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Validating state police trooper career performance with the Sixteen Personality Factor Questionnaire

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VALIDATING STATE POLICE TROOPER CAREER PERFORMANCE WITH THE SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE

by

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Chapter 1

Introduction

The selection of individuals to work as police officers has for many years been a problem which affected police recruiting and personnel officers. Sociological changes which have become apparent in community attitudes toward police and the demands they place upon the police have made the selection and the behavior of policemen a much more public issue. The result has been a flurry of activity in selection techniques, including the use of psychological and personality tests to determine police work suitability. Very little research has been completed on the effectiveness of police selection methods and the prediction of police performance.

Purpose

The purpose of this research was to conduct a longitudinal and multivariate examination of the predictive capability of the Sixteen Personality Factor Questionnaire (Cattell, Eber, and Tatsuoka, 1970), utilizing data collected on Michigan State Police Troopers over a four year span of time. The major problem considered was the

effectiveness of the 16PF in predicting the career performance of State Police Troopers. The virtual purpose, moreover, was to determine if the 16PF is suitable for selecting or rejecting future police candidates during pre-employment screening.

Background of the Problem

There is a legitimate national concern regarding misfits in the ranks of all police agencies. As a result, in the past decade, there has been a tremendous increase in the use of psychological testing of police recruits. In some departments it is the candidate's most difficult test, and has disqualified more applicants than written exams, physical agility tests, background checks or oral interviews. Public officials are becoming increasingly aware of the significance of psychological testing and assessment of police recruits as demonstrated by statutorily mandated procedures in some jurisdictions (Sullivan, 1976; Spielberger, Ward, and Spaulding, 1979). The 1967 President's Commission on Law Enforcement and Administration of Justice, and the 1973 National Advisory Commission on Criminal Justice Standards and Goals recommended that police selection procedures include a written test of mental ability or aptitude and a psychological examination.

Although it is expensive to implement pre-employment screening efforts, psychologists indicate these programs have saved money in the long run (Dee-Burnett, Johns, & Krug,

1981; and Mills & Stratton, 1982). Police officers terminating employment because of misconduct or stress related disability become a monetary deficit. The cost of training a police officer ranges from $10,000 to $20,000 and disability benefits can cost between $250,000 and $500,000 over an officer's life span (Mills & Stratton, 1982).

With increasing costs in the selection and training of law enforcement officers, recruiters have felt the pressing need for going beyond a screening-out function. They have wanted to identify applicants who not only would be able to handle stressful conditions, but who could perform their duties more effectively as well. In looking for selection tools that would meet these purposes, recruiters have turned to instruments that measure broad behavioral patterns common to all people. These instruments indicate how a person is likely to get along with others, the kinds of work and activities the person enjoys, and whether or not the person will be a good prospect in a particular occupation (Dee-Burnett, Johns, & Krug, 1981).

In view of these complex issues, the Michigan Department of State Police, in 1979, approached the task of establishing a pre-employment psychological screening program. Donald Rossi, Police Psychologist and Director of the Department of State Police Behavioral Science Section, studied existing recruiting policies, training academy instruction, attrition rates, and lawsuits against department officers involving judgment problems.

Rossi (1982) found that police selection procedures, like those for any other occupation, are for the purpose of identifying those applicants with the best potential for developing into successful employees. Whatever procedures are employed, it is essential that they be related to the performance expected of the applicant. One focus of assessment is the identification of characteristics which are contraindicative of success or pose impediments to fulfillment of roles, tasks, and performance objectives of a position. The overall scope of a selection program, therefore, has two main responsibilities: screening out and screening in. For law enforcement, this is the potential for disqualifying applicants who are psychologically healthy, yet unsuitable for police work.

To validly assess law enforcement recruit applicants, according to Rossi, what an officer does and the environment in which the work is performed must be understood. Applicant assessment is not generally the measure of ability to do police work. Instead, it is the determination of the potential for such activity. If the objectives of police work are known, then the specific skills, physical, and psychological attributes can then be identified. Psychological measures can then be beneficial when associated with specific police activities.

Coinciding with Rossi's work, the Research and Development Section of the Michigan Law Enforcement Officers Training Council (MLEOTC) and Personnel Research Consultants

of Fair Oaks, California, completed a statewide job analysis of the police patrol officer position (1979). The task inventory approach was utilized in the study to collect job information for an exhaustive list of duties. The detailed task information was used to describe the patrol officer's job in sufficient detail to allow for the development of job related selection and training standards.

Utilizing data from the MLEOTC and State Police studies, Rossi initiated a review of existing psychological instruments purporting to validly assess identifiable personality factors in samples of healthy populations. Individuals presenting the attributes most consistent with a job criterion could be prioritized for selection (screening in). Those disqualified, while not necessarily unhealthy, would have failed to demonstrate satisfactory job criterion attributes. Identifying psychopathological features is an additional necessity which complements the job criterion attributes measures. It is possible for an individual to possess satisfactory job criterion attributes, yet who is adversely affected by psychopathological conditions. This, obviously, would be an unacceptable condition requiring that the individual be rejected.

After consulting with the Michigan Department of Civil Service and the Michigan State Police Personnel Division, Rossi selected the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970) to be used as part of the department's pre-employment psychological screening program.

In addition, he selected the Clinical Analysis Questionnaire (Krug, 1980) for screening psychopathological syndromes, and the Motivation Analysis Test (Cattell, et al., 1964). Following a review of these instrument's compatibility with State Police selection strategy, contemporary appropriateness, research development, and validity, Rossi arranged to consult with the Institute for Personality & Ability Testing in Champaign, Illinois. During his one day meeting, focus was placed on instrument compatibility with Equal Employment Opportunity Commission guidelines, court decisions involving psychological measures for personnel selection, Michigan State Police data-base needs, and design issues for establishing the program with both functional and research paradigmatic purposes.

Similar discussions were held with Rossi and representatives from programmed scoring services specializing in personnel selection with other than I.P.A.T. instruments. Rossi concluded, however, that while persuasive in their arguments, they were unable to address the predictor factor criterion of the Michigan State Police selection procedure. Rossi's two year search revealed that very few instruments met this combination of requirements. Rossi noted that two very desirable features of the I.P.A.T. instruments are (1) readily available resources and expertise, and (2) availability of staff personnel for legal consultation and court appearance in the event of lawsuits. While these services were available elsewhere, I.P.A.T.

develops, validates, and provides updates and research on each of its own instruments; extremely desirable attributes from a police administrators perspective.

On January 19, 1982, the 16PF, C.A.Q., and M.A.T. were administered to Michigan State Police Recruits the first day of recruit school by the Testing Division of Civil Service. The tests were sent to the Institute for Personality and Ability Testing (IPAT), Inc., Champaign, Illinois for scoring; then to the Behavioral Science Section of the Michigan State Police for interpretation. The Recruiting Section of the State Police Personnel Division was notified regarding results on each recruit. Actual test materials remain on confidential file at the Behavioral Science Section.

Significance of the Study

Social, legal, and economic issues lend an urgency to improved police selection strategies. Police perform important public services that openly and dramatically affect lives. Law enforcement is considered one of the most stressful occupations in the country (Territo & Vetter, 1981).

The authoritarian position and the potential for inappropriate use of power evoke a strong need for improved police screening and selection. The presence of even a few undesirable officers may have enormous consequences, making the identification of valid predictors of psychological

stability important to American society. Excessive use of force by an emotionally unstable officer can have tragic results. Severe problems of low job satisfaction, overstress, disability benefits and early retirement plague both police administrators and the community.

A trend in the United States which has relevance to psychological testing and assessment of police recruit applicants is vicarious civil liability. It is particularly significant to police administrators. Vicarious liability is a means by which a plaintiff can go beyond the individual officer whose conduct was allegedly incorrect to include supervisors and managers in a suit for damages. In law enforcement there are seven "deadly sins" of civil liability which reveal the significance for psychological testing and and assessment. These are:

1. Negligent appointment:
   Police administrators have been held liable for negligence in hiring unqualified individuals (Casey v. Scott, 1907; Peters v. Bellinger, 1959).
2. Negligent retention:
   Administrators may be liable for failure to discharge an employee who has demonstrated a pattern of misconduct (Fernelius v. Pierce, 1943).
3. Negligent assignment:
   A supervisor may be liable if he knew or should have known an employee was improperly assigned (Lubelfield v. City of New York, 1958).

4. Negligent entrustment:

   Administrators can be liable for the negligent entrustment of weapons to unqualified employees (Peer v. Newark, 1961).

5. Failure to train:

   Administrators may be liable for a breach of executive duty in failing to properly train employees (Roberts v. Williams, 1969).

6. Failure to direct:

   Administrators can be liable for negligently failing to direct employees (Moon v. Winfield, 1974).

7. Failure to supervise:

   Supervisors can be liable if they fail to supervise or do so negligently (Carter v. Carlson, 1971).

Police administrators must be aware of their potential civil liability. Due to increased financial responsibility, the modern law enforcement officer, both individually and as the representative of their employing agency, has become a prime target for legal suits.

In many instances, psychological testing and assessment can aid an administrator in taking appropriate action with an unfit applicant or officer, thus reducing the risk of civil liability.

Research Questions and Hypotheses

The central question in police selection can be stated

simply: How can the best applicants be selected? However, it has been long recognized that before the question of "how" can be addressed, the question of "best at what" must be answered.

Generally, three criteria have been used in police selection research: (1) performance in the initial training program, (2) ratings obtained from supervisory personnel, and (3) job survival. These criteria have been inadequate as demonstrated by job performance ratings which were usually made by supervisors untrained in rating mechanics and uninformed about operational definitions of what was to be evaluated (Burkhart, 1980).

Hypothesis #1:

Successful performance in initial training remains a criteria of this study. Utilizing performance measures obtained during a police candidates training at the police academy has several advantages. The data are usually easy to obtain, routinely collected, and available early in the officers career. In addition, because the officers participate in relatively standardized programs, there is less confounding situational variance (Dubois and Watson, 1950; Mullineaux, 1955; Clopton, 1971; Hogan, 1971; Cohen and Chaiken, 1972; and Kayode, 1973).

The classification criterion used in this research is recruit class quartile, an individual troopers class standing by class quartile. This represents cumulative

scores for academic and other skills tested during the four months of training. Individual class standing could not be utilized due to a union agreement with the Michigan State Police Troopers Association. Class standing, by recruit schools, are well documented sources for seniority decisions. To publish the class standing data would be the same as publishing the names of the officers involved in this study.

Could the 16PF predict the troopers class standing? The first hypothesis was developed in the null format using trooper background and biographical data in combination with the sixteen primary and four secondary scores on the 16PF:

There are no statistically significant predictors of "Recruit Class Quartile" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

Hypothesis #2:

For this research, supervisor ratings have been eliminated in favor of an overall measure of trooper performance in productivity. Supervisory ratings of on-the-job performance are limited by stereotypic assumptions of what attributes and abilities are valuable, the capability of any given supervisor, and the limited operationally convenient criteria heretofore available (Martin and Troop, 1923; Dubois and Watson, 1950; Colarelli and Siegel, 1964; Eilbert, 1966; Baehr, Furcon, and Froemel, 1968; McAllister, 1970; Clopton, 1971; Hogan, 1971; Manyak, 1975; and McEuen,

1981).

The Michigan State Police Activity Analysis Program (Baseline Activity Analysis, 1983) is utilized to objectively establish and evaluate quantitative performance levels on all uniformed patrol officers. Total productivity, including traffic arrests, warnings issued to motorists, criminal arrests, complaint investigations, cars assisted, and other activity are measured in per hour inputs and expressed as a percentage of average trooper productivity (see Appendix A for complete description).

Could the 16PF predict the Baseline Activity of the troopers? The second hypothesis again utilizes the null format and combines the sixteen primary and four secondary sten scores of the 16PF with background data on the troopers:

There are no statistically significant predictors of "Baseline Activity" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

Hypothesis #3:

Absenteeism has also been used as a measure of performance in several studies (Blum, 1964; Baehr, Furcon, and Froemel, 1968; McAllister, 1970; Cohen and Chaiken, 1972; and Kayode, 1973), and is included in this study.

Could the 16PF predict the absentee records of the troopers? Again, the third hypothesis was developed

utilizing the biographical data and 16PF scores:

There are no statistically significant predictors of "Absenteeism" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

Hypothesis #4:

Patrol car accidents, as a measure of police performance, have been studied in some projects (McAllister, 1970; Cohen and Chaiken, 1972; Kayode, 1973; and Fabricatore, Azen, Boothe, and Snibbe, 1976).

Would the 16PF predict the number of trooper patrol car accidents? The fourth hypothesis utilizes the same format and independent variables:

There are no statistically significant predictors of "Patrol Car Accidents" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

Hypothesis #5:

Injuries sustained by police officers have been used as a measure of performance in very few studies (Blum, 1964), though the topic appears significantly appropriate. A police administrator would want information that could predict individuals who are injury prone.

Would the 16PF predict injuries sustained by the troopers in this study? The fifth hypothesis again utilizes the same format and independent variables:

There are no statistically significant predictors of "Reported Injuries" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

Hypothesis #6:

As noted earlier, employment status or tenure have traditionally been used as a measure of performance in studies of police groups (Humm and Humm, 1950; Hammond and Davis, 1951; Kole, 1962; Levy, 1967; McAllister, 1970; Thweatt, 1970; Cohen and Chaiken, 1972; Kayode, 1973; Manyak, 1975; and McEuen, 1981). Clearly, an agency could save considerable investment costs in training and equipment on officers who quit the force or drop from the training academy, if they could predict this variable.

Could the 16PF predict employment status? The sixth hypothesis, like the previous five, is set in the null format. The sixteen primary and four secondary sten scores of the 16PF in combination with biographical data on the troopers are the independent variables:

There are no statistically significant predictors of "Employment Status" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

The following null hypotheses were developed to examine differences in 16PF sten scores on the basis of police criterion measures:

Hypothesis #7:

There are no statistically significant differences in 16PF sten scores on the basis of "Recruit Class Quartile".

