Part A, distributed evenly to subparts measuring the KASO.

[d] Based on equal contribution from regression, canonical, and KASO score results.

For each entry in Part A, the proportional contribution to the column sum was computed. This is shown in Part B. The regression data have been pooled in order that they contribute the same weight to the final proportions as do the other two information sources. Each final proportion is the average of the pooled regression, canonical, and KASO proportions for the subpart. These may serve as a starting print for determining the number of items per subpart for the next operational form, assuming that the same content areas will be retained. They are not intended as rigid specifications but rather as reasonable guides to sharpened judgement.

2. Physical Performance Test. The recommendation is to continue using the PPT as a qualifying examination. This is based on two major considerations. First, the panel of police experts has clearly designated specified physical KASOs (measured by the PPT) as being required for the entry-level police officer job. Second, the lack of a statistical relation between physical test scores and criterion scores in this study vitiates the use of the PPT for ranking.

An additional recommendation is made in regard to establishing an appropriate cut-off socre for the physical performance test. A panel of police representing sex and ethnic categories would observe a standardized sample of physical performance of a group of candidates (using audio-visual media) and render judgements regarding quality of performance. A similar approach has been employed successfully in other areas to establish cut-off points for written examinations.

Concurrent Validity

In this study, concurrent validity of the prototype selection test was clearly established and cross validated, using Overall Academic Grade at six police academies as a criterion. Concurrent validity was also established and cross validated, using police knowledge scores on a written multiple choice test as a criterion; although the magnitude of the multiple correlation was not as high for the former. One reason for the somewhat lower result with the police knowledge criterion is its difficulty which constricted its variance, thereby reducing discrimination between relatively high and relatively low performers.

A significant correlation (validity) was observed for the Global Job Performance Rating only for the full sample of 89 candidates. The results with the job performance rating generally are disappointing but not surprising.

Poland (1978) in his extensive review of police selection methods and the prediction of police performance does not have kind things to say or to report about performance ratings. In reviewing a study by Dubois and Watson, Poland reports the authors' conclusion that tests based on supervisory ratings are poor predictors. Supervisory ratings are considered to be ambiguous and dependent on personalities. Further, the performance appraisal formats are thought to be inadequate because nonperformance factors might greatly influence the rater. In concluding his general review, Poland laments the lack of attention given to job performance measures and casts general aspersions on overall ratings of police effectiveness and other indicators of dubious objectivity such as commendations or disciplinary actions.

Seemingly, as a response to Poland's contention, Lee et. al. (1981) analyzed performance ratings for law enforcement personnel using a multi-trait, multi-method, multi-rater approach (MTMM). Although Lee found significant subject-by-trait interactions which implied that differential ratings were made on subjects--(discriminant validity on different traits), he found a substantial rater bias, or strong halo effect. He posited that the halo effect may in fact be a general factor (global) rather than an error.

Somewhat in accordance with Lee's position regarding a general factor, this study used a global rating, for simplicity and to encourage a thoughtful response, as discussed in Section III. The ratings obtained are analogous to grades given in school or college, i.e., A, B, C, etc. In the present case, however, a frame of reference or scale consistency was attempted by defining the rating categories to control the frequency of each scale value. Results indicate a good deal of success in that respect. Table 17 compares the distribution of observed ratings with the theoretical distribution that would have occurred had the raters adhered strictly to the guidelines.

An inspection of the frequencies of both distributions shows that raters tended to give too many ratings at the high end and too few at the low end. The difference between the distributions is significant at the .05 level.

Had we been able to obtain a second rating for each candidate, we would have been able to estimate inter-rater reliability. However, there was no way to insure the availability of an appropriate second rater, or to standardize the collection of ratings, or to establish a system to monitor the independence of judgement. Such aims require special research strategies and procedures.

TABLE 17

COMPARISION OF OBSERVED GLOBAL JOB PERFORMANCE RATINGS AND THEORETICAL FREQUENCIES IMPLIED BY INSTRUCTIONS TO RATERS, USING THE KOLMOLGOROV-SMIRNOV ONE SAMPLE TEST

Rating Frequencies

Rating	Observed Frequency	Theoretical Frequency	Frame of Reference
6	10 (89)[a]	3.6 (96)	1 in 25 officers
5	14 (73)	10.7 (84)	3 in 25 officers
4	14 (57)	17.8 (64)	5 in 25 officers
3	33 (20)	24.9 (36)	7 in 25 officers
2	11 (8)	17.8 (16)	5 in 25 officers
1	6 (1)	10.7 (4)	3 in 25 officers
0	1 (0)	3.6 (0)	1 in 25 officers

D_{k-s} = .16 Critical D value (.05) = .144, N = 89

Critical D value (.01) = .172, N = 89

[a] Cumulative percent below is given in parentheses

In Poland's general criticism of past studies, he stresses the need for total selection systems. Presumably he means selection based on a number of sources such as personality factors, biographical background, mental and physical abilities. Unfortunately, such systems cannot be mandated under Civil Service, for obvious reasons of subjectivity and political controversy. The position taken in this study is to supply as much valid selection information as possible within the limitations imposed. Considering the characteristic restriction of range that accompanies concurrent validity efforts, this study has produced convincing evidence of the ability of cognitive tests to predict success in police training academies. The prototype test produced a validity index of .55 double cross validated at .49 and .42; all significant beyond the .01 level. A canonical correlation of .76 provides additional corroboration.

To a large extent the results were obtained not only as a function of the variables submitted to analysis but also due to slight chance differences or observed rank order of those variables. Although the stepwise regression analysis ignored several of the predictor variables, they were subsequently picked up by the canonical correlation--thus demonstrating that all of the study's predictors do contribute information useful in selection. This is not to say that the number or nature of other cognitive variables would not either predict as well or enhance the prediction already demonstrated. What is manifested is the choice and format of items that are valid (face, content, and criterion related) for police selection.

Further Considerations and Issues

Minority candidates in the study consistently performed less well than the "Other" (Caucasian) group. While ethnic differences in individual subparts of the written tests were small, the overall effect on total scores is sufficiently

marked so that in a regular administration to a typical candidate population "adverse impact" might be anticipated. Again, these results are disappointing but hardly surprising, considering the history of selection testing since World War I. "Adverse impact" per se is not a violation of the EEOC guidelines, if a test is demonstrated to be job related.

One question that arises is whether there was sufficient representation of minorities in this study to warrant any inferences pertaining to performance differences among ethnic groups. To address this possibility, the proportions of the study's minorities were compared with those of a recent testing for municipal police officer. Table 18 reports the number and percent of candidates who sat for the regular Civil Service Test in November, 1981, by ethnic composition, and the corresponding counts in the present study. Although minorities are somewhat underrepresented, the non-significant Chi Square value shows that the study's ethnic composition is not too dissimilar to that of a regular testing.

Also disappointing is the finding that the Civil Service Physical Performance test did not correlate with ratings of job performance. There are several reasons possible (not mutually exclusive). All the candidates in the study, as entry level officers, are presently in good physical condition. They had already passed the regular Civil Service Physical Performance Test. Although police work requires the performance of critical physical tasks relatively infrequently, it is not likely that candidates who could not pass a qualifying physical, would be able to perform adequately when those abilities were required. Therefore, it seems reasonable to retain the physical performance test as part of the selection examination, on a qualifying--not ranking--basis. While this conclusion is implicitly supported by the SME panel, it cannot be

TABLE 18

ETHNIC COMPOSITION COMPARISON BETWEEN A CIVIL SERVICE TESTING AND THE POLICE VALIDATION STUDY

Ethnic	Number and Percent of Candidates	
	Civil Service Exam November, 1981	Police Validation Study
Black	372 (17)[a]	30 (10)
Hispanic	197 (10)	19 (7)
Other	1560 (73)	243 (83)
Totals	2129 (100)	292 (100)

Chi Square (Goodness of Fit) = 2.985, df= 2

[a] Percentage of column total in parentheses

demonstrated in a concurrent validity effort. Additionally, the job performance ratings probably depend on factors such as interpersonal skills, attitudes, and cooperativeness--characteristics which, at present, Civil Service is precluded from assessing.

General Concluding Statement

A prototype police selection examination has been developed and demonstrated to be statistically valid for predicting relative success in police academies and in the acquisition of police knowledge. The Civil Service Physical Performance examination has been validated by content and by judged need according to the study's advisory panel.