Hypothesis #8:

There are no statistically significant differences in 16PF sten scores on the basis of obtained "Baseline Activity" scores.

Hypothesis #9:

There are no statistically significant differences in 16PF sten scores on the basis of "Absenteeism".

Hypothesis #10:

There are no statistically significant differences in 16PF sten scores on the basis of "Patrol Car Accidents".

Hypothesis #11:

There are no statistically significant differences in 16PF sten scores on the basis of "Reported Injuries".

Hypothesis #12:

There are no statistically significant differences in 16PF sten scores on the basis of "Employment Status".

Definition of Terms

The following definitions have been developed for the purpose of this study:

Recruit class quartile.

A measure of individual trooper standing.

Baseline activity analysis.

A measure of trooper performance in productivity, including traffic arrests, criminal arrests, complaint investigations, warnings issued to motorists, cars assisted, and other activity based on per hour inputs and expressed as a percentage of average trooper productivity. (A complete description of the Michigan State Police Baseline Activity Analysis program is provided in Appendix A).

Absenteeism.

A measure of the rate of trooper work absence, expressed in numerical frequencies.

Patrol car accidents.

The number of patrol car accidents a trooper was involved in as driver/operator, regardless of negligence.

Duty related injuries.

The number of injuries sustained by a trooper while on duty.

Complaints against employee.

The number of complaints filed against a trooper for misconduct or improper job performance, regardless of substantiation.

Discipline/Affirmative assistance recommended.

The number of cases a trooper was recommended for disciplinary action or affirmative assistance in response to complaints filed.

Resignation/Termination of employment.

A measure of experiment mortality. No distinction is drawn between recruits leaving voluntarily or those forced to resign.

Chapter 2

Literature Review

This chapter provides a general overview of the literature related to police selection, with specific emphasis on validity studies. The review concludes with focus on the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970).

There is an absence of American literature regarding police selection prior to 1917, and most of the early studies emphasized intelligence as the primary variable. There was a shift to biographical and vocational interest variables in the late 1940s; then, in the 1960s and 1970s to personality and psychological variables.

Intelligence

Terman (1917) was the first to introduce the use of psychological tests for screening law enforcement candidates, when he administered an abbreviated form of the Stanford Binet intelligence test to police and fire department applicants at San Jose, California. Terman recommended that all candidates receiving a score below 80 be rejected, though he did not obtain nor compare information on employed officers.

In 1922, L. L. Thurstone administered the Army Alpha scale (intelligence) to 358 Detroit police officers at different stages in their careers. He discovered the mean alpha score was considerably higher for patrolmen than for sergeants or lieutenants. These findings prompted Thurstone to compare Alpha scores of patrolmen from several urban agencies. He discovered that lower intelligence scores were not unique for the Detroit department but were discovered in all groups he tested. He hypothesized that the brightest men who enter the police service leave in favor of other occupations where their ability and intelligence are better recognized. To support this, Thurstone points to the strong negative relationships between mean Alpha scores and length of service.

Merrill (1927), however, examined police applicants in rural agencies and found that the mean Army Alpha score for 113 candidates was 104.2 and that the more intelligent applicants remained on the job just as long as the less intelligent. Merrill maintained that the difference between her data and Thurstone's was due in part to departmental leadership. She did not consider other important variables such as organizational structure, recruitment procedures, ethnic differences, economic conditions, etc., that may have affected the variation in IQ scores between rural and urban police (Poland, 1978).

Hammond and Davis (1951) administered the Otis (Gamma) Mental Ability Test to 75 Colorado state patrol applicants.

Of these applicants, 52 were subsequently hired and they reported that there was some evidence that low scorers were less likely to be terminated by the agency. They did not, however, report a mean score for the group as a whole, or for the 52 officers that were hired. They suggested that the research provided some support for the notion of an optimum intelligence range for patrol work.

Other researchers have used various standard intelligence tests to examine police candidates. Matarazzo, Allen, Saslow, and Wiens (1964) reported that the average total scale score on the Wechler Adult Intelligence Scale for a sample of 113 police applicants was a mean score of 113. Forty percent of the subjects were college educated, leading to the above average intelligence scores.

Blum (1964) discovered that a civil service test designed to select sheriff's deputies correlated .70 with the Otis Intelligence Test. Also, Eilbert (1966) reported a .54 correlation on New York police entrance examinations and scores on the Otis Intelligence Test.

Gordon (1969) measured verbal IQ for a sample of 252 police applicants by the Lorge-Thorndike Test of Intelligence (level G) and found a mean verbal IQ of 93. In addition, he found significant differences in intelligence test scores between white, black, and hispanic speaking applicants.

These studies indicate that the typical police applicant has at least average intelligence.

Vocational Interest

Vocational interest was first explored by Spaulding (1948) when he administered the Kuder Preference Record to a sample of 40 police applicants in Delaware. He found a strong inclination toward the helping services and a negative interest in computational and clerical vocations.

The Strong Vocational Interest Blank was administered in conjunction with a job satisfaction questionnaire to 25 New York policemen by Kates (1950). He found no differences between the policemen and the general population regarding interest in police work and he did not find any relationship between work interest and job satisfaction. Kates suggested that the absence of a relationship between work interest and job satisfaction was due to the complexity of the police role.

Kole (1962) made similar findings when he administered the Edwards Personal Preference Schedule to 40 Portland, Oregon, police applicants. He argued that the police officer applicant was most interested in social service occupations.

Matarazzo, et al., (1964) administered both the Edwards Personal Preference Schedule and the Strong Vocational Interest Blank to 113 police applicants. He found the police applicants were higher on the scales of need for achievement, exhibition, intraception, dominance, endurance, and heterosexuality than the general population. The police applicants did display interest in social service work on

the SVIB.

Hageman (1979) utilized self-administered questionnaires with 70 Washington police trainees. She found the reasons for joining the police force included the desire to help the public and accomplish something worthwhile.

Finally, James Q. Wilson (1971) indicates that almost eighty percent of police work is related to the performance of community service, and it is not surprising, therefore, that police applicants have interest patterns similar to those involved in social service work.

Biographical Information

The third area where research studies have described characteristics of the typical police applicant is in biographical information.

In a sample of 512 Chicago policemen, Baehr, Furcon, and Froemel (1968) found good performance, as defined by supervisors ratings, was associated with early marriage and establishment of family; interest in family activities; development of positive attitudes in childhood; satisfactory relationships with family during childhood; and, a happy, comfortable homelife. These background variables suggest that the highly rated Chicago patrolmen were stable, well-socialized, and family oriented.

The most commonly reported biographical data in studies of police candidates have been age and education. Early

studies by Terman (1917) and Merrill (1927) indicate the average applicant was at least thirty years or older and had from seven to nine years of education. Poland (1978) found that the trend has been a lower average age (25 years) and a higher education level in that most applicants have at least a high school diploma and an increasing number have some college education.

Personality Characteristics

In terms of personality characteristics, several studies have produced results indicating that the police applicant does not differ substantially from the average white collar or officeworker (Spaulding, 1948; Matarazzo, et al., 1964; and Nowicki, 1966). Tests included in these studies were the Rorschach Inkblot, the Jastak Personality, the Minnesota Multiphasic Personality Inventory, and the Sixteen Personality Factor Questionnaire.

Gottesman (1969) collected MMPI profiles on 203 applicants who had passed all of the selection hurdles for an urban police department from 1966-1969. He collected, in addition, 100 profiles from a group of nondisabled war veterans to use as a peer normal comparison group. These sets of profiles were compared with profiles from Cincinnati, Ohio police recruits, and the MMPI normal standardization group. The results from the first comparison indicated that the typical police applicant was more positively adjusted, but more defensive than the

average veteran. Gottesman said that the veterans and police applicants both differed from the MMPI general population norms, though he did not explain how they differed.

Thweatt (1970) administered the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970), along with an interest inventory, and an intelligence test to 50 experienced police officers employed at the Tucson, Arizona Police Department. The group was chosen on the basis of performance and formed a comparison for 105 police recruits. Thweatt made two comparisons, indicating that police officers are different in terms of measured personal characteristics from the general population, and recruits terminating employment early are different from experienced police officers. In the first comparison, experienced police officers were more intelligent, serious, conscientious, sensitive to threat, practical, conservative, and relaxed than the general population of adult males. The second comparison was made with 18 recruits that dropped from training. When compared to the experienced officers, those dropping were characterized as being more expedient, sensitive, imaginative, radical, and independent.

Goldstein (1971) compared MMPI scores of 500 police applicants that passed a civil service examination with the scores of 600 applicants who had failed the exam. The applicants who passed the exam were assessed to be less likely to avoid dangerous situations, more prone to believe

in others honesty, and likely to listen and offer advice on problems of others. Applicants who failed the exam expressed greater interest in situations which might bring harm to others and were judged to hold unrealistic interpretations of their abilities.

Hogan (1971) researched personality characteristics of 141 Maryland State Police recruits and 42 state police troopers with one year of experience. These subjects were given the California Psychological Inventory with staff and supervisory ratings being utilized as criterion scores. His results indicate that highly rated troopers score high on the CPI scales for intelligence, self-confidence, and sociability. These findings suggest that highly rated policemen differ from popular stereotypes and images of the police based on sociological surveys.

Hogan and Kurtines (1975) studied the Oakland, California Police Department, again utilizing the California Psychological Inventory. They determined that their sample of 229 police officers was masculine, self-confident, and socially effective. They found that good police officers are characterized by functional intelligence, achievement motivation, and social poise.

Descriptive studies concerned with personality traits of police applicants have found either that the average police applicant does not differ substantially from the general population or that he differs from general norms with respect to job-related personality characteristics

(Poland, 1978).

Grencik (1971) found the most commonly used personality test for police applicants was the Minnesota Multiphasic Personality Inventory (MMPI). Yet, consultants have criticized the use of the MMPI for law enforcement screening because it was developed for use with clinical populations. Law enforcement screening, on the other hand, generally involves nonpathological populations (Scogin & Beutler, 1986).

Validity Studies

Police selection validity studies attempt to examine the relationship between predictors of job performance, such as age, academy score, civil service test score, and background information with measures of actual job performance, including supervisory ratings, absenteeism, and duty incurred injuries.

Generally, validity studies have used predictor variables discovered through three different kinds of information collection instruments; (1) mental tests, (2) personality tests, and (3) biographical information. This model links predictors (measures of individual differences) with performance criteria (job successes) through an index of relationships. The validation model specifies that persons on any given job be divided on some global measure into success and failure and that they be compared on test scores, biographical information, or any other available

personal measurement (Poland, 1978).

For example, Martin and Troop (1923) constructed a battery of eleven specific tests that they hoped would predict supervisor ratings of police performance. This was one of the first attempts to establish predictive validity for mental tests used for personnel selection. They attained a correlation of -.001 between these police service examinations and subsequent on-the-job performance as police officers. The tests failed to predict police success.

In the Hammond and Davis (1951) study, the Sixteen Personality Factor Questionnaire (Cattell, 1950), was administered to 75 Colorado State Patrol applicants. The authors presented correlations between test sub-scores of 52 applicants which were eventually hired, and three criteria of success. The criteria, (1) dismissed from the patrol, (2) leaving the patrol while in good standing, and (3) merit ratings; were modestly predicted by four of the 16 PF scales: A (Cyclothymia vs. Schizothymia), F (Surgency vs. Desurgency), H (Adventurous Autonomic Resilience vs. Inherent, Withdrawn Schizothymia), and N (Sophistication vs. Rough Simplicity).

The Army General Classification Test (AGCT) was utilized by Dubois and Watson (1960) in conjunction with a test they had developed, called the St. Louis Police Aptitude Test, in an attempt to predict (1) police academy grade, (2) police procedures achievement, (3) marksmanship, and (4) ratings by supervisors. The results showed

significant correlations in predicting police academy grade, police procedures achievement, and marksmanship. Neither of the tests produced significant correlations with on-the-job performance as rated by supervisors.

Colarelli and Siegel (1964) used the California Test of Mental Ability, the Allport-Vernon-Lindzey Study of Values, the Edwards Personal Preference Schedule, and the MMPI, to establish a police selection program with the Kansas State Highway Patrol. Eight job performance variables recorded during the preceding year, including moving hazardous arrests, moving hazardous warnings, other arrests, services rendered, light correction, miles per contact with and without radar, and hours per arrest, were summarized into a composite index for each patrolman on the force. A prediction formula was developed which was applied to 60 new recruits who took the same test battery. Ratings were made at a later time by supervisors who were unaware of the predictions. The results were presented in only general terms; however, all but one candidate predicted to be a failure were either terminated or judged by their supervisor to be poor or marginal in performance and officers predicted to do well, in general, were successful. Although these results are encouraging, no correlations or significance tests were reported.

Azen, Snibbe, and Montgomery (1973), studied 95 men apppointed as deputy sheriffs in the Los Angeles County Sheriff's Department between 1947 and 1950. Among the

significant predictors, using stepwise discriminant analysis, were age, height, the civil service written test score, scale nine of the MMPI, the Kuder Mechanical scale, and the Guilford-Martin General Activity scale.

The principal result of this study was that the Kuder Mechanical score emerged as the most generally useful test, predicting three of the six criterion measures (rank status, job type, and average supervisor ratings).

Azen, Snibbe, Montgomery, Fabricatore, and Earle (1974) conducted a study to identify reliable predictors of police resignations and performance. Stepwise discriminant analysis revealed that scale five of the MMPI and prior military service (26 months plus) predicted officers that would not resign from the department. None of the predictors (MMPI, EPS, or biographical data) were related to field performance.

Saxe and Reiser (1976) found that MMPI scores differentiated officers with continuing employment from those that separated from the Los Angeles Police Department. However, both groups fell within normal ranges on the scale, thus limiting the utility of the MMPI in predicting subsequent officer performance.

In a study of the Los Angeles County Sheriff Department in 1976 (Fabricatore, Azen, Boothe, & Snibbe), performance prediction was studied utilizing the 16PF. Three hundred thirty-three male caucasian patrolmen were placed into two matched groups. Their findings indicate superior performing

officers can be discriminated from their low-performing counterparts in that the former are tough-minded and aggressive. In addition, officers with no preventable vehicular accidents were significantly more self-assured, and those with no reprimands were more conscientious.

Spielberger, Spaulding, Jolley, and Ward (1979) examined the validity of a number of personality and demographic variables in predicting police officer performance. They established as their criterion of success or failure of the police officer at one year of service. Success was defined as satisfactory performance or rehirability, whereas failure was defined as unrehirability or failing to pass the police training academy. The California Psychological Inventory discriminated between success and failure, with successes more likely to have high scores. Four demographic or biographical items also distinguished between the two groups: Successful officers were more likely to report (a) participation in high school athletics, (b) fewer family moves, (c) less need for job encouragement, and (d) higher needs for achievement and societal contributions.

McEuen (1981) investigated the relationship of behavioral traits (Sixteen Personality Factor Questionnaire) to academy grades, dismissal from the department, and evaluation ratings in a sample of Atlanta, Georgia police officers. He found that low intelligence, low guilt and resentment, and high psychological inadequacy were related

to being dropped from the force.

Shusman, Inwald, and Landa (1984), in a study of correctional officers, compared the validity of the MMPI and the Inwald Personality Inventory for predicting job performance. Success or failure, again, was defined as tenure after one year. Utilizing discriminate function analysis, they found that the IPI correctly predicted 73% of the retained and terminated officers, while the MMPI correctly identified 63%. In actual job performance (absenteeism, lateness, and disciplinary interviews), the IPI and MMPI were nearly identical in discriminatory power. The researchers concluded that the use of a single instrument or technique for the assessment of law enforcement candidates was unlikely to yield data of sufficient breadth to predict the multifaceted behavior demanded in the work.

Beutler, Storm, Kirkish, Scogin, and Gaines (1985), studied the association between formal psychological evaluation variables (Minnesota Multiphasic Personality Inventory, Eysenck Personality Inventory, Fundamental Interpersonal Relationship Orientation-Behavior, Shipley Institute of Living Scale, The Symptom Check List, and the Bender-Gestalt) and later police performance, as reflected by various indexes, including supervisor evaluation, reprimands, and commendations. Officers were drawn from three police departments, each of which imposed unique demands: an inner-city metropolitan department, a major

university police department, and a community college police department. Officers' in-service behavior was associated with patterns and elevation of their MMPI profiles and interpersonal needs.

The authors suggest that both quasi-objective and subjective performance criteria are quite predictable using intake psychological data and that these predictions generalize across departments in spite of different demand characteristics and selection criteria. Even infrequent behaviors, such as reprimands for either vehicular misuse or excessive use of force, may be related to pre-existing characteristics. Despite the overall predictive power of the battery used in this study, commendations and participation in continuing education, two positive indices, were not predicted by psychological assessment data.

Scogin and Beutler (1986) summarized that ability to predict job performance at present seems to be in the area of negative performance. We can screen out those who are likely to do poorly, but we cannot predict who will be exemplary police officers. In addition, they noted that no single measure is adequate to assess an individual's overall fitness for police work. Pre-employment screening must include a psychological test, a background investigation, and an in-depth interview by a psychologist knowledgeable in law enforcement (Burkhart, 1980; Dee-Burnett, et al., 1981; McEuen, 1981; Beutler, et al., 1985; Scogin & Beutler, 1986; and Swanson, et al., 1988).

The Sixteen Personality Factor Questionnaire

Bolton (1978) praised the 16PF as a product of over 25 years of developmental research. He indicates no other personality measuring instrument has a more substantial scientific foundation. Bolton summarized his review of the 16PF by claiming that it compares favorably with any other inventory that purports to measure variations in normal personality functioning.

In a review by Butcher (1985), the 16PF was described as gaining in application for normal range assessment situations in recent years. He indicated that the 16PF is most valuable as a personality measure in settings such as personnel selection, guidance counseling, or personality research, where assessment of normal range personality traits are important. The 16PF provides substantial normative scores on relevant normal populations.

Summary

In summary, the overwhelming instrument of choice for screening law enforcement candidates has been the Minnesota Multiphasic Personality Inventory (MMPI). The MMPI has demonstrated some predictive validity for selecting good police officers, however, the research has not been sufficiently replicated to have proven validity across departments and jurisdictions (Beutler, et al., 1985). The MMPI has also been criticized as inappropriate for law enforcement screening (Gottesman, 1975; and Scogin &

Beutler, 1986).

Other paper-and-pencil personality inventories which have gained in popularity for use in law enforcement screening are the California Psychological Inventory, the Inwald Personality Inventory, the Eysenck Personality Inventory, and the Sixteen Personality Factor Questionnaire; all of which have not been evaluated extensively (Scogin & Beutler, 1986).

Although longitudinal research directed at the predictive capability of the Sixteen Personality Factor Questionnaire and police selection was not found in the literature review, Fabricatore, et al., (1976) determined that the 16PF has potential for predictiveness in screening police officers who are likely to be successful. In addition, McEuen (1981) found that the 16PF has a substantial potential for predictive validity within law enforcement, and it is also likely that it can be established to be criterion related.

Chapter 3

Methodology

The Michigan Department of State Police, in an effort to establish a pre-employment psychological screening program, administered the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970) to 67 state police trooper applicants. The predictive capability of the 16PF was examined in a longitudinal panel study with three data collection points:

1. January 19, 1982; the first day of the police recruit training school and administration of the 16PF test.
2. May 11, 1982; the last day of the police recruit training school.
3. December 31, 1985; cumulative police career criterion measures.

Subjects

The 67 state police trooper recruits ranged in age from 23 to 31, with 54 males and 13 females. Forty-one recruits were white, 21 black, and four hispanics (race missing on one recruit). Thirty-nine recruits had high school diplomas, 12 had at least two years of college, 14 had

bachelor degrees and one had a masters degree (education missing on one recruit). Fifty-three recruits had no prior police experience; however, 14 had prior experience ranging from one to 65 months with other law enforcement agencies. A demographic listing of the police recruits at each of the data collection points is provided in Table 1.

The Sixteen Personality Factor Questionnaire

The 16PF is a multidimensional set of sixteen questionnaire scales, arranged in omnibus form. It is designed to reveal information about an individual's standing on most primary personality factors covered by the existing research on the total human personality sphere (Cattell, et al., 1970).

The following definitions/interpretations of the factors are provided in capsulized form:

1. Factor A:

Low Score Direction: Reserved, detached, critical. Individuals who score low tend to be stiff, cool, skeptical, and aloof. They like things rather than people, working alone, and avoiding compromises of viewpoints. They are likely to be precise and rigid in their way of doing things and in their personal standards.

High Score Direction: Warmhearted, outgoing. Persons who score high tend to be good-natured, easygoing, emotionally expressive, ready to cooperate, attentive to

TABLE 1

97th Michigan State Police Recruit School
Demographic Frequencies at Data Collection Points

VARIABLES	19 JAN 82 N	11 MAY 82 N	31 DEC 85 N
Sex			
Male	54	46	42
Female	13	9	8
Race			
White	41	37	36
Black	21	14	10
Hispanic	4	4	4
Missing	1	0	0
Age			
23	5	3	3
24	12	11	8
25	16	13	12
26	7	7	7
27	8	6	6
28	10	8	8
29	2	1	1
30	5	5	4
31	1	1	1
Missing	1	0	0
Education Level			
High School	39	30	25
Associate	12	11	11
Bachelor	14	13	13
Master	1	1	1
Missing	1	0	0
Prior Police Experience			
None	53	42	37
6 Months	4	4	4
1 Year	1	1	1
2 Years	5	5	5
3 Years (+)	4	3	3

people, softhearted, kindly, and adaptable. They are generous in personal relations and less afraid of people.

2. Factor B:

Low Score Direction: Less intelligent.

The person scoring low on this factor tends to be slow to learn and grasp, dull, given to concrete and literal interpretation.

High Score Direction: More intelligent.

The person who scores high tends to be quick to grasp ideas, a fast learner, and intelligent.

3. Factor C:

Low Score Direction: Affected by feelings.

An individual scoring low on this factor tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic, evading necessary reality demands, neurotically fatigued, fretful, easily annoyed and emotional.

High Score Direction: Emotionally stable, mature.

The person who scores high tends to be emotionally stable, mature, realistic about life, unruffled, possessing ego strength, and better able to maintain solid group morale.

4. Factor E:

Low Score Direction: Conventional and conforming.

Individuals scoring low here, tend to be conventional, to be

expressive, and to conform. They are often dependent and confessing.

High Score Direction: Assertive, aggressive, stubborn. People who score high are assertive, self-assured, and independent-minded. They tend to be rebellious and unconventional, disregarding of authority and authoritarian in managing others.

5. Factor F:

Low Score Direction: Sober, prudent, serious. Low scorers tend to be restrained, reticent, and introspective. They are sometimes dour, pessimistic, unduly deliberate, and considered smug and primly correct by observers. They tend to be sober, dependable people.

High Score Direction: Happy-go-lucky, enthusiastic. High scorers on this trait tend to be cheerful, active, talkative, frank, expressive, effervescent, and carefree. They may be impulsive and mercurial.

6. Factor G:

Low Score Direction: Expedient, disregards rules. People who score low tend to be unsteady in purpose. They are often casual and lacking in effort for group undertakings and cultural demands. Their freedom from group influence may lead to anti-social acts.

High Score Direction: Conscientious, persevering. Individuals who score high here tend to be exacting in

character, dominated by sense of duty, persevering, responsible, and planful. They are usually conscientious and moralistic, and they prefer hard-working people to witty companions.

7. Factor H:

Low Score Direction: Shy, restrained, timid. Persons scoring low on this trait tend to be shy, withdrawing, cautious, retiring, and wallflowers. They usually have inferiority feelings and tend to be slow in expressing themselves.

High Score Direction: Venturesome, socially bold. Individuals who score high are sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. They may be careless of detail.

8. Factor I:

Low Score Direction: Tough-minded, self-reliant. People who score low on this factor tend to be tough, realistic, down-to-earth, independent, and responsible. They are sometimes unmoved, hard, and cynical.

High Score Direction: Tender-minded, sensitive. People who score high tend to be emotionally sensitive, day-dreaming, artistically fastidious, and fanciful. They are sometimes demanding of attention and help, impatient, dependent, temperamental, and not very realistic.

9. Factor L:

Low Score Direction: Trusting, adaptable.
This low scorer tends to be free of jealous tendencies, adaptable, cheerful, uncompetitive, concerned about others, and a good team worker. They are generally open and tolerant with other people.

High Score Direction: Suspicious, self-opinionated. People who score high tend to be mistrusting and doubtful. They are often involved in their own egos and are self-opinionated and interested in internal, mental life. Usually they are deliberate in their actions, unconcerned about other people, and poor team members.

10. Factor M:

Low Score Direction: Practical, careful.
Low scorers tend to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. They are concerned over detail, and able to keep their heads during emergencies.

High Score Direction: Imaginative, absent-minded. High scorers tend to be unconventional, unconcerned about everyday matters, self-motivated, imaginatively creative, often absorbed in thought, and oblivious to people and physical realities.

11. Factor N:

Low Score Direction: Forthright, natural.

Persons who score low have natural warmth and a genuine liking for people, are uncomplicated and sentimental, and are unvarnished in their approach to people.

High Score Direction: Shrewd, calculating. Individuals who score high tend to be polished, experienced, and shrewd. Their approach to people and problems is usually perceptive, hardheaded, and efficient.

12. Factor O:

Low Score Direction: Unperturbed, confident. Persons with low scores here tend to be unruffled, with unshakable nerve. They have a mature, unanxious confidence in themselves and their capacity to deal with things. They are resilient and secure.

High Score Direction: Apprehensive, troubled. Persons with high scores have a strong sense of obligation and high expectations of themselves. They tend to worry and feel anxious and guilt-stricken over difficulties. Often they do not feel accepted in groups.

13. Factor Q1:

Low Score Direction: Conservative. People who score low are confident in what they have been taught to believe, and accept the tried and true, despite inconsistencies, when something else might be better. They are cautious and compromising in regard to new ideas. They oppose and postpone change.

High Score Direction: Experimenting, liberal. High scorers tend to be interested in intellectual matters and to have doubts on fundamental issues. They are skeptical and inquiring regarding ideas, either new or old. They are usually well informed and less inclined to moralize, more tolerant of inconvenience and change.

14. Factor Q2:

Low Score Direction: Group oriented, joiner. Individuals who score low prefer to work and make decisions with other people and depend on social approval and admiration. They tend to go along with the group and may be lacking individual resolution.

High Score Direction: Self-sufficient, resourceful. Individuals who score high are temperamentally independent, accustomed to going their own way, making decisions and taking action on their own. They may be hesitant to ask for help and are not necessarily dominant in relations with others.

15. Factor Q3:

Low Score Direction: Undisciplined self-conduct. People who score low will not be bothered with will control and have little regard for social demands. They are impetuous and not overly considerate, careful, or painstaking. They may feel maladjusted.

High Score Direction: Controlled, socially precise.

People who score high tend to have strong control of their emotions and general behavior, are inclined to be socially aware and careful, and evidence what is commonly termed self-respect and high regard for social reputation. They may be perfectionistic and obstinate.

16. Factor Q4:

Low Score Direction: Relaxed, unfrustrated. Individuals who score low tend to be sedate, relaxed, composed, and satisfied. In some situations, their oversatisfaction can lead to laziness and low performance, in the sense that low motivation produces little trial and error.

High Score Direction: Tense, frustrated, driven. Individuals who score high tend to be tense, restless, fretful, impatient, and hard driving. They are often fatigued, but will remain active.

Secondary Dimensions

In addition to these sixteen primary factors, the test can be used as a measure of at least four secondary dimensions, which are broader traits, scored from the primary factors. These secondary traits are briefly described as follows:

17. Factor QI:

Low Score Direction: Introversion.

The person who scores low here tends to be shy, self-sufficient, and inhibited in interpersonal contacts. This can be either a favorable or unfavorable finding, depending upon the particular situation in which the person is expected to function.

High Score Direction: Extraversion.