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APPENDIX A

PARTICIPATION BY DEPARTMENT, ACADEMY, AND ORGANIZATION IN POLICE OFFICER VALIDATION STUDY

PARTICIPATION BY DEPARTMENT, ACADEMY AND ORGANIZATION IN POLICE OFFICER STUDY

	Advisory Panel Meetings 8/7/79	4/18/80	Job Analysis Interviews	Task Statement Evaluation Survey	Testing
DEPARTMENTS					
Atlantic City	X		3		6
Bayonne		X		X	
Beachwood Boro		X		X	
Berkeley Twp.	X		1	X	3
Bloomfield					2
Bordentown Twp.			1		
Bridgeton				X	
Brooklawn Boro				X	
Buena Boro			1		
Burlington City	X		1	X	4
Burlington Twp.					2
Byram Twp.				X	
Camden	X			X	
Cinnaminson Twp.				X	2
Clark Twp.	X		1	X	
Clifton			1	X	3
Delanco Twp.				X	2
Dover	X	X	1	X	
East Orange				X	3
Edgewater Boro				X	
Edgewater Park Twp.				X	
Elizabeth	X	X	1	X	3
Essex County				X	
Ewing Twp.	X		1	X	3
Fair Lawn Boro		X		X	
Fort Lee Boro				X	
Franklin Twp.	X			X	
Freehold Boro	X		1		
Freehold Twp.				X	
Garfield				X	
Gloucester Twp.			1		2
Hillside Twp.				X	
Holmdel Twp.				X	
Hopatcong Boro				X	
Irvington					2
Jackson Twp.				X	
Jersey City	X	X		X	
Keansburg Boro				X	
Kearny			1	X	
Keyport Boro				X	
Lacey Twp.		X	1	X	3
Lakewood Twp.		X	1	X	
Lavallette Boro				X	
Linden				X	
Lindenwold Boro	X		1		
Lopatcong Twp.		X		X	
Long Beach Twp.				X	
Magnolia Boro				X	
Manasquan Boro		X		X	

	Advisory Panel Meetings 8/7/79	4/18/80	Job Analysis Interviews	Task Statement Evaluation Survey	Testing
Maple Shade Twp.				X	
Middle Twp.				X	
Middletown Twp.				X	2
Millburn Twp.				X	
Millville	X	X	1	X	5
Montville Twp.			1	X	
Mount Laurel Twp.				X	
New Brunswick	X	X	1	X	
Newark		X	3	X	
Newton				X	
North Arlington Boro				X	
North Wildwood				X	
Oakland Boro				X	
Ocean City	X		1	X	
Ogdensburg Boro				X	
Orange			1	X	3
Parsippany-Troy Hills Twp.	X		1		3
Passaic	X		1	X	3
Paterson	X		2		
Pennsauken Twp.	X	X	1	X	3
Perth Amboy	X	X	1	X	
Phillipsburg				X	
Plainfield				X	
Pohatcong Twp.				X	
Point Pleasant Beach Boro			1		
Point Pleasant Boro			1	X	
Pompton Lakes Boro				X	1
Rahway		X		X	
Ringwood Boro			1		
Riverside Twp.				X	
Rutherford Boro				X	
Scotch Plains Twp.			1		
Somerdale Boro				X	
Sparta Twp.			1	X	2
Teaneck Twp.	X	X		X	6
Trenton	X		1	X	
Union Twp.		X		X	
Vernon Twp.				X	
Vineland		X	1	X	3
Voorhees Twp.			1		
Wallington Boro				X	
Wanaque Boro			1	X	
Washington Boro	X	X	1	X	
West Milford Twp.			1	X	2
West New York			1		
West Orange		X	1	X	
West Paterson Boro				X	
Wildwood			1		
Willingboro Twp.			1	X	4
Woodbridge Twp.	X		1	X	3
Wood Ridge Boro				X	

	Advisory Panel Meeting 8/7/79	4/18/80	Job Analysis Interviews	Task Statement Evaluation Survey	Testing
ACADEMIES					
Atlantic County Police Academy					17
Bergen County Police & Fire Academy		X		X	
Burlington County Police Academy	X			X	32
Camden Police Academy					14
Essex County Police Academy	X				17
Middlesex County Police Academy					27
Morris County Fire Fighters & Police Training School	X				
New Jersey State Police Training Center (Sea Girt)	X	X		X	
Ocean County Police Academy	X				
Trenton Police Academy	X				
Union County Police Chiefs Training Academy				X	
ORGANIZATIONS					
New Jersey Police Training Commission	X	X		X	
New Jersey State Policemen's Benevolent Assoc., Inc.	X	X			
New Jersey State Association of Chiefs of Police, Inc.	X				
New Jersey State Lodge of the Fraternal Order of police	X	X			
South Jersey Police Chiefs Association				X	
Mercer County Department of Public Safety	X				

APPENDIX B

POLICE OFFICER ADVISORY PANEL MEETINGS

APPENDIX B-1

PARTICIPANTS AT ADVISORY PANEL MEETING

AUGUST 7, 1979

Name	Jurisdiction or Organization
James R. Allison, Municipal Administrator	Dover
Officer Dale Baker	New Brunswick P.D.
Director Joseph Brennan	Elizabeth P.D.
Chief Samuel R. Britton	Berkeley Township P.D.
Sergeant William Buckwald	New Jersey State Police
Sergeant William R. Burlew	Freehold Boro P.D.
Chief George L. Clayton	City of Burlington P.D.
Deputy Chief Sam Costantino	Jersey City P.D.
Captain Robert Errick	Teaneck P.D.
Sergeant Dennis Evans	Camden P.D.
Mayor John T. Fahy	Parsippany-Troy Hills
Sergeant Eric Fontana	Trenton P.D.
Chief Elwood P. Fox	Parsippany-Troy Hills P.D.
Deputy Chief John Fritz	Jersey City P.D.
Sergeant James M. Geddis	Franklin Township P.D. (Somerset Co.)
Sergeant John J. Gilchrist	Pennsauken Township P.D.
Sergeant Joseph F. Hall	Pennsauken Township P.D.
Captain Richard M. Hibbs	Freehold Boro P.D.
Chief Kenneth A. Hill	Passaic P.D.
Captain Robert Hurley	Pennsauken Township P.D.
Monroe Kokin	New Jersey State P.B.A.
Chief James Lawless	Paterson P.D.
Captain Dominick A. Limone	Trenton Police Academy
Captain Harry Lord	Ocean City P.D.
Chief Patrick J. Maloney	Elizabeth P.D.
William T. McGoldrick	N.J. Police Training Commission
Lieutenant Clarence Morris	Ewing Township P.D.
Director Edward P. Mullen	Morris County Police Academy
Lieutenant Louis Napoletani	Perth Amboy P.D.
Chief Anthony O'Brien	Woodbridge P.D.
Chief Theodore Polhamus	N.J. State Chiefs of Police Assoc.
Chief Paul L. Quinn	Millville P.D.
Captain Nicholas Rifice	Atlantic City P.D.
Lieutenant Robert J. Robbins	Lindenwold P.D.
Chief E. J. Skoog	N.J. Fraternal Order of Police
Chief Anthony T. Smar	Washington P.D.
Director Leon H. Smith	Clark P.D.
Director James Tracey	Mercer County Department of Public Safety
Director Henry J. Van Brundt	Ocean County Police Academy
David Vechesky	Burlington County Public Safety
Lieutenant Ernest A. Williams	City of Burlington
	Trenton P.D.

APPENDIX B-2

MINUTES OF THE POLICE ADVISORY PANEL MEETING

AUGUST 7, 1979

The first meeting of the Police Advisory Panel was held August 7, 1979, at the Center for Health Affairs in Princeton, New Jersey. In addition to representatives from the Department of Civil Service and the Department of Law and Public Safety, forty-two representatives from police jurisdictions, organizations, and training academies were in attendance. The meeting was chaired by Dr. Leo Goldstein from the Division of Examinations.

After greetings from several officers of the Department of Civil Service, Dr. Goldstein gave a brief overview and Dr. Wexler gave a more detailed description of the validation study. Then the meeting was opened to the floor for questions for discussion.

A number of exchanges were made pertaining to several issues stemming from procedures of the Civil Service Commission. One issue addressed was the recent ruling on the educational level required for police officer candidates. Most of the comments from the police representatives supported increased educational requirements to enhance the professional image associated with being a police officer. Several speakers expressed opinions in opposition to requiring college credits or degrees but, instead, supported upgrading of performance evaluation standards. Another issue was related to problems of psychological screening and the related appeal process.

Other remarks, more germane to the purpose of the meeting, expressed concern that officers with two years or less experience would not be able, in the planned job analysis interviews, to adequately depict the tasks performed by police officers. A suggestion was made that experienced police officers accompany (and participate in) some of the interviews to be conducted by Civil Service personnel. Eight members of the advisory panel indicated their willingness to participate as observers/advisors.

Several related outside studies (or reports) were recommended as being of possible value to the study. Some of these are already known to Civil Service, others will be read and reviewed. Dr. Wexler requested the advisory members to bring to his attention other reports or studies which could assist the validation study project.

The meeting was adjourned at approximately 12:30 P.M.

APPENDIX B-3

PARTICIPANTS AT ADVISORY PANEL MEETING

APRIL 18, 1980

Rank and Name	Jurisdiction or Organization
Chief Edward S. Adamski	Bayonne P.D.
Officer Dale Baker	New Brunswick P.D.
Lieutenant Alphonso Battaglino	West Orange P.D.
Gerald Blessing	Bergen County Police Academy
Sergeant William Buckwald	New Jersey State Police
Lieutenant Guy Buscemi	Vineland P.D.
	N.J. Fraternal Order of Police
Chief Earl Clymer, Sr.	Lopatcong Township P.D.
Deputy Chief Sam Costantino	Jersey City P.D.
Leo A. Culloo	N.J. Police Training Commission
Chief Thomas Darmody	Lacey Township P.D.
Captain Robert Errick	Teaneck P.D.
Lieutenant James A. Forcinito	Vineland P.D.
	N.J. Fraternal Order of Police
Sergeant John J. Gilchrist	Pennsauken Township P.D.
Captain Allen A. Herman	Jersey City P.D.
Officer P. Horutz	Dover P.D.
Captain Robert Hurley	Pennsauken Township P.D.
Monroe Kokin	New Jersey State P.B.A.
Chief Paul R. LaVance	Manasquan P.D.
Chief Patrick J. Maloney	Elizabeth P.D.
William T. McGoldrick	N.J. Police Training Commission
Lieutenant Robert A. Moore	Perth Amboy P.D.
Lieutenant Thomas Nowelsky	Union Township P.D.
Sergeant Louis A. Pintaro	Lakewood P.D.
Captain Richard Polhemus	Fairlawn P.D.
Deputy Chief Michael Prisco	Lakewood P.D.
Chief Paul L. Quinn	Millville P.D.
Sergeant Robert Sabo	Jersey City P.D.
Captain Paul R. Shuster	Rahway P.D.
Chief E. J. Skoog	Washington P.D.
Captain Joseph Snyder	Plainfield P.D.
Detective John Szczyglinski	West Orange P.D.
Sergeant John Wagner	Beachwood P.D.
Captain Robert Warmington	Newark P.D.

APPENDIX C

SAMPLE ABSTRACT FROM THE NATIONAL INSTITUTE

OF LAW ENFORCEMENT

79.72

** DOCUMENT 72 **

ACCESSION NUMBER:.... 09900.00.C18200
JOB ANALYSIS OF THE POSITION OF UNIFORMED POLICE OFFICER
PUBLICATION DATE: 75 PAGES: 180
AUTHOR(S): MCGOWNAN, H. E. RILEY, G. M.
CORPORATE AUTHOR: PORTLAND (OR) BUREAU OF POLICE
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ANNOTATION:
AN EXAMINATION OF UNIFORMED POLICE OPERATIONS USING THE FUNCTIONAL JOB ANALYSIS METHOD PRODUCED 91 TASK STATEMENTS WHICH PROVIDE TASK DESCRIPTIONS AND INDICATE NECESSARY KNOWLEDGE, SKILLS, AND ABILITIES.

ABSTRACT:
THE DEVELOPMENT OF THIS JOB ANALYSIS PROJECT IS DESCRIBED FROM THE INTITIAL PROPOSAL THROUGH THE SEVERAL REVISIONS OF THE FINAL TASK STATEMENTS. EXTENSIVE INFORMATION ON JOB ACTIVITIES WAS GATHERED BY MEANS OF CLASSIFICATION QUESTIONNAIRES, JOB OBSERVATION, INTERVIEWS AND A REVIEW OF WRITTEN MATERIALS. THIS DATA WAS THEN ANALYZED USING THE FUNCTIONAL JOB ANALYSIS METHOD. ONCE TASK STATEMENTS WERE FINALIZED, THE KNOWLEDGE, SKILLS AND ABILITIES (KSA'S) NEEDED TO PERFORM THE TASKS WERE DETERMINED. BOTH FUNCTIONAL (GENERAL) AND SPECIFIC SKILLS WERE INDICATED. EIGHT GENERAL CATEGORIES OF KSA'S WERE USED: INTERPERSONAL RELATIONS, COMMUNICATIONS, PHYSICAL ABILITIES AND ATTRIBUTES, REASONING ABILITIES, ORAL COMPREHENSION, MEMORY, JUDGMENT, AND READING COMPREHENSION. THIS DOCUMENT LISTS THE JOB STATEMENTS BY CATEGORY WITH A BRIEF DESCRIPTION OF EACH CATEGORY AND INCLUDES A MATRIX ILLISTRATING THE RELATIONSHIP BETWEEN KSA'S AND THE TASK. RESULTS OF A SEPARATE JOB FACTOR QUESTIONNAIRE ARE ALSO INCLUDED.

APPENDIX D

JOB ANALYSIS INTERVIEWS

JOB ANALYSIS INTERVIEWS BY

GEOGRAPHIC REGION, SEX, AND ETHNIC CLASSIFICATION

JURISDICTION	NUMBER INTERVIEWED	SEX M	SEX F	ETHNIC CLASSIFICATION BLACK	HISPANIC	OTHER
Region 1						
Clark Twp.	1	1				1
Clifton	1	1				1
Elizabeth	1		1			1
Kearney	1	1				1
Newark	3	3				3
New Brunswick	1	1				1
Orange	1	1				1
Passaic	1	1		1		
Paterson	2	2		2		
Perth Amboy	1		1			1
Scotch Plains Twp.	1	1				1
West New York	1	1			1	
West Orange	1	1				1
Woodbridge	1	1				1
Region 2						
Bordentown Twp.	1	1				1
Burlington City	1	1				1
Ewing Twp.	1	1				1
Gloucester Twp.	1		1			1
Lindenwold Boro	1	1				1
Pennsauken	1	1		1		
Trenton	1	1		1		
Voorhees Twp.	1	1				1
Willingboro Twp.	1	1		1		
Region 3						
Atlantic City	5	4	1	2		3
Ocean City	1	1				1
Pt. Pleasant Beach	1	1				1
Pt. Pleasant Boro	1	1				1
Wildwood	1	1				1
Region 4						
Dover	1	1				1
Montville Twp.	1	1				1
Parsippany-Troy Hills Twp.	1	1				1
Ringwood Boro	1	1				1
Sparta Twp.	1	1				1
Wanaque Boro	1	1				1
Washington Boro	1	1				1
West Milford Twp.	1	1				1
Region 5						
Buena Boro	1	1			1	
Millville	1	1				1
Vineland	1	1				1
Region 6						
Berkeley Twp.	1	1				1
Freehold Boro	1	1				1
Lacey Twp.	1	1				1
Lakewood Twp.	1	1			1	
Totals	50	46	4	8	3	39

APPENDIX E

TASK STATEMENTS BY PERFORMANCE AREAS

FREQUENCY AND CRITICALITY OF TASK PERFORMANCE RATINGS

TASK STATEMENT EVALUATIONS

Task Statements	Frequency Score	Criticality Score	Final Task Index
A: PREPARATION FOR WORK			
A-1 Attends roll call in proper uniform, listening to information and assignments given orally, and reads "squeal sheet", bulletin board, and/or logs of previous shifts, in order to establish presence, receive assignments, and to maintain continuity of service or action.	3.0	2.4	10.2
A-2 Gathers together necessary equipment such as shotgun, flashlight, summons books, etc. in order to be prepared for duty.	3.0	2.6	10.8
A-3 Inspects and maintains patrol car by visually checking and/or operating all equipment, by arranging for washing, waxing, and mechanical service, and by taking patrol car to service location in order to insure that vehicle is ready for patrol.	2.6	2.5	10.1
A-4 Inventories and maintains equipment carried in patrol car such as first aid kit, oxygen supply, blanket, flares, etc., by utilizing an equipment check list and by replacing missing or damaged items, in order to assure readiness for patrol.	2.8	2.5	10.3
A-5 Maintains issued uniform and weapons by arranging for cleaning, and reassembling firearms, in order to assure their proper appearance and serviceability.	2.7	2.3	9.6
A-6 Fires weapons periodically at the firing range in order to maintain proficiency.	1.6	2.7	9.7
A-7 Participates in continuing training programs and independently studies all police subjects (e.g.			