The individual who scores high on this factor is a socially outgoing, uninhibited person, good at making and maintaining interpersonal contacts.

18. Factor QII:

Low Score Direction: Low anxiety.

People who score low here tend to be those whose lives are generally satisfying and those who are able to achieve those things that seem to them to be important. Low scores may also mean lack of motivation on difficult tasks.

High Score Direction: High anxiety.

The individuals who score high on this factor are high on anxiety. They need not be neurotic, since anxiety could be situational, but it is probable that there are some maladjustments.

19. Factor QIII:

Low Score Direction: Tender-minded emotionality.

Individuals who score low are likely to be troubled by pervasive emotionality, and may be of a discouraged, frustrated type. They are, however, sensitive to the

subtleties of life, likely to be artistic and gentle.

High Score Direction: Tough poise.

Individuals who score high on this factor are likely to be enterprising, decisive, and resilient personalities. They are, however, likely to miss the subtle relationships of life, and to orient their behavior too much toward the obvious. They may become involved in rapid action without consideration and thought.

20. Factor QIV:

Low Score Direction: Subduedness.

Individuals who score low here are group dependent, chastened, passive personalities. They are likely to desire and need support from other persons, and likely to orient their behavior toward persons who give such support.

High Score Direction: Independence.

People who score high on this factor tend to be aggressive, independent, daring, incisive people. They will seek those situations where such behavior is at least tolerated or rewarded, and are likely to exhibit considerable initiative.

The 16PF provides from ten to thirteen item questions for each of the sixteen scales. The questions are arranged in cyclical order determined by plan for convenience in scoring and to ensure variety and interest for the examinee. Three alternative answers are provided for each of the questions to avoid distorted distributions. The test construction is designed to minimize deliberate faking (good

or bad) and random responses, by inclusion of fully normed validity scales. The 16PF (Forms A & B) requires a seventh grade level reading ability and takes approximately one hour to administer (IPAT, 1979).

Data Analysis

The analysis of hypotheses #1 through #6 consisted of multiple regression of the sixteen primary and four secondary scales of the Sixteen Personality Factor Questionnaire with demographic variables sex, race, age, education level, and prior police experience on each dependent (predicted) variable.

For this research, it was appropriate to enter the independent (predictor) variables one by one on the basis of the respective contribution of each variable to the dependent variable. Therefore, a stepwise inclusion procedure was utilized. The variable that explained the greatest amount of variance in the dependent variable entered first; the variable that explained the greatest amount of variance in conjunction with the first entered second, and so on. Thus, the independent variable which was chosen for entry by the computer, was the one which had the largest squared partial correlation with the dependent variable.

Analyses of hypotheses #7 through #12 were performed with the Kruskal-Wallis, one-way analysis of variance test. All data analyses were performed using the Statistical

Package for the Social Sciences (SPSSX)(SPSS, Inc.), an integrated system of computer programs designed for the analysis of social science data. Because this study was exploratory in nature, default parameter options were used in all analyses.

Chapter 4

Results of Study

The focus of this study has been on the predictive capability of the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970), on selected police criterion measures in a four-year longitudinal panel study involving 67 Michigan State Police Trooper recruits.

Twelve hypotheses were developed. Analysis of these hypotheses are reported in this chapter.

Preliminary Examination of 16PF Scores

The 16PF scores of all 67 police recruits were examined to determine what, if any, differences exist for sex, race, age, education level, or prior police experience. All of the analyses were performed with the Kruskal-Wallis, one-way analysis of variance test.

Sex.

There were 54 males and 13 females in the study. Table 2 shows that males demonstrated more shrewdness ($p<.05$), a greater tenseness ($p<.05$), and higher anxiety ($p<.01$) than females.

TABLE 2

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Sex

16PF FACTOR		MALE M	(n = 54) RANK M	FEMALE M	(n = 13) RANK M
A		5.075	33.56	5.308	35.85
B		5.582	31.80	7.000	43.15
C	**	5.889	30.85	7.385	47.08
E		5.352	32.97	5.692	38.27
F		6.259	33.49	6.692	36.12
G		6.222	34.87	5.769	30.38
H	*	5.481	31.68	6.615	43.65
I		5.204	34.14	5.154	33.42
L		4.870	33.67	5.231	36.62
M		4.148	32.37	5.077	40.77
N	*	6.352	36.56	5.385	23.35
O		5.407	35.54	4.615	27.62
Q1		5.000	33.13	5.462	37.62
Q2		6.130	33.37	6.462	36.62
Q3	*	5.963	31.46	7.308	44.54
Q4	*	5.741	36.76	4.231	22.54
QI		4.709	33.57	5.931	35.77
QII	**	5.563	37.19	3.908	20.73
QIII		6.024	33.17	6.477	37.46
QIV		4.817	31.77	5.623	43.27

CHI SQR Significance: *$p<.05$. **$p<.01$.

Females demonstrated higher emotional stability ($p<.01$), greater social boldness ($p<.05$), and were more socially controlled and precise ($p<.05$).

Race.

In this study, 41 subjects were white, 21 were black, and four were hispanic. For the purposes of this analysis, black and hispanic police recruits were recoded as nonwhite.

White police recruits as seen from Table 3 were more intelligent ($p<.05$), more emotionally stable ($p<.001$), and demonstrated more tough poise ($p<.05$) than non-whites.

Non-whites were more tender-minded ($p<.05$), practical ($p<.0005$), more experimenting ($p<.05$), and showed higher anxiety ($p<.05$) than white recruits.

Age.

The police recruits ranged in age from 23 to 31. The group was split with 33 subjects between the ages of 23-25, compared to 33 subjects between the ages of 26-31 (missing data on one subject). Table 4 shows that the younger police recruits demonstrated more practicality ($p<.05$) than older recruits.

Education Level.

Twenty-seven police recruits with at least two years or more of college were compared to 39 recruits with high school diplomas.

TABLE 3

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Race

16PF FACTOR		WHITE M	(n = 41) RANK M	NONWHITE M	(n = 25) RANK M
A		4.976	32.21	5.360	35.62
B	*	6.512	37.49	5.400	26.96
C	**	6.780	39.73	5.240	23.28
E		5.463	33.80	5.320	33.00
F		6.488	35.61	6.000	30.04
G		6.098	32.35	6.360	35.38
H		5.780	34.24	5.600	32.28
I	*	4.854	29.91	5.720	39.38
L		4.659	31.09	5.400	37.46
M	***	4.976	39.80	3.240	23.16
N		6.073	32.80	6.280	34.64
O		4.951	31.27	5.640	37.16
Q1	*	4.683	29.33	5.760	40.34
Q2		6.244	34.06	6.040	32.58
Q3		6.415	35.21	5.960	30.70
Q4		5.122	30.61	5.920	38.24
QI		5.829	34.22	5.656	32.32
QII	*	4.780	29.04	5.936	40.82
QIII	*	6.639	38.16	5.256	25.86
QIV		5.146	36.68	4.660	28.28

CHI SQR Significance: *p<.05. **p<.001. ***p<.0005.

TABLE 4

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Age

16PF FACTOR	AGE 23-25 (n = 33) M	RANK M	AGE 26-32 (n = 33) M	RANK M
A	5.242	34.91	5.000	32.09
B	5.939	32.30	6.242	34.70
C	5.970	31.65	6.424	35.35
E	5.576	35.12	5.242	31.88
F	6.606	36.67	6.000	30.33
G	6.182	33.79	6.212	33.21
H	5.909	35.67	5.515	31.33
I	5.576	37.62	4.788	29.38
L	4.970	34.35	4.909	32.65
M *	3.727	27.89	4.909	39.11
N	6.364	35.32	5.939	31.68
O	5.212	32.59	5.212	34.41
Q1	5.333	35.80	4.848	31.20
Q2	5.697	29.09	6.636	37.91
Q3	6.242	33.74	6.242	33.26
Q4	5.485	33.59	5.364	33.41
QI	6.024	36.55	5.503	30.45
QII	5.303	33.44	5.133	33.56
QIII	5.815	31.18	6.415	35.82
QIV	4.752	30.67	5.173	36.33

CHI SQR Significance: *p<.05.

Police recruits with college were more enthusiastic ($p<.05$) than recruits with high school diplomas. (See Table 5.)

Prior Police Experience.

Fifty-three police recruits had no prior police experience. Fourteen recruits had prior experience ranging from one to 65 months service with other law enforcement agencies.

Police recruits with prior police experience as shown in Table 6 were more tough-minded ($p<.05$) and demonstrated greater tough poise ($p<.005$) than recruits without prior experience.

Fifty-five police recruits graduated from the Michigan State Police Training Academy on May 11, 1982. During the nearly four months of training, 12 recruits resigned for various reasons.

On December 31, 1985, the last day of this study, 50 of the original police recruits were still employed as troopers.

The criterion measure "Class Quartile" was analyzed using 55 subjects. The criterion measures "Absentee Record", "Patrol Car Accidents", and "Reported Injuries" were analyzed with 50 subjects. The criterion measure "Baseline Activity" was analyzed with 49 subjects. Finally, the criterion measure "Employment Status" was analyzed with all 67 original police recruits.

TABLE 5

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Education Level

16PF FACTOR	HIGH SCHOOL (n = 39) M	RANK M	COLLEGE (2+) (n = 27) M	RANK M
A	5.154	33.73	5.074	33.17
B	5.949	31.84	6.296	35.94
C	5.974	31.15	6.519	36.89
E	5.179	31.14	5.741	36.91
F *	5.872	28.81	6.926	40.28
G	6.436	36.36	5.852	29.37
H	5.487	31.23	6.037	36.78
I	5.308	34.97	5.000	31.37
L	5.000	33.76	4.852	33.13
M	4.051	30.78	4.704	37.43
N	6.103	33.38	6.222	33.67
O	5.333	34.50	5.037	32.06
Q1	5.205	34.91	4.926	31.46
Q2	6.256	34.41	6.037	32.19
Q3	6.410	34.65	6.000	31.83
Q4	5.385	33.32	5.481	33.76
QI	5.479	30.23	6.174	38.22
QII	5.372	35.26	4.996	30.96
QIII	5.762	29.81	6.626	38.83
QIV	4.762	30.08	5.252	38.44

CHI SQR Significance: *p<.05.

TABLE 6

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Prior Police Experience

16PF FACTOR	NO EXPERIENCE (n = 53) M	RANK M	EXPERIENCED (n = 14) M	RANK M
A	5.340	36.19	4.286	25.71
B	5.906	32.00	6.714	41.57
C	6.151	33.81	6.286	34.71
E	5.377	33.88	5.571	34.46
F	6.283	33.25	6.571	36.82
G	6.226	34.89	5.786	30.64
H	5.925	36.21	4.857	25.64
I *	5.396	36.40	4.429	24.93
L	5.019	34.77	4.643	31.07
M	4.208	32.71	4.786	38.89
N	6.113	33.33	6.357	36.54
O	5.189	33.17	5.500	37.14
Q1	5.245	35.70	4.500	27.57
Q2	6.057	32.70	6.714	38.93
Q3	6.434	36.33	5.429	25.18
Q4	5.415	33.54	5.571	35.75
QI	5.821	34.97	5.493	30.32
QII	5.185	33.16	5.457	37.18
QIII **	5.791	30.53	7.329	47.14
QIV	4.949	33.25	5.064	36.82

CHI SQR Significance: *$p<.05$. **$p<.005$.

Criterion measures "Complaints Against Employee" and "Discipline/Affirmative Assistance Recommended" were not analyzed. Only two recruits received complaints filed against them, and only one police recruit was officially disciplined during the study.

All cumulative criterion measures are presented in Table 7.

Hypothesis #1

There are no statistically significant predictors of "Recruit Class Quartile" on the basis of sex, race. age, education level, prior police experience, or 16PF sten scores.

This hypothesis is used to examine the question: Do sex, race, age, education level, prior police experience, and scores on the 16PF contribute to a prediction of class quartile among those who complete the academy?

Multiple regression was done using "Class Quartile" as the dependent variable and the set of 16PF scores, sex, race, age, education level, and prior police experience as independent variables. The results as shown in Table 8 suggest that one demographic and three personality factors predict "Class Quartile." Recruits who demonstrated tough poise ($p<.0001$), greater intelligence ($p<.0001$), apprehensiveness ($p<.0001$), and are white ($p<.005$), tend to place better in the recruit training academy. Together, these factors explain 50% of the variance of the "Class

TABLE 7

97th Michigan State Police Recruit School
Cumulative Criterion Measure Frequencies

VARIABLE	CATEGORY	n
Class Quartile:	1 (Top)	14
	2	14
	3	13
	4	14
Baseline Activity:	432-696	49
Absentee Record:	2-11	21
	12-16	18
	17-25	11
Patrol Car Accidents:	0	17
	1	11
	2	14
	3	4
	4	2
	5	2
Reported Injuries:	0	10
	1	22
	2	7
	3	8
	4	2
	6	1
Complaints Against Employee:	0	48
	1	1
	2	1
Discipline Record:	0	49
	1	1
Employment Status:	Employed	50
	Resigned	17

TABLE 8

Hypothesis #1

Results of Stepwise Multiple Regression
Dependent Variable: Class Quartile

N = 55

STEP NUMBER	INDEPENDENT VARIABLE	R SQUARE	R SQR CHANGE	F VALUE	BETA VALUE
#1	Race	.224	.224	15.30 *	.473
#2	16PF: QIII	.373	.149	15.48 **	.393
#3	16PF: B	.443	.070	13.51 **	.281
#4	16PF: O	.501	.058	12.54 **	.252

*p<.0005. **p<.0001.

Quartile" variable. The null hypothesis is rejected.

Hypothesis #2

There are no statistically significant predictors of "Baseline Activity" due to sex, race, age, education level, prior police experience, or 16PF sten scores.

This hypothesis is utilized to examine the question: Do sex, race, age, education level, prior police experience, and scores on the 16PF contribute to a prediction of how well state police troopers will perform while working road patrol, issuing traffic citations, making arrests, and other police functions?