criminal code, firearms training, driving, etc.) by attending class and studying manuals and other materials in order to improve and update skills and knowledge.	1.8	2.3	8.7
B: FIGHTS AND DOMESTIC DISPUTES			
B-1 Separates parties involved in a fight situation by physically intervening or escorting one party out of reach of the other, in order to prevent injury to any of the parties involved.	2.5	2.8	10.9
B-2 Attempts to calm parties involved in a fight situation by asking each party to tell or discuss his or her side, in order to gain control of the situation.	2.4	2.5	9.9
B-3 Discusses possible solutions with parties involved in a dispute by referring parties to appropriate services and explaining legal recourse, in order to fully resolve the dispute or prevent its recurrence.	2.4	1.9	8.1
B-4 Arrests one or more parties in a fight situation, by using standard procedures, in order to restore peace.	2.1	2.6	9.9
C: GENERAL PATROL			
C-1 Patrols throughout assigned area either on foot or in patrol car, looking for anything unusual, in order to increase Patrol visibility and prevent crime or to discover crime in progress.	3.0	2.5	10.5
C-2 Maintains radio communications with headquarters by operating walky-talky or patrol car radio in order to facilitate Patrol activities.	3.0	3.0	12.0
C-3 Assesses situations by utilizing information received from the dispatcher and by visually and aurally inspecting premises and surrounding evironment, in order to make decisions concerning choice of actions and equipment.	2.8	2.7	10.9

C-4	Issues summons for various violations of municipal ordinances and state laws by writing the required information on summons and delivering a copy to the accused, in order to enforce the law.	3.0	1.8	8.4
C-5	Facilitates the remediation of miscellaneous hazardous conditions (e.g. road obstructions, malfunctioning signals, etc.) by direct action or by notifying appropriate agencies, in order to restore safe conditions in the assigned sector.	2.8	3.0	11.8
C-6	Maintains surveillance of persons suspected of unlawful activity and notifies supervisor or detectives of important information, in order to facilitate the investigative procedure.	2.5	2.3	9.4
C-7	Reports or receives description(s) of suspect(s) at large by radio transmission in response to, or back-up for, criminal actions, in order to aid or to enlist aid of fellow officers in the apprehension of suspects/perpetrators.	2.8	2.8	11.2
C-8	Following legal guidelines, stops suspicious people; asks them to show identification and to explain what they are doing, in order to detect or prevent a criminal action.	2.7	2.2	9.3
C-9	Attempts to disarm persons threatening others with a weapon by using calming conversation and obtaining assistance, in order to neutralize a dangerous situation.	1.2	3.0	10.2
C-10	Secures the scene of a crime or emergency by blocking off the area with barricades, ropes, etc. and by standing guard; in order to prevent damage, loss, or injury.	2.2	2.7	10.3
C-11	Records patrol activities by filling out log sheet after each call in order to account for actions, mileage, and time on a daily basis.	2.7	1.7	7.8

D: SERVICE CALLS

D-1	Promotes good will by talking casually with people, answering questions, referring citizens to other services, and learning of situations requiring police action, in order to gain the confidence and support of community members.	2.7	1.7	7.8
D-2	Controls crowd at emergency scene, following established procedures, in order to insure that emergency services can be performed quickly and safely.	2.2	2.8	10.6
D-3	Assists in evacuation of buildings or areas by orally ordering people to leave or by physically escorting them from the area, in order to remove them from danger.	1.7	3.0	10.7
D-4	Examines ill or injured persons and administers the appropriate first aid treatment in order to prevent further injury or loss of life.	2.2	3.0	11.2
D-5	Guards dignitaries by continuously positioning self in a manner to most effectively provide protection, in order to assure safe passage through the area.	1.0	3.0	10.0
D-6	Escorts businessmen to and/or from the bank and frightened citizens to their destination by taking them in the patrol car or by walking with them, in order to provide protection.	1.8	2.3	8.7
D-7	Gives assistance to operators of disabled vehicles by repairing vehicle or obtaining necessary repair service, or by transporting driver and occupants to a place where shelter or assistance can be obtained, in order to alleviate a potentially dangerous situation.	2.3	2.0	8.3
D-8	Returns lost children by interrogating passers-by and responsibile persons in the area where children were discovered, in order to restore the children to the			

	custody of their parents or guardians.	1.7	2.0	7.7
D-9	Transports or escorts intoxicated persons home or to the hospital in order to assure their safety.	1.7	2.2	8.3
D-10	Blocks suicide attempts by talking to persons threatening and/or attempting suicide, comforting and reassuring them, in order to convince them to give up the suicide attempt.	1.2	3.0	10.2
D-11	Assists citizens in gaining entry to their vehicles or home when a lock-out has occurred, using improvised means, in order to provide a necessary service.	2.5	1.5	7.0
E	TRAFFIC CONTROL AND ENFORCEMENT OF TRAFFIC LAWS			
E-1	Directs or re-routes vehicle and pedestrian traffic at emergency scenes at high volume traffic locations, and at school crossings; using hand signals, flares, and/or barricades, in order to insure the safety of pedestrians and the smooth flow of traffic.	2.8	2.9	11.5
E-2	Drives patrol car in an unspecified pattern and at varying speeds in order to increase police visibility and to discourage traffic violations and other such occurrences.	3.0	1.6	7.8
E-3	Operates radar equipment in patrol unit in order to apprehend speeding law violators.	2.2	1.6	7.0
E-4	Pursues detected traffic violators by using patrol vehicle and equipment as required in order to apprehend violators.	2.9	2.4	10.1
E-5	Reports action after apprehending traffic violator to the dispatcher, using the radio, in order to communicate the location, request back-up (if required), and to request motor vehicle and warrant check.	2.9	2.6	10.7

E-6	Interviews or interrogates motor vehicle operators and visually inspects operator's license, vehicle registration, and proof of insurance card, in order to obtain information and admission or confession to violations of motor vehicle code.	3.0	1.4	7.2
E-7	Evaluates statements, facts, and evidence to determine if a traffic ticket should be issued as a result of an operator's actions.	3.0	1.1	6.3
E-8	Warns motor vehicle operators of observed traffic violations by orally informing them of their actions and explaining related provisions of the motor vehicle code, in order to discourage future violations.	2.9	1.6	7.7
E-9	Issues traffic summons to observed traffic violators by writing the required information on the summons, giving the violator his copy, and explaining the violation and procedure for compliance, in order to enforce traffic regulations.	2.9	1.4	7.1
E-10	Observes behavior and administers appropriate test(s) to suspected violators in order to determine whether they are under the influence of drugs, narcotics, or alcohol.	2.2	2.6	10.0
F	MOTOR VEHICLE ACCIDENTS			
F-1	Summons ambulance, wrecker, or other emergency equipment needed at an accident scene, in order to provide the necessary services as quickly as possible.	2.9	3.0	11.9
F-2	Protects accident scene from disturbance by appropriately positioning police car and by lighting and placing flares at strategic locations, in order to divert traffic and to prevent further destruction or removal of evidence.	2.9	3.0	11.9

F-3	Removes (or assists in removing) dead or injured from wrecked and/or overturned vehicles by manually lifting them.	2.3	3.0	11.3
F-4	Transports motor vehicle accident victims to the hospital, when no other emergency vehicle is available, in order to minimize time lost in receiving necessary medical treatment.	1.4	3.0	10.4
F-5	Identifies, protects and documents any short-lived evidence found at the accident scene, using approved departmental procedures, in order to prevent evidence from being overlooked or destroyed.	2.2	2.2	8.8
F-6	Inspects and/or operates devices (lights, brakes, steering, tires, etc.) of vehicles involved in accidents to determine if their operating condition contributed to the cause of the accident.	1.4	2.0	7.4
F-7	At the scene of a motor vehicle accident, interviews operators, occupants, and witnesses, using simple interviewing techniques and writing notes of important information, in order to help determine how, when, and why the accident occurred.	2.9	1.9	8.6
F-8	Explains procedures that motor vehicles operators should follow concerning insurance claims and filing accident forms.	2.4	1.1	5.7
F-9	Evaluates statements, facts and evidence gathered at a motor vehicle accident scene in order to determine if a summons should be issued.	3.0	1.8	8.4
F-10	Measures the distance from the accident vehicles and markings made by the vehicles to fixed points (mile post markers, nearest intersection, city limits, etc.) using a tape measure or measuring wheel, in order to determine the exact location and possible cause of the accident.	2.1	1.8	7.5

F-11	Sketches a rough diagram of the accident scene, showing movement of vehicles and pedestrians before and after impact and location of physical evidence, in order to record this information for future investigation.	2.6	1.9	8.3
F-12	Completes accident report forms by printing or typing data gained from accident investigation (including a short narrative and a diagram of the accident), in order to officially record the results of the investigation and to provide information to all parties involved.	2.9	1.8	8.3
F-13	Transports blood or urine samples of motor vehicle operators to police labs, in cases of suspicious auto accidents, in order to obtain evidence as to whether the operator was driving under the influence of drugs (narcotics).	1.4	1.9	7.1

G INVESTIGATIONS

G-1	Locates and interrogates available witnesses after an incident by talking with people in the area, in order to obtain information for further investigation.	2.3	2.4	9.5
G-2	Makes notes of activities and facts of initial investigations in order to record information for future reference.	2.6	2.4	9.8
G-3	Collects and labels evidence taken from the crime scene, using approved departmental procedures, in order to preserve evidence.	1.9	2.8	10.3
G-4	Relates suspicious activities and other important information to detectives by direct or written communication, in order to facilitate the investigative process.	2.0	2.0	8.0
G-5	Takes photographs, or directs a photographer to take specific pictures, at a crime scene in order to establish visual evidence.	1.0	2.6	8.8

G-6 Searches property involved in criminal incidents by visual inspection and by disassembling property items, when necessary, in order to discover dangerous objects, missing items, or other evidence.	2.0	2.8	10.4
G-7 Attempts to locate owners of damaged property by utilizing existing records and/or questioning area residents, in order to inform the owner of the damage and to obtain information.	1.8	1.4	6.0
G-8 Assists victims in the use of the "mug" book in order to make identification of suspects.	1.1	1.6	5.9
G-9 Prepares property report on items to be used as evidence in order to document its existence, characteristics, and availability.	2.3	2.2	8.9
G-10 Prepares investigative reports or supplements for each phase of an investigation, in order to provide an official running record of the investigation.	2.0	2.8	10.4
G-11 Completes "request for examination of evidence" forms, including a narrative description of the crime and a checklist of evidence, in order to insure a thorough analysis of the evidence.	1.3	2.6	9.1
H ARRESTS			
H-1 Apprehends and subdues suspects by chasing them on foot or in patrol car and by using physical force and applying handcuffs, if necessary, in order to take suspect into custody and to prevent injury to the officer or others.	2.2	3.0	11.2
H-2 Searches the body and clothing of suspects for possible weapons, using visual and physical means, in order to insure the safety of the officer and others.	2.2	3.0	11.2

H-3	Transports arrested persons to headquarters or detention facility, using handcuffs and other security measures necessary, in order to book them according to proper procedures.	2.2	3.0	11.2
H-4	Advises parents, of juvenile offenders in custody, of procedures relative to the case, in order to insure that parents understand their responsibilities.	1.8	1.5	6.3
H-5	Refers juvenile cases to the Youth Officer (juvenile department) by submitting known details, in order to have the case handled by appropriately trained personnel.	2.0	1.7	7.1
H-6	Reads "Constitutional Rights" to suspect and obtains signature from suspect on the written statement of the rights, in order to effect a lawful arrest.	2.3	2.3	9.2
H-7	Identifies suspect by inspecting his driver's license or similar document(s), in order to assist in determining if suspect has a prior arrest on record.	2.3	2.0	8.3
H-8	Fingerprints and/or photographs violators or suspects, using equipment at I.D. station, in order to process a standard arrest.	1.7	1.8	7.2
H-9	Operates a video recorder on persons arrested for drunkeness or narcotics use in order to have a record of behavior as evidence.	1.0	1.0	4.0
H-10	Completes reports necessary to substantiate an arrest by printing or typing all required information (including a narrative description) on appropriate forms, in order to document an arrest.	2.5	2.3	9.4
H-11	Contacts appropriate court authority by telephone, in order to determine the amount of bail or bond re-			

quired to release the accused.	1.5	1.8	6.9
H-12 Transports arrested persons according to appropriate criminal code (juvenile, adult female, etc.) in order to situate detained parties at required locations.	2.2	2.2	8.8
I COURT TESTIMONY: PREPARATION AND APPEARANCE			
I-1 Prepares to testify in court by collecting documents, reports and other evidence related to the case; reading all reports and notes; and talking with other officers, supervisors, solicitors, and witnesses; in order to insure accuracy and effectiveness of testimony.	2.1	2.6	9.9
I-2 Notifies and/or subpoenas witnesses and victims of crime before scheduled court hearings to insure their availability to testify.	1.4	2.0	7.4
I-3 Testifies in court by presenting facts and/or evidence related to the case and by answering attorneys' and magistrate's questions, in order to help insure the proper disposition of the case.	2.1	2.9	10.8
J SUPPORTIVE DUTIES			
J-1 Processes incoming calls by listening to caller and identifying important information, determining what action to take (i.e. dispatching a patrol car to investigate or referring caller to another agency), and initiating this action, in order to insure an appropriate response.	1.7	2.9	10.4
J-2 Dispatches patrol cars via radio by selecting and contacting available units and by transmitting the location and nature of problem to the selected cars, in order to respond to incoming calls or to provide support for primary units.	1.7	2.6	9.5

J-3	Maintains log of all incoming calls and radio transmissions by recording information (i.e. time call is received, unit is dispatched, unit arrives, unit leaves, and location and nature of emergency) on appropriate forms, in order to provide documentation of activities.	1.7	2.3	8.6
J-4	Operates computer terminal by entering or reading information on screen, in order to transmit or to receive data from NCIC, SCIC, or other central information source.	1.6	2.3	8.5
J-5	Guards prisoners and arrested persons by appropriately positioning self in relation to prisoners and by using handcuffs, when necessary, in order to prevent escape and to protect the prisoners from harm.	2.3	3.0	11.3
J-6	Makes checks of jailed prisoners by touring the facility at regular time intervals and by making a notation on each cell sheet, in order to account for the presence and safety of all prisoners.	1.7	2.6	9.5

APPENDIX F

DATA COLLECTION MATERIALS

APPENDIX F-1

MEMORANDUM ... NEW JERSEY DEPARTMENT OF CIVIL SERVICE

TO: Civil Service Police Departments and Advisory Panel *DATE:* February 29, 1980

FROM: Norman Wexler, Civil Service Examinations

SUBJECT: Entry Level Police Officer Validation Study

The job analysis phase of the police officer validation study has been completed. The information obtained from the entry-level officers interviewed has been written-up as task statements in the approved format. Each task statement reports...

a) An action (verb)
b) On whom or what (object of the action)
c) Using what method or equipment (if applicable)
d) For what reason, purpose, or end product

For example...

Checks closed businesses and houses by trying doors and walking around

(verb) _____(object)_____(method)_____

in order to discover locations vulnerable to illegal entry.

_____ (reason) _____

The task statements have been classified into general categories which reflect areas of work encountered by entry-level police officers. At this stage, we need the assistance of experienced officers to initially evaluate these statements. The set of statements enclosed is for your review. To keep your participation manageable, the statements enclosed represent only a portion of the full collection. We estimate that the review process should take less than an hour of your time.

Before starting your review, please read the enclosed directions carefully. When you have finished please return the materials in the enclosed envelope. The next phase of the study will begin as soon as all reviews have been returned, therefore your cooperation in completing the review as soon as possible will be greatly appreciated. In addition, please feel free to note any comment you wish to make directly on your copy of the task statements.

If you would be willing to attend a working advisory meeting to be held in April to help us determine knowledge, skills, and abilities (KSA's) required to perform police tasks, please fill out the enclosed form which will provide us with information concerning your intended participation. Please be sure to return it with the rest of the review materials.

APPENDIX F-2

DIRECTIONS FOR REVIEWING THE TASK STATEMENTS

1. For each category of statements enclosed gather appropriate materials together:

   a) List of numbered task statements for the category
   b) A TASK STATEMENT EVALUATION FORM

2. Fill in the general information in Section I which applies to you, the rater.

3. Skim over all the written statements in a category, then respond to Section II.

4. Go back to the individual task statements and read each one carefully, then please respond to its (the specific task statement) designated line number on the TASK EVALUATION FORM in Section III.

   A. You respond to the Task Validation column according to the question "Does the task statement represent an observable activity that is performed by entry-level police officers in New Jersey?"

      1) If you feel that it does, encircle the "Y"
      2) If you judge it does not, encircle the "N"
      3) If you feel you cannot assess the statement, encircle the "?"

   B. The remaining portion of the line pertains to some universal skills (not unique to police work) that appear to us to underlie a great many police tasks. Those, in our judgment, of importance are noted and briefly defined as follows:

      Communication Skills (COMMUN): The skills to convey oral information effectively and to write accurate understandable reports and narratives

      Interpersonal Skills (INTERP): The skills to establish rapport or appropriate authority as required with the public or one's co-workers

      Reading Comprehension (RDG COMP): The skills to read with reasonable speed and understanding so as to absorb written information

      Information Processing (INFO PROC): Skills in gathering, organizing, and utilizing information

      Physical Prowess (PHYS PROW): Physical agility, strength, and stamina

For each task statement you evaluate, check the space(s) for any of the noted skills that you judge to be substantially required to perform that task. Note: Naturally, these skills do not include police knowledge and training which would, of course, be additionally required.