Multiple regression was done using "Baseline Activity" as the dependent variable and the set of 16PF scores, sex, race, age, education level, and prior police experience as the independent variables. The results indicate no statistically significant relationship between the variables. The null hypothesis is, therefore, not rejected.

Hypothesis #3

There are no statistically significant predictors of "Absenteeism" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

This hypothesis is used to examine the question: Do sex, race, age, education level, prior police experience, and scores on the 16PF contribute to prediction of the frequency in which state police troopers utilize leave

credits?

Multiple regression was done using "Absenteeism" as the dependent variable, and the set of 16PF sten scores, sex, race, age, education level, and prior police experience as independent variables. The results suggest one demographic and two personality factors are predictive of "Absenteeism". Police recruits who are younger (age 23-25) ($p<.05$), are more independent ($p<.005$), and have higher guilt proneness ($p<.0001$) tend to utilize leave credits more frequently. Together, these factors account for 37% of variance explained in the "Absenteeism" variable. Therefore, the null hypothesis is rejected. Results from this analysis are presented in Table 9.

Hypothesis #4

There are no statistically significant predictors of "Patrol Car Accidents" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

This hypothesis is used to examine the question: Do sex, race, age, education level, prior police experience, and scores obtained on the 16PF contribute to a prediction on the number of patrol car accidents state police troopers will become involved in?

Multiple regression was done using "Patrol Car Accidents" as the dependent variable and the set of 16PF scores with sex, race, age, education level, and prior

TABLE 9

Hypothesis #3

Results of Stepwise Multiple Regression
Dependent Variable: Absentee Record

N = 50

STEP NUMBER	INDEPENDENT VARIABLE	R SQUARE	R SQR CHANGE	F VALUE	BETA VALUE
#1	Age	.109	.109	5.84 *	3.723
#2	16PF: QIV	.204	.095	6.00 **	3.821
#3	16PF: O	.371	.167	9.08 ***	3.512

*p<.05. **p<.005. ***p<.0001.

police experience as independent variables. The results suggest four personality factors are predictive of the number of patrol car accidents involving a trooper. Troopers who are less intelligent ($p<.005$), more assertive ($p<.0001$), serious ($p<.0001$), and having high ego strength ($p<.0001$), tend to have more patrol car accidents. Together, these factors account for almost 44% of the explained variance in the "Patrol Car Accident" variable as shown in Table 10. The null hypothesis is rejected.

Hypothesis #5

There are no statistically significant predictors of "Reported Injuries" on the basis of sex, race, age, education level, prior police experience, or 16PF sten scores.

This hypothesis is used to examine the question: Do sex, race, age, education level, prior police experience, and scores on the 16PF contribute to a prediction of injuries that state police troopers may receive?

Multiple regression was done using "Reported Injuries" as the dependent variable and the set of 16PF scores with sex, race, age, education level, and prior police experience as independent variables. The results given in Table 11 suggest that three personality and one demographic variable are predictive of injuries reported in the line of duty. Police officers with two or more years of college ($p<.001$), who demonstrate suspiciousness ($p<.01$), are conscientious

TABLE 10

Hypothesis #4

Results of Stepwise Multiple Regression
Dependent Variable: Patrol Car Accidents

N = 50

STEP NUMBER	INDEPENDENT VARIABLE	R SQUARE	R SQR CHANGE	F VALUE	BETA VALUE
#1	16PF: B	.172	.172	9.95 *	4.563
#2	16PF: E	.313	.141	10.71 **	3.671
#3	16PF: F	.381	.068	9.43 **	2.513
#4	16PF: C	.437	.056	8.73 **	2.118

*p<.005. **p<.0001.

TABLE 11

Hypothesis #5

Results of Stepwise Multiple Regression
Dependent Variable: Reported Injuries

N = 50

STEP NUMBER	INDEPENDENT VARIABLE	R SQUARE	R SQR CHANGE	F VALUE	BETA VALUE
#1	16PF: L	.145	.145	8.16 *	3.069
#2	Education	.260	.115	8.25 **	3.679
#3	16PF: G	.327	.067	7.44 ***	2.383
#4	16PF: A	.398	.071	7.44 ****	2.309

*p<.01. **p<.001. ***p<.0005. ****p<.0001.

($p<.0005$), and are reserved ($p<.0001$) tend to report more duty incurred injuries. These factors account for almost 40% of the explained variance in the variable "Reported Injuries." The null hypothesis is rejected.

Hypothesis #6

There are no statistically significant predictors of "Employment Status" on the basis of sex, race, age, education level, prior police experience, or 16PF scores.

This hypothesis is used to examine the question: Which of the demographic or 16PF factor variables, if any, contribute to the prediction of "Employment Status?"

Multiple regression analysis was performed on the dependent variable "Employment Status", utilizing the 16PF sten scores with sex, race, age, education level, and prior police experience as independent variables. Results of this analysis indicate troopers with two or more years of college ($p<.05$), and who are tough-minded ($p<.005$), tend to remain employed. These two factors account for approximately 17% of the explained variance in the "Employment Status" variable. The null hypothesis is rejected. Results for this analysis are presented in Table 12.

Hypothesis #7

There are no statistically significant differences in 16PF sten scores on the basis of "Recruit Class Quartile".

This hypothesis was used to examine the question:

TABLE 12

Hypothesis #6

Results of Stepwise Multiple Regression
Dependent Variable: Employment Status

N = 67

STEP NUMBER	INDEPENDENT VARIABLE	R SQUARE	R SQR CHANGE	F VALUE	BETA VALUE
#1	Education	.093	.093	6.55 *	2.445
#2	16PF: I	.169	.076	6.40 **	2.402

*p<.05. **p<.005.

Having attained a standing in a police academy recruit school by quartile, can individuals finishing in one quartile be distinguished from those who finished in another quartile by 16PF sten scores?

The Kruskal-Wallis one-way analysis of variance was used to compare the first (top) quartile with the fourth (bottom) quartile. Results of this analysis suggests that police recruits finishing in the top quartile were more intelligent ($p<.01$), more tough-minded ($p<.05$), demonstrated greater self-sufficiency ($p<.05$), and more tough poise ($p<.05$), than recruits in the bottom quartile. The null hypothesis is rejected. Results of this analysis are presented in Table 13.

Hypothesis #8

There are no statistically significant differences in 16PF sten scores on the basis of obtained "Baseline Activity" scores.

This hypothesis is used to examine the question: Having accumulated average baseline activity scores, can similar scoring police officers be distinguished from others by 16PF sten scores?

The Kruskal-Wallis one-way analysis of variance was utilized to compare police officers who had accumulated exceptionally high baseline activity scores (greater than 599), with officers who had demonstrated average to poor baseline activity scores (less than 500). The results given

TABLE 13

Hypothesis #7

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Class Quartile

16PF FACTOR		1ST QUARTILE (n = 14) M	RANK M	4TH QUARTILE (n = 14) M	RANK M
A		4.500	13.07	5.357	15.93
B	**	7.071	18.71	4.929	10.29
C		6.643	15.79	6.000	13.21
E		5.857	16.93	4.643	12.07
F		6.214	13.21	6.786	15.79
G		6.071	13.32	6.500	15.68
H		5.714	13.68	6.286	15.32
I	*	4.429	11.21	5.786	17.79
L		4.357	14.29	4.429	14.71
M		5.143	16.61	4.071	12.39
N		5.286	11.57	6.929	17.43
O		5.214	15.57	4.929	13.43
Q1		4.429	11.71	5.714	17.29
Q2	*	7.143	17.50	5.429	11.50
Q3		5.571	13.86	6.071	15.14
Q4		5.643	15.18	5.429	13.82
QI		5.750	13.68	6.107	15.32
QII		5.150	15.07	5.086	13.93
QIII	*	7.579	18.14	5.543	10.86
QIV		5.450	17.32	4.479	11.68

CHI SQR Significance: *$p<.05$. **$p<.01$.

in Table 14 indicate no statistically significant differences in the 16PF sten scores. Therefore, the null hypothesis is not rejected.

Hypothesis #9

There are no statistically significant differences in 16PF sten scores on the basis of "Absenteeism."

This hypothesis examines the question: Can police officers with similar absentee records be distinguished from others by 16PF sten scores?

Here again, the Kruskal-Wallis one-way analysis of variance was used to compare police officers who had absentee frequencies of twelve or fewer occurrences, with police officers whose absentee frequency rate was sixteen or more. The results presented in Table 15 indicate officers with fewer absences demonstrated stronger control of their emotions and general behavior ($p<.05$), than those with higher absentee rates. The null hypothesis is rejected.

Hypothesis #10

There are no statistically significant differences in 16PF sten scores on the basis of "Patrol Car Accidents."

This hypothesis is used to examine the question: Are police officers distinguishable by the number of accumulated patrol car accidents and 16PF sten scores?

The Kruskal-Wallis one-way analysis of variance was used to compare police officers with no reportable patrol

TABLE 14

Hypothesis #8

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Baseline Activity

16PF FACTOR	BASELINE <500 (n = 8) M	RANK M	BASELINE >599 (n = 14) M	RANK M
A	5.250	10.88	5.643	11.86
B	5.875	11.44	5.929	11.54
C	5.875	9.38	6.714	12.71
E	5.125	11.69	5.143	11.39
F	6.500	10.38	6.429	12.14
G	6.125	10.94	6.357	11.82
H	6.125	12.94	5.571	10.68
I	4.250	9.88	4.929	12.43
L	4.625	11.75	4.571	11.36
M	5.125	12.69	4.357	10.82
N	5.500	9.19	6.714	12.82
O	5.250	12.19	5.000	11.11
Q1	5.000	11.75	4.714	11.36
Q2	6.875	13.69	5.571	10.25
Q3	6.000	10.38	6.286	12.14
Q4	6.125	14.19	5.000	9.96
QI	6.000	11.81	5.886	11.32
QII	5.500	13.00	4.929	10.64
QIII	7.087	14.75	5.671	9.64
QIV	5.187	12.94	4.700	10.68

TABLE 15

Hypothesis #9

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Absentee Record

16PF FACTOR	ABSENT M	<12 (n = 21) RANK M	ABSENT M	>16 (n = 11) RANK M
A	5.048	16.69	4.818	16.14
B	6.095	16.52	6.091	16.45
C	6.476	17.14	6.182	15.27
E	5.286	15.64	6.000	18.14
F	6.095	15.48	6.545	18.45
G	6.619	17.83	5.909	13.95
H	5.952	16.98	5.636	15.59
I	4.810	15.69	5.182	18.05
L	4.714	15.17	5.545	19.05
M	4.429	16.93	4.091	15.68
N	6.143	17.67	5.364	14.27
O	4.667	14.31	5.636	20.68
Q1	4.762	15.64	5.364	18.14
Q2	6.238	16.05	6.455	17.36
Q3 *	6.286	18.90	5.000	11.91
Q4	5.238	15.64	5.909	18.14
QI	5.771	15.83	6.000	17.77
QII	4.900	14.86	5.655	19.64
QIII	6.281	16.05	6.555	17.36
QIV	4.938	15.36	5.409	18.68

CHI SQR Significance: *p<.05.

car accidents with officers that were involved in more than one accident. The results of the analysis, see Table 16, indicate that police officers with no reported accidents were more intelligent ($p<.05$), and more tough-minded ($p<.05$) than officers who had more than one reported accident. This null hypothesis is rejected.

Hypothesis #11

There are no statistically significant differences in 16PF sten scores on the basis of "Reported Injuries".

This hypothesis examines the question: Are police officers distinguishable by the number of reported injuries and 16PF sten scores?

The Kruskal-Wallis one-way analysis of variance was used to compare police officers having no reported injuries sustained to officers reporting more than one injury. The results of this analysis suggests that police officers without any reported injuries are more trusting ($p<.05$) than officers with more than one reported injury. The null hypothesis is rejected. Results concerning this analysis are presented in Table 17.

Hypothesis #12

There are no statistically significant differences in 16PF sten scores on the basis of "Employment Status".

This hypothesis is used to examine the question: Are police officers who remain employed distinguishable from

TABLE 16

Hypothesis #10

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Patrol Car Accidents

16PF FACTOR	NO ACCIDENTS (n = 17) M	RANK M	ACCIDENTS >1 (n = 22) M	RANK M
A	4.588	20.12	4.591	19.91
B *	6.824	25.15	5.227	16.02
C	6.412	20.85	6.182	19.34
E	4.765	17.06	5.545	22.27
F	6.529	20.79	6.045	19.39
G	5.824	16.56	6.682	22.66
H	5.353	18.35	5.909	21.27
I *	4.353	15.91	5.500	23.16
L	4.706	19.74	4.773	20.20
M	4.529	20.53	4.318	19.59
N	6.353	21.32	5.864	18.98
O	5.176	20.06	5.136	19.95
Q1	4.941	19.41	5.091	20.45
Q2	6.294	19.74	6.364	20.20
Q3	6.706	21.68	6.045	18.70
Q4	5.294	18.59	5.773	21.09
QI	5.476	18.65	5.741	21.05
QII	5.000	18.62	5.332	21.07
QIII	6.618	21.76	6.168	18.64
QIV	4.688	17.76	5.005	21.73

CHI SQR Significance: *p<.05.

TABLE 17

Hypothesis #11

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Reported Injuries

16PF FACTOR	NO INJURIES (n = 10) M	RANK M	INJURIES >1 (n = 18) M	RANK M
A	5.600	16.90	4.944	13.17
B	5.700	13.65	6.056	14.97
C	6.100	14.25	5.944	14.64
E	4.800	10.95	6.111	16.47
F	6.700	15.20	6.389	14.11
G	6.700	14.05	6.778	14.75
H	5.600	14.10	5.778	14.72
I	5.200	15.55	4.944	13.92
L *	4.500	10.50	5.667	16.72
M	4.500	14.75	4.500	14.36
N	7.100	17.20	6.111	13.00
O	4.800	12.85	5.278	15.42
Q1	4.900	13.95	5.056	14.81
Q2	5.600	13.50	5.889	15.06
Q3	6.600	15.35	6.167	14.03
Q4	4.500	10.55	6.111	16.69
QI	5.790	13.20	6.178	15.22
QII	4.700	12.35	5.628	15.69
QIII	5.550	12.10	6.233	15.83
QIV	4.450	11.40	5.339	16.22

CHI SQR Significance: *p<.05.

officers that resign, by 16PF sten scores?

The Kruskal-Wallis one-way analysis of variance test was used in several analyses for this hypothesis. First, all police officers who remained employed during the study were compared to all resigning officers. The results indicate that the employed officers were tough-minded ($p<.05$), where resigning officers were more tender-minded and emotionally sensitive. The null hypothesis is rejected. Results of this analysis are presented in Table 18.

The second analysis compared white police officers who remained employed with white officers that resigned. The results here suggest that white police officers that remained employed were more tough-minded ($p<.05$), more trusting and adaptable ($p<.05$), and more imaginative ($p<.05$) than white police officers who resigned (see Table 19). The null hypothesis is rejected.

The third analysis compared black police officers who remained employed with the black officers that resigned. These results, shown in Table 20, indicate black police officers who remained employed were more conventional and conforming ($p<.05$) than black officers that resigned. The null hypothesis is rejected.

The fourth analysis compared male police officers who remained employed with male officers that resigned. These results suggest that employed male police officers demonstrate more tough poise ($p<.05$) and were practical and anxious to do the right things; however, not as practical as

TABLE 18

Hypothesis #12

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Employment Status

16PF FACTOR	EMPLOYED M	(n = 50) RANK M	RESIGNED M	(n = 17) RANK M
A	5.000	32.66	5.471	37.94
B	6.120	34.54	5.941	32.41
C	6.320	35.72	5.765	28.94
E	5.320	32.49	5.706	38.44
F	6.420	35.41	6.118	29.85
G	6.320	35.17	5.588	30.56
H	5.740	34.37	5.588	32.91
I *	4.900	30.82	6.059	43.35
L	4.720	31.99	5.588	39.91
M	4.600	36.45	3.529	26.79
N	6.100	33.31	6.353	36.03
O	5.000	31.52	6.000	41.29
Q1	4.900	31.88	5.647	40.24
Q2	6.140	33.40	6.353	35.76
Q3	6.280	34.30	6.059	33.12
Q4	5.360	32.63	5.706	38.03
QI	5.384	35.27	5.512	30.26
QII	5.050	31.66	5.806	40.88
QIII	6.298	35.62	5.565	29.24
QIV	4.996	34.60	4.906	32.24

CHI SQR Significance: *p<.05.

TABLE 19

Hypothesis #12

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Employment Status (Race: White)

16PF FACTOR	EMPLOYED (n = 36) M	RANK M	RESIGNED (n = 5) M	RANK M
A	4.972	20.96	5.000	21.30
B	6.556	21.40	6.200	18.10
C	6.806	21.29	6.600	18.90
E	5.472	21.03	5.400	20.80
F	6.500	21.42	6.400	18.00
G	6.194	21.22	5.400	19.40
H	5.806	21.11	5.600	20.20
I *	4.611	19.25	6.600	33.60
L *	4.389	19.33	6.600	33.00
M *	5.194	22.54	3.400	9.90
N	5.972	20.31	6.800	26.00
O	4.806	19.97	6.000	28.40
Q1	4.611	20.56	5.200	24.20
Q2	6.167	20.64	6.800	23.60
Q3	6.472	21.01	6.000	20.90
Q4	5.111	20.72	5.200	23.00
QI	5.894	21.67	5.360	16.20
QII	4.678	20.26	5.520	26.30
QIII	6.681	20.92	6.340	21.60
QIV	5.214	21.65	4.660	16.30

CHI SQR Significance: *p<.05.

TABLE 20

Hypothesis #12

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Employment Status (Race: Black)

16PF FACTOR	EMPLOYED M	(n = 10) RANK M	RESIGNED M	(n = 11) RANK M
A	5.500	10.65	5.727	11.32
B	4.700	9.15	5.909	12.68
C	5.200	10.05	5.455	11.86
E *	4.500	7.95	5.818	13.77
F	5.800	11.25	5.727	10.77
G	6.900	12.30	6.000	9.82
H	5.700	10.90	5.636	11.09
I	6.000	11.70	5.818	10.36
L	5.300	11.05	5.182	10.95
M	3.200	10.50	3.455	11.45
N	6.900	12.60	6.091	9.55
O	5.000	9.45	5.818	12.41
Q1	6.200	11.20	5.909	10.82
Q2	6.100	11.10	6.000	10.91
Q3	6.300	11.20	6.182	10.82
Q4	5.600	10.75	5.818	11.23
QI	5.420	10.70	5.627	11.27
QII	5.700	10.70	5.845	11.27
QIII	4.430	9.60	5.182	12.27
QIV	4.410	10.25	4.945	11.68

CHI SQR Significance: *p<.05.

males who resigned ($p<.05$). The null hypothesis is rejected. These results are presented in Table 21.

The fifth and final analysis compared female police officers who remained employed with female officers that resigned. The results here suggest that employed female police officers were more unperturbed and self-assured ($p<.05$), yet, demonstrated less tough poise ($p<.05$) than females that resigned (see Table 22). The null hypothesis is rejected.

TABLE 21

Hypothesis #12

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Employment Status (Sex: Male)

16PF FACTOR	EMPLOYED M	(n = 42) RANK M	RESIGNED M	(n = 12) RANK M
A	4.929	26.24	5.583	31.92
B	5.881	27.82	5.750	26.38
C	6.071	29.24	5.250	21.42
E	5.333	27.00	5.417	29.25
F	6.429	29.49	5.667	20.54
G	6.381	28.25	5.667	24.88
H	5.643	28.83	4.917	22.83
I	4.952	25.55	6.083	34.33
L	4.786	26.82	5.167	29.88
M *	4.452	29.71	3.083	19.75
N	6.238	26.46	6.750	31.13
O	5.238	26.27	6.000	31.79
Q1	4.881	26.31	5.417	31.67
Q2	6.095	27.14	6.250	28.75
Q3	6.000	27.57	6.833	27.25
Q4	5.619	26.18	6.167	32.13
QI	5.874	29.32	5.133	21.13
QII	5.376	25.60	6.217	34.17
QIII *	6.374	30.20	4.800	18.04
QIV	4.921	28.99	4.450	22.29

CHI SQR Significance: *$p<.05$.

TABLE 22

Hypothesis #12

Kruskal-Wallis One-Way Analysis of Variance
Differences Based on Employment Status (Sex: Female)

16PF FACTOR	EMPLOYED M	(n = 8) RANK M	RESIGNED M	(n = 5) RANK M
A	5.375	7.25	5.200	6.60
B	7.375	7.94	6.400	5.50
C	7.625	7.38	7.000	6.40
E	5.250	5.75	6.400	9.00
F	6.375	6.19	7.200	8.30
G	6.000	7.25	5.400	6.60
H	6.250	6.25	7.200	8.20
I	4.625	5.38	6.000	9.60
L	4.375	5.56	6.600	9.30
M	5.375	7.38	4.600	6.40
N	5.375	7.13	5.400	6.80
O *	3.750	5.06	6.000	10.10
Q1	5.000	6.06	6.200	8.50
Q2	6.375	6.81	6.600	7.30
Q3	7.750	7.88	6.600	5.60
Q4	4.000	6.31	4.600	8.10
QI	5.625	5.94	6.420	8.70
QII	3.337	5.69	4.820	9.10
QIII *	5.900	5.13	7.400	10.00
QIV	5.387	6.19	6.000	8.30

CHI SQR Significance: *p<.05.

Chapter 5

Summary, Conclusions, Limitations, & Future Research

The purpose of this study was to determine the predictive capability of the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970), on selected police criterion measures in a four-year longitudinal panel study involving 67 Michigan State Police Trooper recruits. Moreover, this research sought to determine if the 16PF is suitable for selecting or rejecting future police candidates during pre-employment screening.

Summary

Since the 1967 Presidents Commission on Law Enforcement issued its report on abuse and unprofessional behavior by law enforcement personnel, psychological screening of police candidates has been on the rise. In 1973, the National Advisory Commission on Criminal Justice Standards and Goals recommended that psychological screening be part of the selection process.

Deciding which assessment technique is best suited for psychological screening of law enforcement candidates is a difficult task. Murphy (1972) surveyed 203 police agencies

and found that 36 different types of psychological screening procedures were in use. Behrens (1985) survey of 50 state police agencies did not provide any clear consensus as to techniques employed, but the MMPI was most the prevalent paper-and-pencil test used.

The Michigan Department of State Police determined, however, that the 16PF was potentially an appropriate instrument to be used as part of the department's pre-employment psychological screening program (Rossi, 1982).

Selection of law enforcement personnel who are stable and emotionally mature has been highlighted in several widely publicized incidents. Police administrators with the responsibility for providing the public with law enforcement service have become exceptionally sensitive to the need to carefully select those officers who will make split-second decisions under all kinds of conditions.

Police selection procedures are expensive propositions, yet failure to implement appropriate procedures may result in catastrophic financial losses through civil litigation.

The majority of instruments for psychological screening of law enforcement applicants to date have been directed toward screening out individuals who demonstrate psychopathological conditions. The overall scope of a selection program should, however, include the ability to disqualify candidates who are unsuitable for police work based on personality factors which are demonstrated to be inconsistent with job criterion measures.

This study focused on six specific police criterion measures:

1. Predicting trooper class standing by quartile.
2. Predicting trooper performance in terms of productivity.
3. Predicting trooper work absence frequencies.
4. Predicting trooper patrol car accidents.
5. Predicting trooper duty incurred injuries.
6. Predicting trooper employment status.

Conclusions

It was determined in this study that intelligence, apprehensiveness, tough poise, and race were predictive of standing in the police recruit school. Intelligence is the logical finding considering brighter individuals should do better in academic competition than less intelligent recruits.

McEuen (1981) determined that academy grades were predicted by intelligence (Culture Fair Intelligence Test), emotional maturity, happy-go-luckiness, forthrightness, and liberalism.

The demographic variable "Race" was predictive of success in the state police recruit school (recruit class quartile standing). The analyses clearly indicate white recruits were more successful in the training academy and demonstrated greater intelligence than their non-white counterparts. The comparison of intelligence levels between

these two groups was statistically significant ($p<.05$). It appears, therefore, that race and intelligence regarding recruit class quartile standing are parallel findings.

In the second area of focus, it was determined that none of the demographic or personality factors predicted trooper performance in terms of productivity (Baseline Activity). In addition, high performers could not be distinguished from average to poor performers based on 16PF sten scores. These findings coincide with McEuen (1981) where work evaluations could not be predicted. The results contradict findings by Fabricatore, et al., (1976), where superior performing officers were distinguished by aggressive and tough-minded personality traits.

One possible explanation for this lack of predictiveness in work performance may be due to circumstances beyond the control of the individual officer. The Michigan Department of State Police does not permit new troopers to work single patrol duty until they have demonstrated sufficient maturity and experience in a two-officer patrol setting. The length of time a new officer will spend in this on-the-job training depends on the recommendations of the senior partner (training officer) and shift supervisor.

Each trooper is on probation for one year following the first day of recruit school. During the final stages of probation, trooper recruits must work single patrol or employment may be terminated for failure to meet minimum

training requirements and standards.

All activity performed during on-the-job training is controlled by the senior partner. He makes the decisions on arrest, cite, or warn; on the amount of time devoted to a particular investigation; and on all other issues which affect the baseline activity.

In the same light, yet more importantly, the Michigan State Police has a two-officer patrol policy during the hours of darkness. When two non-probationary troopers are working together, patrol decisions are generally made by the officer driving the patrol car. In effect, an individual trooper only has control of patrol activity for four hours per shift, the time spent as driver of the patrol unit. The activity of both troopers is combined when determining statistics considered for the baseline activity program. As demonstrated, these factors can affect the baseline analysis and the individual trooper does not have control of the outcome.

Employee absenteeism was predicted by age, independence, and guilt proneness. The demographic variable "age" is significant in that the analysis indicated younger troopers were more apt to utilize leave credits than the older troopers.

16PF sten scores of troopers with low to moderate absentee frequencies were compared to 16PF sten scores of troopers with high absence frequencies. The officers with fewer absences were more controlled.

Patrol car accidents were predicted by the intelligence, assertiveness, seriousness, and ego strength of the officers. Troopers with no patrol car accidents were more intelligent and tough-minded when compared with troopers who had more than one reported patrol car accident. Fabricatore, et al., (1976), found that officers who had no reported accidents were significantly more self-assured. In this study the opposite indicator is present, not statistically, but on the basis of logic. The officers with more than one reported accident demonstrated more assertiveness in this study.

Injuries sustained on the job were predicted by education level, suspiciousness, conscientiousness, and reservedness. Troopers who had education beyond high school were more apt to report an incurred injury.

Troopers with no reported injuries were significantly more trusting and adaptable than officers who reported more than one injury.

In the final area of focus, employment status was predicted by education level and tough-mindedness. Troopers with education beyond the high school level were significantly less apt to terminate employment.

Thweatt (1970) determined that employees who dropped from the force were more expedient, sensitive, imaginative, radical, and independent. Coinciding with those findings, in this study, officers who terminated employment tended to be tenderminded, daydreaming, and emotionally sensitive.

However, in contradiction, officers who remained employed were more independent.

McEuen's (1981) finding that officers who terminate employment are more expedient is in agreement with Thweatt and this research, although not statistically significant.

White troopers who remained employed throughout the study were more tough-minded, trusting, and imaginative than white officers who resigned. Employed black troopers were more conventional and conforming than resigned blacks. Males that remained employed demonstrated tough poise, whereas males that resigned did not. And, finally, employed females were more self-assured than females that resigned.

A significant factor which was confirmed by this study is the need for a test battery rather than a single measure for screening and selection purposes. No single instrument will provide an overall fitness measure for police applicants.

Limitations

Data obtained in this study are tentative from a number of points. The sample used to obtain this data was small and geographically specific. Similar findings may not be apparent in larger or cross-sectional samples.