APPENDIX F-3
TASK STATEMENT EVALUATION FORM

Category to be evaluated Preparation for Work Code A

I. RATER INFORMATION

Name_____ Rank_____

Jurisdiction_____ Phone_____

II. Global Category Evaluation

1. Does the title of this category reflect an area of work in which an entry-level officer operates in New Jersey?

___a) yes ___ b) not sure ___c) no

2. Do the collected task statements within the category adequately represent this area of work?

___a) Clearly yes

___b) Too many statements (too much detail)

___c) Too few statements (some aspects of the area not covered)

___d) Clearly no

III. Global task evaluation:

Check all skills below that you judge to be substantially involved in the performance of the task

Statement Number	Validity of Task CIRCLE			COMMUN. SKILL	INTERP. SKILL	RDG COMP	INFO PROC	PHYS. PROW
1	Y	?	N					
2	Y	?	N					
3	Y	?	N					
4	Y	?	N					
5	Y	?	N					
6	Y	?	N					
7	Y	?	N					
8	Y	?	N					
9	Y	?	N					
10	Y	?	N					
11	Y	?	N					
12	Y	?	N					
13	Y	?	N					

APPENDIX F-4

STATE OF NEW JERSEY
DEPARTMENT OF CIVIL SERVICE
DIVISION OF EXAMINATIONS

PARTICIPANT INFORMATION

POLICE OFFICER VALIDATION STUDY
APRIL 18, 1980 ADVISORY PANEL MEETING

Rank and Name:_____

Department or Organization Represented:_____

Ethnic Group (Check one): Hispanic_____

Black_____

White_____

Other (specify)_____

Education (Check one): Less than high school_____

High School diploma or GED_____

Associate degree_____

Bachelor's degree_____

Graduate degree_____

FREQUENCY OF TASK PERFORMANCE

Task Category Code and Number	Performed rarely or only under unusual circumstances.	Performed with intermediate frequency, i.e., several times a month.	Performed frequently, on almost every tour or duty day.

TASK STATEMENT EVALUATION FORM
CONSEQUENCE OF ERROR

Task Category Code & Number	Failure to perform or an error on this task has no serious consequences	Intermediate consequence i.e. neither of the other categories	Failure to perform or an error on this task may lead to severe or fatal bodily harm and/or seriously interfere with police action

APPENDIX F-7

Table No._____Assigned Category(ies)_____

Members (initial)_____

Cognitive Abilities

		Task Code(s)
C 1	Oral Communication - ability to communicate ideas with spoken words.	
C 2	Written Communication - ability to write clear and concise letters, reports, descriptions, or instructions.	
C 3	Inductive Reasoning - ability to find general concepts or rules which explain how a given series of individual items are related to each other. It involves the ability to logically proceed from individual cases to general principles.	
C 4	Deductive Reasoning - ability to apply a broad, general ideas or principle effectively to a particular problem or case.	
C 5	Following Rules and Procedures - ability to follow rules and procedures.	
C 6	Information Processing - ability to gather, organize, and utilize information.	
C 7	Problem Solving - ability to find practical ways of dealing with problems.	
C 8	Reading Comprehension - ability to read with reasonable speed and understanding so as to absorb written information.	
C 9		
C 10		
C 11		
C 12		

APPENDIX F-7

Table No._____Assigned Category(ies)_____

Members (initial)_____

Physical Abilities

		Task Code(s)
P 1	Static Strength - ability to maintain a high level of muscular exertion for some minimum period of time. This involves the degree of muscular force exerted against a fairly immovable or heavy object in order to lift, push or pull that object.	
P 2	Dynamic Flexibility - ability to make repeated trunk and/or arm leg bending or stretching movements where speed as well as degree counts. (It inlcudes the ability of these muscles to recover from the strain and distortion of repeated flexing).	
P 3	Stamina - ability involves the capacity to maintain physical activity over prolonged periods of time.	
P 4	Dynamic Strength - ability to hold up or move body's own weight repeatedly or at one time without stopping, using the force of arm and trunk muscles.	
P 5	Gross Body Coordination - ability to use the trunk, arms and legs together in movement.	
P 6	Rate of Arm Movement - ability to make gross, rapid arm movements.	
P 7		
P 8		
P 9		
P 10		
P 11		
P 12		

APPENDIX F-7

Table No._____ Assigned Category(ies)_____

Members (initials)_____

Other Abilities

		Task Code(s)
O-1	Pressure - ability to work fast and accurately in situations where there is pressure or emotional strain.	
O-2	Tolerance - ability to put up with and handle verbal abuse from a person or a group.	
O-3	Teamwork - ability to work as a member of a group.	
O-4	Leadership - ability to take the lead or take charge when working or dealing with others.	
O-5	Dealing with People - ability to deal with people politely and helpfully, beyond the giving and receiving of instructions.	
O-6		
O-7		
O-8		
O-9		
O-10		
O-11		
O-12		

APPENDIX F-8

Table No._____ Category A - PREPARATION FOR WORK

Members (initial)_____

Police Knowledge		Task Code(s)
K A 1	Knowledge of rules and regulations of the department.	
K A 2	Knowledge of personnel and equipment available.	
K A 3		
K A 4		

Table No._____ Category B - FIGHTS AND DOMESTIC DISPUTES

Members (initial)_____

Police Knowledge		Task Code(s)
K B 1	Knowledge of the people in the assigned area.	
K B 2	Knowledge of public agencies and facilities.	
K B 3		
K B 4		
K B 5		
K B 6		

APPENDIX F-8

Table No._____ Category C - GENERAL PATROL

Members (initial)_____

	Police Knowledge	Task Code(s)
K C 1	Knowledge and awareness of national and local events and how they might affect the job.	
K C 2	Knowledge of one's own limitations in dealing with emergencies.	
K C 3		
K C 4		
K C 5		

Table No._____ Category D - SERVICE CALLS

Members (initial)_____

	Police Knowledge	Task Code(s)
K D 1	Knowledge of ways of handling crowd situations.	
K D 2	Knowledge of basic first aid.	
K D 3		
K D 4		
K D 5		
K D 6		

APPENDIX F-8

Table No._____ Category E - TRAFFIC CONTROL & ENFORCEMENT OF TRAFFIC LAWS

Members (initials)_____

	Police Knowledge	Task Code(s)
K E 1	Knowledge of traffic laws and ordinances.	
K E 2	Knowledge of and willingness to take proper action in preventing potential accidents from occurring.	
K E 3		
K E 4		
K E 5		

Table No._____ Category F MOTOR VEHICLE ACCIDENTS

Members (initial)_____

	Police Knowledge	Task Code(s)
K F 1	Knowledge of investigative procedures.	
K F 2	Knowledge of officer's role in dealing with emergencies.	
K F 3		
K F 4		
K F 5		
K F 6		

APPENDIX F-8

Table No._____ Category G - INVESTIGATIONS

Members (initial)_____

	Police Knowledge	Task Code(s)
K G 1	Knowledge of current laws, procedures, and trends governing search and seizure activities.	
K G 2	Knowledge of proper procedure for obtaining a warrant.	
K G 3		
K G 4		
K G 5		

Table No._____ Category H - INVESTIGATIONS

Members (initial)_____

	Police Knowledge	Task Code(s)
K H 1	Knowledge of laws affecting arrest procedures.	
K H 2	Knowledge of amount of force required to make arrests.	
K H 3		
K H 4		
K H 5		
K H 6		

APPENDIX F-8

Table No._____ Category I - COURT TESTIMONY: PREPARATION & APPEARANCE

Members (initial)_____

	Police Knowledge	Task Code(s)
K I 1	Knowledge of criminal justice system.	
K I 2	Knowledge of elements of state laws.	
K I 3		
K I 4		
K I 5		

Table No._____ Category J - SUPPORTIVE DUTIES

Members (initial)_____

	Police Knowledge	Task Code(s)
K J 1	Knowledge of and ability to effectively use services and equipment available.	
K J 2	Knowledge of procedures to follow in dealing with an emergency.	
K J 3		
K J 4		
K J 5		

KASO EVALUATION FORM

Table No._____ Name_____

KASO Code	Check One Only: Brought To Job	Check One Only: Learned on Job or in Academy	Essential For Performance of Police Officer?	Does a Greater Degree of this KASO Result in a Better Performance	Proficiency Level (Specify if Possible)
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	

APPENDIX G

LETTER AND SCORE REPORT SENT TO STUDENTS PARICIPATING IN TRY-OUT OF PROTOTYPE WRITTEN EXAMINATION

Dear _____:

Early in April you and some of your classmates answered several new or experimental test questions from New Jersey Civil Service, so that we might learn whether the instructions were clear and whether questions were too hard or too easy.

Below are your personal results. Since there were so few questions in any one area, you should not use these results to evaluate your own ability. The results simply give you a clue as to how well you answer questions like those on the test.

For each area that we investigated, we show your scores and the combined results of the three classes that participated (Mr. Jacoby's, Mr. Scaccia's, and Ms. Shuster's).

	OBSERVATION AND NOTES	INFORMATION FROM FORMS	UNUSUAL USE OF OBJECTS	FOLLOWING COMPLEX PROCEDURES (MAPS)	READING PARAGRAPH	WRITING PARAGRAPH
YOUR SCORES						
GROUP SCORES OR RATING	Score number	Score number	Score number	Score number	Score number	Score number
	13 2	13 1	8 1	3 2	4 2	10 2
	12 3	12 3	7 5	2 7	3 12	9 1
	11 8	11 2	6 14	1 18	2 3	8 4
	10 7	10 7	5 9	0 11	1 9	7 1
	9 7	9 7	4 2		0 12	6 5
	8 3	8 8	3 4			5 2
	7 6	7 5	2 2			4 5
	6 1	6 3	1			3 1
	5 1	5 6	0 1			2 6
		4 1				None 11
		3 1				

I wish to thank all students and teachers who participated in the tryout of these questions. In helping us develop high quality tests for selecting police officers, you have contributed to the safety and well-being of our community.

All success in your educational program.

Sincerely,

Norman Wexler

Norman Wexler, Ed. D.
Senior Personnel Technician

NW/ko

APPENDIX H

POLICE PHYSICAL PERFORMANCE EXAMINATION

Dear _____:

Early in April you and some of your classmates answered several new or experimental test questions from New Jersey Civil Service, so that we might learn whether the instructions were clear and whether questions were too hard or too easy.

Below are your personal results. Since there were so few questions in any one area, you should not use these results to evaluate your own ability. The results simply give you a clue as to how well you answer questions like those on the test.

For each area that we investigated, we show your scores and the combined results of the three classes that participated (Mr. Jacoby's, Mr. Scaccia's, and Ms. Shuster's).

	OBSERVATION AND NOTES	INFORMATION FROM FORMS	UNUSUAL USE OF OBJECTS	FOLLOWING COMPLEX PROCEDURES (MAPS)	READING PARAGRAPH	WRITING PARAGRAPH
YOUR SCORES						
GROUP SCORES OR RATING	Score number: 13 (2), 12 (3), 11 (8), 10 (7), 9 (7), 8 (3), 7 (6), 6 (1), 5 (1)	Score number: 13 (1), 12 (3), 11 (2), 10 (7), 9 (7), 8 (8), 7 (5), 6 (3), 5 (6), 4 (1), 3 (1)	Score number: 8 (1), 7 (5), 6 (14), 5 (9), 4 (2), 3 (4), 2 (2), 1 (1), 0 (1)	Score number: 3 (2), 2 (7), 1 (18), 0 (11)	Score number: 4 (2), 3 (12), 2 (3), 1 (9), 0 (12)	Score number: 10 (2), 9 (1), 8 (4), 7 (1), 6 (5), 5 (2), 4 (5), 3 (1), 2 (6), None (11)

I wish to thank all students and teachers who participated in the tryout of these questions. In helping us develop high quality tests for selecting police officers, you have contributed to the safety and well-being of our community.

All success in your educational program.

Sincerely,

Norman Wexler

Norman Wexler, Ed. D.
Senior Personnel Technician

NW/ko

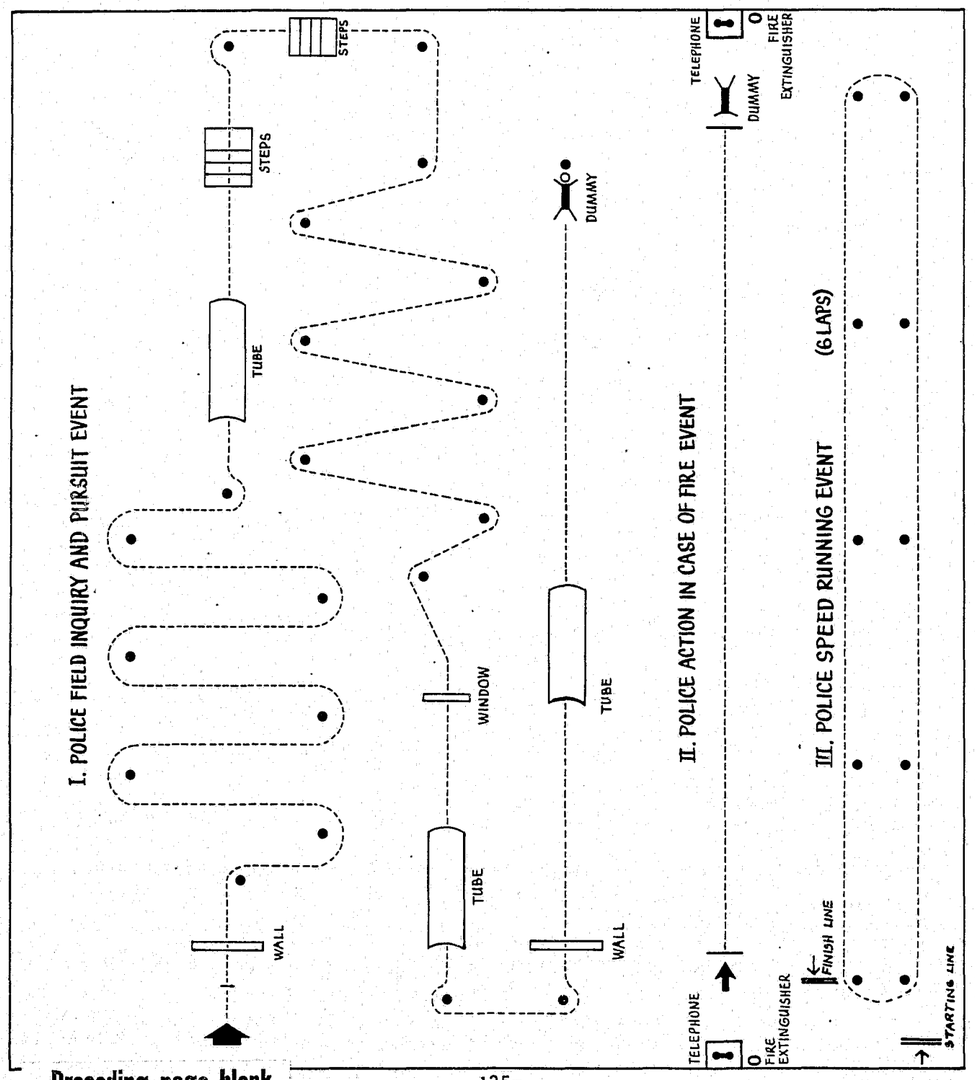
APPENDIX H

POLICE PHYSICAL PERFORMANCE EXAMINATION

PHYSICAL PERFORMANCE TEST
FOR POLICE OFFICER

The Physical Performance examination consists of three timed events which simulate emergency and pursuit situations that could be encountered on-the-job. This event layout requires the candidate to perform a series of activities in sequence. Taken as a whole, this examination will greatly challenge both agility, skill and physical conditioning.

Candidates, male or female, can successfully pass the physical performance examination if they are in good physical condition, or if they take positive constructive steps to achieve good physical conditioning through performing preparatory exercise routines prior to taking the test.



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APPENDIX I

POLICE OFFICER RATING FORM

OFFICER RATING FORM

POLICE VALIDATION STUDY: ENTRY LEVEL

JURISDICTION _____ DATE _____

Data for Officer Rated	Data for Officer Doing the Rating
Name _____	Name _____ Rank ___
Sex: M F Ethnic: H B O	Sex: M F Ethnic: H B O
(Circle)	(Circle)
(H = Hispanic; B = Black; O = Other)	Years/months of police experience _____

SCORE FOR OVERALL RATING [ ]

Score Category for Overall Rating	Description of Score Category	(frequency guideline)
6	An outstanding officer in every respect: Appearance; Attitude; Preparation; Police Knowledge; Performance of Duties; Physical Condition.	(1 in 25 officers)
5	An outstanding officer except for one area mentioned in score category 6.	(3 in 25 officers)
4	A superior officer who is not outstanding in two areas mentioned in category 6.	(5 in 25 officers)
3	The typical police officer fully competent or satisfactory in all areas mentioned in score category 6.	(7 in 25 officers)
2	Same as score category 3 but the officer is less than fully competent or satisfactory in one area denoted in score category 6.	(5 in 25 officers)
1	Same as score category 3 but the officer is less than fully competent or satisfactory in two area denoted in score category 6.	(3 in 25 officers)
0	An officer less than competent or satisfactory in 3 or more areas denoted in score category 6. It is questionable whether this person ought to continue in the capacity of police officer.	(1 in 25 officers)

OVER PLEASE

RELATIVE RATING:

Regardless of the Overall Rating you have assigned to this officer, mark "H" for two (2) work areas denoted below where the officer performs relatively well as compared to the remaining work areas indicated. Similarly, mark two (2) areas with an "L" where the candidate performs relatively poorly. You must do this even when you believe the officer performs well or poorly in all areas. If you find this difficult to do, make the best choices that you can even if you are not sure about the accuracy of your rating.