Secondly, several sub-group samples are small and their respective findings tend to be tenuous. Data collected on the criterion measures (1) Complaints Against Employee and (2) Discipline/Affirmative Assistance Recommended, were not

analyzed. These measures are somewhat typical of the inherent difficulties in establishing predictive validity. Behaviors which are blatantly inappropriate, such as abuse of deadly force, rarely occur. On the other hand, minor infractions of departmental rules and/or regulations are rarely reported.

Finally, statistical analyses with significant findings regarding intelligence (Factor B) must be viewed with caution. The nature of this scale places emphasis on fluid and crystallized general ability factors. Because the test is unspeeded, it is a power measure and, therefore, will not correlate highly with usual speeded intelligence tests (Cattell, et al., 1970).

Suggestions for Further Research

The results of this study have implications for future research on the selection and training of police officers. The null hypothesis was rejected in the analyses concerning Recruit Class Quartile, Absenteeism, Patrol Car Accidents, Reported Injuries, and Employment Status. The rejection of the null hypotheses in these areas was based on factors that accounted for 50%; 37%; 44%; 40%; and 17%, respectively, in explained variance for those variables. It is obvious that substantial variance was not accounted for by the Sixteen Personality Factor Questionnaire. Therefore, further research is suggested to explore ways which might add to the variance explained.

The results of this study suggest that a broadly based, multiple dimension assessment procedure can be usefully applied to predicting a wide range of police officer performance, across a similarly wide range of police departments.

Discussion

Success in law enforcement, ultimately, depends on the individual adaptive response to the job setting. That is, there probably is a very strong functional relationship between particular environmental contexts and certain types of behaviors. If so, then selection alone will not determine the behavioral outcome; instead, complex interactions between entering personality characteristics and organizational and social structures will determine the behavior of the new police officer (Crosby, 1979).

Finally, police selection procedures must be justified only by reference to the social well-being accomplished by selecting good officers who, in turn, will provide the important social services expected by society. Selecting officers on personality merit will not necessarily serve to produce a police agency that would be more responsive to social demands.

Appendix A - Baseline Activity

ORDER NO. 121

MICHIGAN STATE POLICE

OFFICIAL ORDER

September 16, 1983

SUBJECT: Activity Analysis Program

TO : Members of the Department

1. GENERAL INFORMATION

   A. The department's Activity Analysis Program is a comprehensive effort to objectively establish and evaluate the quantitative performance level of the Uniform Division, districts, posts, and individual troopers.

   B. The quantitative performance achievements of all levels of the Uniform Division are established and evaluated by the Activity Analysis Report (UD-193).

2. PURPOSES OF THE ACTIVITY ANALYSIS PROGRAM

   A. To establish specific, predetermined and verifiable performance objectives for all troopers assigned to patrol duties.

   B. To establish a minimum standard of acceptable overall performance in identified quantitative activity areas.

   C. To identify and recognize each trooper's level of quantitative achievement on a quarterly basis.

   D. To assist troopers in maintaining acceptable levels of quantitative performance through positive coaching, counseling and motivation.

   E. To evaluate performance levels of districts, posts, and individual troopers in order to assess law enforcement needs and assist in the development of departmental objectives and training programs to meet the demands on the agency for service.

   F. To identify factors that may adversely affect a trooper's performance and take corrective steps to eliminate or minimize these obstacles.

G. To measure the progress achieved towards improving performance in specific activity areas identified in previous performance appraisal interviews.

3. RESPONSIBILITIES OF THE TROOPER

Each trooper assigned to patrol duties is responsible for maintaining an acceptable level of quantitative activity every quarter. The established minimum overall level of acceptable quantitative performance is 70% of the post baseline.

4. RESPONSIBILITIES OF THE SERGEANT

A. Post sergeants are responsible for interviewing and counseling on a quarterly basis, or more frequently if necessary, each assigned trooper concerning performance reflected on the UD-193 form. The following subjects will be discussed with each officer:

(1) An explanation of the Activity Analysis Program. The sergeant will make every reasonable effort to assure the program is understood by each trooper. Any questions regarding the methodology used to establish performance levels will be addressed by the sergeant at this time. Questions which cannot be answered by the sergeant will be brought to the attention of the post commander.

(2) The officer's overall performance level. Special attention will be given to officers exceeding the baseline level of performance or failing to attain 70% of the baseline level.

(3) Performance level for each individual activity area. Special attention will be given to those areas showing performance above the baseline, below 70% of the baseline and those areas showing significant change from the previous quarter.

(4) Importance of acceptable activity in all areas. While overall performance is being measured, performance in each activity area is expected.

(5) Discussion of the post average level of performance for the quarter. Each officer's performance should be compared to the post average for the quarter.

(6) Problems that may hinder an officer's performance. The officer should be given the opportunity to point out any problem that hinders his/her performance. These may be personal problems, lack of training, perceived inequities in the Activity Analysis System, etc.

B. Problems identified by the officer shall be addressed. An attempt will be made by the sergeant to assist the trooper in solving or minimizing any problems. Such attempts will be documented if the problems are job related.

C. Where a program has been established to assist the trooper in improving performance, the sergeant will monitor the progress during the next quarter and provide guidance when deemed necessary.

D. The sergeant will submit correspondence to the post commander concerning each officer's quarterly interview. The report will outline steps "A" through "C" above detailing what took place during the evaluation interview.

5. RESPONSIBILITIES OF THE POST COMMANDER

A. Post commanders are responsible for ensuring all sergeants under their command understand the purpose and proper use of the department's Activity Analysis Program. This includes the instructions for completing the officer's Activity Analysis Report (UD-193), as outlined in Official Order No. 9, Appendix D, Enclosure (193).

B. Post commanders at posts using a manually-completed Activity Analysis Report (UD-193) are responsible for the proper completion of a UD-193 form for each trooper at the post. The post commander or a designated sergeant will complete all necessary UD-193 forms.

C. The post commander will review each trooper's UD-193 form. This review is to monitor performance levels and progress made since the last evaluation.

D. The post commander shall review all written evaluations of troopers submitted by the sergeants. This is to assure all required areas were covered during the interview, to acknowledge problems discussed and to ensure consistency of supervision.

E. The post commander shall participate in each trooper's quarterly interview at least once a year or more often if it becomes apparent improvement is not being made where expected.

F. The post commander is responsible for answering or obtaining an answer to any question posed by a trooper during an interview which could not be answered by the sergeant.

G. The post commander shall be responsible for implementing affirmative assistance to assist employees who are having difficulties performing their jobs satisfactorily and/or not responsibly fulfilling their employment obligations as defined by this order.

H. The post commander shall forward to the district commander a copy of the evaluation of each trooper who does not achieve the minimum acceptable standard of quantitative performance and outline action being taken to improve the officer's activity level.

6. RESPONSIBILITIES OF THE DISTRICT COMMANDER

A. The district commander is responsible for ensuring each post commander in the district understands the purpose and proper use of the department's Activity Analysis Program as outlined in this order.

B. The district commander is responsible for monitoring performance levels and for assuring uniform implementation of the Activity Analysis System in the district.

7. RESPONSIBILITIES OF THE UNIFORM DIVISION COMMANDER

A. The Uniform Division Commander is responsible for ensuring each district commander understands the purpose and proper use of the department's Activity Analysis Program as outlined in this order.

B. The Uniform Division Commander is responsible for ensuring uniformity of actions taken by districts to implement and administer the Activity Analysis Program.

8. RESPONSIBILITIES OF THE EXECUTIVE DIVISION

A. The Executive Division is responsible for the administration and maintenance of the Activity Analysis Program.

B. The Executive Division is responsible for providing timely UD-193 forms and information to all districts and posts each quarter.

C. The Executive Division will serve as an activity analysis resource, providing technical assistance and guidance to department personnel in managing the program.

D. The Executive Division is responsible for review and validation of statistical information relating to an individual trooper's performance as outlined in Section 10 of this order. The results of all validation studies will be forwarded to the Personnel Division by the Executive Division.

9. RESPONSIBILITIES OF THE PERSONNEL DIVISION

A. The Personnel Division is responsible for reviewing conditional employment ratings and the validation studies provided by the Executive Division.

B. The Personnel Division is responsible for all labor relation matters related to the Activity Analysis Program.

10. UNACCEPTABLE PERFORMANCE - COUNSELING AND ASSISTANCE PROCEDURES

A. The post commander shall be responsible for implementing affirmative assistance as needed when a trooper's overall performance level as identified by the UD-193 is below the minimum acceptable standard.

B. The post commander will conduct all quarterly interviews for each trooper currently being affirmatively assisted. Once affirmative assistance is implemented, the following guidelines shall be observed:

(1) During each counseling/coaching session, the post commander will attempt to ascertain why the trooper's quantitative performance is not acceptable. Emphasis should be placed on specific areas of substandard activity and a program designed to return the officer's performance to an acceptable level. In each subsequent step of affirmative assistance, this program should be evaluated and revised, if necessary, to ensure its effectiveness.

(2) When the post commander deems the most appropriate affirmative assistance step to be taken is a retraining order (form PD-138), the post commander shall, after issuing the order forward through channels to the Executive Division all information regarding the officer's past performance and a copy of the PD-138.

(3) When the post commander deems the most appropriate affirmative assistance step to be taken is a conditional service rating (PD-139), the post commander shall, forward through channels to the Executive Division all available information regarding the officer's past performance and the PD-139.

The Executive Division shall, after reviewing and validating all information received from the post commander, forward the information to the Personnel Division for its review. The Commanding Officer of the Personnel Division, after signing the PD-139, will return the form to the post commander for issuance.

(4) The post commander shall, throughout the affirmative assistance procedure, evaluate and document all efforts to improve the officer's performance level along with possible reasons why any previous effort was not successful. The post commander shall continue to utilize any resource at his/her disposal to assist the officer in any reasonable manner throughout the affirmative assistance process. A copy of this evaluation and documentation shall be forwarded to the district commander.

(5) The trooper's supervising sergeant shall assist in the implementation of affirmative assistance when requested by the post commander.

(6) All affirmative assistance steps shall be documented in detail by the post commander in the officer's quarterly written evaluation and attached to the UD-193.

(7) The post commander shall advise the trooper of the nature of further affirmative assistance steps to be taken if acceptable performance is not achieved in a stated, specific time period.

C. When an officer under affirmative assistance is transferred during a quarter, the trooper's new post commander shall be so advised by the trooper's previous post commander. The officer's new post commander shall contact the Executive Division.

11. RETENTION AND REVIEW

A. All written correspondence concerning an individual officer's quarterly evaluation will be attached to and filed with the post copy of the UD-193. Each officer's UD-193's and all attached information will be retained by the post for at least two years.

B. All UD-193's and attached information, with the exception of Written Counseling, relating to any trooper having been affirmatively assisted shall be retained at the post for at least two years after any affirmative assistance action. Written Counseling shall be retained in accordance with the current collective bargaining agreement.

C. Each officer will be given the opportunity to review and respond to his/her written quarterly evaluation. If the trooper elects to respond in writing, the response shall be attached to the post copy of the UD-193.

12. REVISION RESPONSIBILITY

The responsibility for the revision and continuous updating of this order lies with the Commanding Officer, Uniform Division, in cooperation with the Executive Division.

DIRECTOR

REPORT# C2A3A-J1 MICHIGAN DEPARTMENT OF STATE POLICE
PAGE 1 OF 2 ACTIVITY ANALYSIS REPORT (UD-193)
WINTER QUARTER 1983 - POST

Enclosure (193)
Appendix D
Official Order No. 9
May 1984

NAME:
RANK: 01 BADGE:
SHIFT: DAY

TIME AND ATTENDANCE INFORMATION:

REGULAR HOURS.....	394.0	ANNUAL.....	16.0	PASS...	216.0
OVERTIME HOURS.....	36.3	SICK.....	17.0		
SHIFT/DIFF.....	39.0	COMP TIME ACC.....	53.0		
SHIFT/DIFF OVT.....	16.0	COMP TIME USE.....	2.5		

	(1) DEC	(2) JAN	(3) FEB	(4) QTRLY TOTAL	(5) TRPR BASE	(6) POST BASE**	(7) % OF BASE**
UNOBLIGATED INPUT:							
CAR HOURS ON PATROL.....	36	31	41	108	.259*/	.374**	= .692
FREEWAY.....	21	25	23	69	.165		
OTHER TRUNKLINES.....	3		4	7	.016		
COUNTY ROADS.....	12	6	14	32	.076		
CRIMINAL COMPLAINT.....	33	54	67	154	.370*/	.273**	=1.355
STATE.....							
AGAINST PERSON.....	4	2	40	44	.110		
PROPERTY (2000-2400)..	4	21	10	35	.084		
PROPERTY (2500-2900)..		9	3	12	.028		
MORALS/DECENCY.....	1	6	5	12	.028		
PUBLIC ORDER.....	9	3	5	17	.040		
CRIMINAL TRAFFIC.....	5	7	1	13	.031		
OUIL.....	10	6	3	19	.045		
NON-CRIMINAL COMPLAINT..	29	24	17	73	.168*/	.138**	=1.555
JUVENILE.....		1		1	.002		
CIVIL CUSTODIES.....							
TRAFFIC ACCIDENTS.....	20	8	3	31	.074		
TRAFFIC.....	4	10	5	19	.045		
FIRE.....							
ACCIDENTS, ALL OTHER..							
INSPECT/INVEST.....	2	3	1	6	.014		
MISCELLANEOUS.....	3	2	8	13	.031		
NON-COMPLAINT.....	29	24	31	84	.201*/	.244**	= .823
REPORT WRITING.....	7	5	10	22	.052		
COURT (DISTRICT).....	7	18	14	39	.093		
COURT (CIRCUIT).....	13			13	.031		
DESK ASSIGNMENT.....		1	6	7	.016		
OPERATIONAL SUPPORT...	2		1	3	.007		
REPORT WRITING.....	7	5	10	22	.098	/ .234	= .418
TOTAL UNOBLIGATED INPUT...	127	133	156	416			
					MPH	MPH	
PATROL MILEAGE.....	665	510	755	1930	17.8	/ 20.9	= .855
FREEWAY.....	410	420	425	1255	18.1	/ 22.5	= .808
OTHER TRUNKLINES.....	50		75	125	17.8	/ 20.0	= .892
COUNTY ROADS.....	205	90	255	550	17.1	/ 18.2	= .944

* = THESE SUBTOTALS, WHEN ADDED TOGETHER, EQUAL 100% OF TOTAL UNOBLIGATED HOURS
** = PERCENTAGE EXPRESSED AS A DECIMAL

PORT# U2ATA-01 MICHIGAN DEPARTMENT OF STATE POLICE RUN DATE 03/09/84
OF 2 OF 2 ACTIVITY ANALYSIS REPORT (UD-193)
WINTER QUARTER 1983 - POST

NAME:
RANK: 01 BADGE:
SHIFT: DAY

	(1) DEC	(2) JAN	(3) FEB	(4) QTRLY TOT	(5) POST BASE	(6) TRPR BASE	(7) % OF BASE*	(8) STD VAL	(9) TRPR VALUE
UNOBLIGATED OUTPUT:									
CAR HOURS ON PATROL.....	36	31	41	108					
ADJUSTED CRIMINAL COMP HRS..	19	41	63	122					
ARRESTS:									
HAZARDOUS TRAFFIC.....	39	19	33	91	2.26/	1.19	= 1.90	X 80 =	120.00**
NON-HAZARDOUS TRAFFIC.	10	5	7	22	3.43/	4.90	= .69	X 40 =	27.96
DUIL.....	1	1	1	3	15.03/	34.00	= .41	X 10 =	4.17
TOTAL TRAFFIC.....	50	25	41	116					
FELONS ARRESTED.....		2		2	INSUFFICIENT DATA FOR				
MISD ARRESTED.....	1	4	2	7	BASELINE AT THIS TIME				
TOTAL PERSONS ARRESTED..	1	6	2	9					
PATROL COUNTS.....		4	2	6	33.07/	19.00	= 1.93	X 50 =	75.00**
INVEST COUNTS.....	1	2		3	45.48/	40.66	= 1.11	X140 =	156.57
TOTAL ARREST COUNTS.....	1	6	2	9					
UGITIVE ARRESTED.....	3	1	4	8	15.45/	13.50	= 1.14	X 50 =	57.22
WARRANTS SATISFIED.....	4	1	4	9					
PATROL ACTIVITY:									
CARS ASSISTED.....	16	12	8	36	5.10/	3.00	= 1.70	X 10 =	15.00**
CARS INVESTIGATED.....	21	22	22	65	2.94/	1.66	= 1.77	X 10 =	15.00**
VEHICLES INSPECTED....		3	3	6	288.65/	16.00	= 6.03	X 10 =	15.00**
PROPERTY INSPECTIONS..	4	3	11	18	2.54/	6.00	= .42	X 10 =	4.23
LIQUOR INSPECTIONS....	1	1	3	5	19.97/	21.60	= .92	X 10 =	9.24
VERBAL WARNINGS.....	18	26	24	68	1.14/	1.58	= .71	X 40 =	28.71
COMPLAINTS:									
DISPATCHED ORIGINALS..	13	5	16	34					
PATROL ORIGINALS.....	4	13	13	30	5.07/	3.60	= 1.40	X 30 =	42.25
TOTAL ORIGINALS.....	17	18	29	64					
SUPPLEMENTARY.....	32	45	26	103					

	(10) TPR BASE*	(11) DEPT BASE*			
TOTAL MV TRAFFIC ACC....	4	1	1	6	
MV TRAF ACC - HAZ APR...	3	1	1	5	.83/ .55 = 1.51 X 10 = 15.00**

TOTALS:
(12) POST BASELINE TOTAL..... 500.00
(13) OFFICER'S TOTAL (ADD ALL NUMBERS IN COLUMN 9)..... 585.33
(14) OFFICERS TOTAL AS A % OF POST BASELINE (DIVIDE LINE 13 BY 5)..... 117.06
(15) POST AVERAGE THIS QUARTER (AVERAGE OF ALL OFFICERS LINE 13).....
(16) OFFICER'S % OF POST AVERAGE (DIVIDE LINE 13 BY LINE 15 & X BY 100)

* = PERCENTAGE EXPRESSED AS A DECIMAL
** = MAXIMUM CREDIT ACHIEVED

Enclosure (193)
Appendix D
Official Order No. 9

ACTIVITY ANALYSIS REPORT, UD-193

1. GENERAL INFORMATION

A. The Activity Analysis Report (UD-193) is the department's form for establishing and evaluating the overall quantitative activity performance level of the Uniform Services Division, districts, posts and individual troopers assigned to patrol duties. Official Order No. 121 outlines the purposes of and responsibilities for the Departmental Activity Analysis Program.

B. The Activity Analysis Report is a quarterly report. Evaluation quarters are defined as follows:

(1) Spring - March, April and May

(2) Summer - June, July and August

(3) Fall - September, October and November

(4) Winter - December, January and February

C. The UD-193 form is completed for individual troopers using data from the officers' Uniform Division Daily Reports (UD-2) as entered into the on-line daily system.

D. The UD-193 form is completed for districts and posts using data from the Uniform Division Work Site Report (UD-1).

E. Page 1 of the UD-193 form is the "input" analysis expressed as a decimal percentage showing the breakdown of where the trooper's time was spent. Page 2 provides an analysis of the trooper's quantitative "outputs" during the quarter. Activity as a result of hours spent is the basis for evaluating performance at the division, district, post and individual trooper level.

2. RESPONSIBILITIES

A. Post commanders are responsible for the proper entry of officers' dailies into the computerized daily system.

B. District commanders are responsible for the review and uniform use of the UD-193 forms within the district and for approval of all changes in post baselines.

C. The Uniform Services Division commander is responsible for ensuring uniformity between districts in policies regarding the use of the UD-193 form.

D. The Executive Division is responsible for providing timely UD-193 information for posts and districts each quarter.

3. COMPLETION

A. Baselines necessary to complete pages 1 and 2 of the UD-193 form will be provided to all posts by the Executive Division prior to the beginning of the quarter.

B. The Executive Division will forward to the post commanders a completed UD-193 form for each trooper at the end of the quarter.

C. In order to allow further understanding of the Activity Analysis System, the following instructions are provided:

(1) Page 1 - Inputs

a. Completion of columns 1 through 3 is optional. Insert the quarterly totals for the following activity areas on the proper line in column 4 of the UD-193 form:

1a. "Car Hours on Patrol"

2a. "Criminal Complaint Hours"

3a. "Non-criminal Complaint Hours"

4a. "Non-complaint Hours"

b. Add these hours together and enter the total in column 4 of "Total Unobligated Hours."

c. Divide:

1c. "Car Hours on Patrol" by "Total Unobligated Hours Enter the result in column 5.

2c. "Criminal Complaint Hours" by "Total Unobligated Hours." Enter the result in column 5.

3c. "Non-criminal Complaint Hours" by "Total Unobligated Hours." Enter the result in column 5.

4c. "Non-complaint Hours" by "Total Unobligated Hours." Enter the result in column 5.

d. Insert the quarterly "Report Writing" total in column 4.

1d. Add "Criminal Complaint Hours" to "Non-criminal Complaint Hours" to get "Total Complaint Hours."

2d. Divide "Report Writing Hours" by the number of "Total Complaint Hours." Enter the result in column 5.

e. Divide all the numbers now entered in column 5 by the corresponding numbers in column 6. Enter the answers in the spaces provided in column 7. Column 7 now contains the time spent in the various activity categories expressed as decimal percentages of the post baseline. If multiplied by 100, the numbers in the column become true percentages.

f. The minimum areas needed to complete page 1 of the analysis are now done. Further areas are to be completed at the supervisor's discretion.

g. (Optional) To determine the percent of time expended in each of the subcategories of the major activity areas, divide the number of hours spent in the subcategory by the total number of hours expended in the major activity area.

Example: Divide the number of hours spent in the subcategory of "Crimes Against Persons" by the total number of "Criminal Complaint Hours." Enter the result in column 5.

h. "Average Miles Per Hour" can be found by dividing the number of "Miles Traveled on Patrol" by the number of "Total Car Hours Spent on Patrol." To find the average number of "Miles Per Hour" traveled on each type of roadway, divide the number of "Miles Traveled" on the type of roadway by the "Car Hours" spent patrolling there.

(2) Page 2 - Outputs

a. Insert the quarterly output totals and total number of "Car Hours on Patrol" in column 4 of the proper line on the UD-193 form. (Monthly totals, columns 1 through 3, are optional.)

b. Subtract the number of "Criminal Traffic Hours" and "OUIL Hours" from "Total Criminal Complaint Hours" on page 1 and enter the result as "Adjusted Criminal Complaint Hours" in column 4.

c. Perform the indicated mathematical calculations for the following activity areas:

1c. Hazardous Traffic: Divide the total "Car Hours on Patrol" by the "Hazardous Traffic" total (column 4). Enter the result in column 6.

2c. Non-hazardous Traffic: Divide the total "Car Hours on Patrol" by the "Non-hazardous Traffic" total (column 4). Enter the result in column 6.

3c. O.U.I.L.: Divide the total "Car Hours on Patrol" by the "O.U.I.L. Arrest" total (column 4). Enter the result in column 6.

4c. Patrol Counts: Divide the total "Car Hours on Patrol" by the "Patrol Counts" total (column 4). Enter the result in column 6.

5c. Investigative Counts: Divide "Adjusted Criminal Complaint Hours" by the number of "Investigative Counts" this quarter (column 4). Enter the result in column 6.

6c. Fugitives Arrested: Divide the total "Car Hours on Patrol" by the total number of "Fugitives Arrested" (column 4). Enter the result in column 6.

7c. Cars Assisted: Divide the total "Car Hours on Patrol" by the total number of "Cars Assisted" (column 4). Enter the result in column 6.

8c. Cars Investigated: Divide the total "Car Hours on Patrol" by the total number of "Cars Investigated" (column 4). Enter the result in column 6.

9c. Vehicles Inspected: Divide the total "Car Hours on Patrol" by the total number of "Vehicles Inspected" (column 4). Enter the result in column 6.

10c. Property Inspections: Divide the total "Car Hours on Patrol" by the total number of "Property Inspections" (column 4). Enter the result in column 6.

11c. Liquor Inspections: Divide the total "Car Hours on Patrol" by the total number of "Liquor Inspections" (column 4). Enter the result in column 6.

12c. Verbal Warnings: Divide the total "Car Hours on Patrol" by the total number of "Verbal Warnings" (column 4). Enter the result in column 6.

13c. Patrol Original Complaints: Divide the total "Car Hours on Patrol" by the total number of "Patrol Originals" (column 4). Enter the result in column 6.

14c. Motor Vehicle Traffic Accidents Closed by Hazardous Arrest: Divide the quarterly number of "Motor Vehicle Traffic Accidents Closed by Hazardous Arrest" by the number of "Total Accidents Investigated" by the trooper this quarter (column 4). Enter the result in column 10.

To complete the analysis do the following steps:

d. Divide the number in the "Post Baseline" column (5) by the corresponding number in the "Trooper Baseline" column (6). Enter the result in the "% of Baseline" column (7).

e. For motor vehicle accidents closed by hazardous arrest, divide the number in the "Trooper Baseline" column (10) by .55 ("Departmental Baseline" column 11). Enter the result in the "% of Baseline" column (7).

f. Multiply the number in the "Standard Value" column (8) by the number in the "% of Baseline" column (7) or by 1.5, whichever is smaller. Enter the result in column 9.

g. Add together (down the column) all the numbers in column 9. Enter the result on line 13.

h. Divide the answer on line 13 by 5. This gives the overall performance level in a percent for the individual officer. Enter the result on line 14.

i. To do a quarterly analysis for the post, add together the answers on line 13 for every nonspecialist trooper at the post. Divide the result by the number of officers. This gives an average performance level for the post. Enter the result on line 15 on each officer's UD-193.

j. To compare each officer with the post average, divide the answer on line 13 for that officer by the number entered on line 15. Multiply by 100. This gives the individual officer's performance level as a percentage of the post average for the quarter. Enter the result on line 16.

4. DISTRIBUTION AND RETENTION

A. Performance Evaluations

(1) The UD-193 forms for the Uniform Services Division, districts, posts, and individual troopers will be initiated quarterly by the Executive Division.

(2) The post commander will receive copies of performance evaluations of the post and individual officers.

(3) The district commander will receive copies of performance evaluations of the posts and district.

(4) The Uniform Services Division Commander and Commanding Officer, Field Services Bureau, will receive copies of the evaluations of the districts and the Uniform Services Division.

B. Retention

(1) Copies of the UD-193 forms will be retained by the posts and districts for at least two years.

(2) When an officer is transferred, copies of the UD-193 forms and other reports concerning the quarterly evaluation shall be forwarded to the commanding officer of the new assignment.

(3) The Executive Division will retain copies of the division, district, and post baselines for at least five years.

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Abstract

VALIDATING STATE POLICE TROOPER CAREER PERFORMANCE WITH THE SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE

by

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May, 1989

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Major: Evaluation & Research

Degree: Doctor of Philosophy

Psychological screening of police applicants has been directed toward screening out individuals who demonstrate psychopathological conditions. The overall scope of a selection program should, however, include the ability to disqualify candidates who are unsuitable for police work based on personality factors which are demonstrated to be inconsistent with job criterion measures.

The purpose of this study was to determine the predictive capability of the Sixteen Personality Factor Questionnaire (Cattell, et al., 1970), on selected police criterion measures in a four year longitudinal panel study involving 67 Michigan State Police Recruits. Moreover, the research was to determine if the 16PF is suitable for selecting or rejecting future police candidates during pre-employment screening.

The null hypothesis was rejected in stepwise multiple regression analyses concerning (1) recruit class standing by quartile, (2) absenteeism, (3) patrol car accidents, (4) reported injuries, and (5) employment status. The null

hypothesis was not rejected on an analysis of baseline activity, a measure of performance and productivity.

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Detroit College of Business, B.S. (Management), 1979.
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