AREA	YOUR RELATIVE RATINGS (2 H's and 2 L's)
1. Preparation for work (appearance, equipment, briefing, etc.)	
2. Response to fights and domestic disputes	
3. General patrol duties	
4. Response to service calls	
5. Arrests	
6. Preliminary investigation	
7. Motor vehicle accidents	
8. Traffic control/enforcement	
9. Supportive duties (dispatching, jail work)	
10. Preparation for and testifying in court	

APPENDIX J

PERSONAL DATA SHEET

CONTINUED

PERSONAL DATA SHEET -- POLICE VALIDATION STUDY

NOTE: The following information is required in order that we may retrieve your physical examination score, academy grades, and subsequent ratings from your jurisdiction. This information is vital in evaluating the effectiveness of our tests. All information collected will be treated as confidential in the strictest sense. Although summaries may be published, no individual results will be given to anyone except the examinees themselves.

NAME_____SOCIAL SECURITY NUMBER_____

SEX: Male Female ETHNIC: Black Hispanic Other

AGE (Last birthday): _____

EDUCATIONAL LEVEL: HS graduate Some college BA/BS Some graduate MA/MS
(circle) (circle)

PRESENT JURISDICTION: _____ TODAY'S DATE _____

NAME AND RANK OF YOUR SUPERVISING OFFICER _____

POLICE ACADEMY AND CLASS (e.g. Sea Girt, Spring '78): _____

_____

FOR WHICH JURISDICTION DID YOU TAKE THE CIVIL SERVICE POLICE PHYSICAL EXAM:
_____(Athletic not medical)

DATE THAT YOU TOOK THE PHYSICAL EXAM (month/year) _____

EXPERIENCE AS POLICE OFFICER PRIOR TO ACADEMY (months) _____

EXPERIENCE AS POLICE OFFICER AFTER ACADEMY GRADUATION (months) _____

OPTIONAL: If you would want information about your performance on these tests, indicate address for mailing:

_____

_____

_____

_____

APPENDIX K

TEST ADMINISTRATION IN LOCAL JURISDICTIONS

BY GEOGRAPHIC REGION, SEX, AND ETHNIC CLASSIFICATION

TEST ADMINISTRATION IN LOCAL JURISDICTIONS BY
GEOGRAPHIC REGION, SEX AND ETHNIC CLASSIFICATION

JURISDICTION	No. Tested	Sex M	Sex F	Ethnic Classification Black	Hispanic	Other
Region 1						
Bloomfield	2		2			2
Clifton	3	3				3
East Orange	3	2	1	1		2
Elizabeth	3	3			2	1
Irvington	11	9	2	2	1	
Orange	3	3		2	1	
Passaic	3	3			2	1
Teaneck	6	5	1	1	1	4
Woodbridge Twp.	3	3				3
Region 2						
Burlington City	4	4				4
Burlington Twp.	2	2		1		1
Cinnaminson Twp.	2	2				2
Delanco Twp.	2	2				2
Ewing Twp.	3	3				3
Gloucester Twp.	2	2		1	1	
Pennsauken Twp.	3	3		1	1	1
Willingboro	4	3	1	3		1
Region 3						
Atlantic City	6	4	2	5		1
Middletown Twp.	2	2			1	1
Region 4						
Parsippany-Troy Hills	3	3				3
Pompton Lakes Boro	1	1				1
Sparta Twp.	2	2				2
West Milford Twp	2	2				2
Region 5						
Millville	5	5				5
Vineland	3	2	1	1	1	1
Region 6						
Berkeley Twp.	2	2				2
Lacey Twp.	4	4				4
TOTALS	89	79	10	18	11	60

APPENDIX L

TEST ADMINISTRATION IN POLICE ACADEMIES BY

SEX AND ETHNIC CLASSIFICATION

TEST ADMINISTRATION IN POLICE ACADEMIES BY
SEX AND ETHNIC CLASSIFICATION

ACADEMIES	No. Tested	Sex M	Sex F	Ethnic Classification Black	Hispanic	Other
Atlantic County Police Academy	17	16	1	2	1	14
Burlington County Police Academy	32	31	1	1	1	30
Camden Police Academy	14	14		4	1	9
Essex County Police Academy	18	18		1		17
Middlesex County Police Academy	26	25	1	2	3	21
New Jersey State Police Training Center (Sea Girt)	98	92	6	2	1	95
TOTALS	205	196	9	12	7	186

APPENDIX M

INSTRUCTION SHEET FOR SCORING

THE WRITING SAMPLE

APPENDIX M

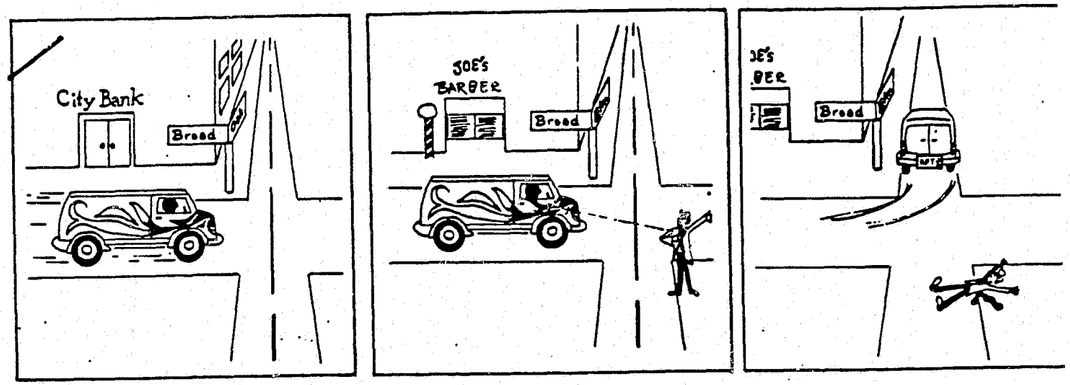
GENERAL INSTRUCTION FOR " IMPACT SCORING "

You score each paper on a 1 to 5 point scale, 5 is high. Mostly, you go by your overall impression without mulling over any paper. The score reflects both the writing and the reporting of detail.

You ought to be somewhat more severe if a candidate embellishes his or her paragraph with details that are not shown or implied in the sequence. On the other hand, candidates who are careful to reflect doubt by the use of words such as "apparently" or "appeared" in instances where the sequence is not explicit should be somewhat rewarded.

As a general guide, three actual writing specimens covering the extremes of the scale are given along with comments pertaining to the rating. Naturally there will be papers in between the points--that is up to you.

Give it your best shot without spending too much time on any paper.



DIRECTIONS: In the space provided below, describe the above sequence of events in a short narrative passage, i.e. a paragraph or several sentences.

From the photo, I observed a sealed van going east on Broad. At the corner of Broad + Elm, a shot was fired at a bystander. The van then sped North on Elm St.

RATING 1: Although the writing in the above sample is not too bad, it is practically worthless with respect to detail and accuracy. For example, there is no indication of compass direction in the scenes, thus the van could have been traveling west, south, or north on Broad. Only the main action is mentioned with most of the detail ignored.

A van with an unusally paint job was traveling fast down Broad St. The van came to a stop on the corner of Broad and Elm St and fired a shot at person making noise standing on a corner. The van then made a left and headed down Elm St. licenses plate numbers of the van is KPT-2

RATING 3: Reasonably well written--captures the main action; however, detail is missing and some facts are not substantialted by the given scenes. For example, the van did not necessarily stop at the corner of Braod and Elm streets.

A van painted with a design on it's front and right side), license number KPT-2, drove down Broad past City Bank at Oak, and, when the van passed Joe's Barber on the corner of Elm), a shot was fired from the right front window of the van from a handgun hitting a man on the corner diagnal from the Barber shop. The van made a left from Broad onto Elm. The Victim dressed in black pants and wearing a white coat fell on his back with his arms + legs spread apart and left a puddle of blood.

RATING 5: Good writing and covering virtually all detail in an efficient set of sentences gets this paper a high rating. It would have been more accurate to have said "dark pants" and a "lighte coat" but then who is perfect?

END