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JOB-TASK ANALYSES OF PATROL OFFICERS IN MINNESOTA

by

DALE W. DYSINGER*

In the last three years, there have been a surprisingly large number of job-task analyses done for peace officers activities in Minnesota. For example, in 1975-6 the Minnesota Department of Personnel conducted a task analysis for supervisory jobs of the State Patrol for St. Paul, Bloomington, and Duluth police departments. This study developed and validated promotional examinations for the State Patrol. It utilized some observational and interview techniques but relied primarily on a questionnaire to collect task information and worker characteristics. Another study by the State Department of Personnel in 1978 involved a similar job-task analysis of the patrolman function, which led to a concurrent validation of a selection test battery.

The job-task analyses that will be described in this paper concern (a) detailed job-task analyses done in 55 Twin Cities suburban police departments, (b) a paralled study done for sheriff and police departments in South-central Minnesota, and (c) an abbreviated study utilizing some of the identical techniques in sheriff and police departments in Northern Minnesota. All three of these related studies were conducted with funding from LEAA through the Minnesota Crime Control Planning Board.

In the Twin Cities area, there is a regional planning and development governing body called the Metropolitan Council. This council provides a central administrative structure for coordinating planning and development activities for a seven county area which includes Minneapolis, St. Paul, and essentially all of the suburban communities surrounding the Twin Cities. Concerns of suburban communities in the selection of police patrol officers in a legally defensible, valid, and non-discriminatory manner prompted the Metropolitan Area Management Association (MAMA) to investigate the feasibility of developing a selection system for coordinated use in their communities. A Personnel Selection Standards Committee was formed and approached the Metropolitan Council for assistance in coordination and developing the proposal which was funded by LEAA through the State Planning Agency.

*Evaluator of the Minnesota Board of Peace Officer Standards and Training.

The initial phase of the study involved a Research Design Team composed of experts in the fields of psychology, sociology, physiology, civil rights laws, and cardiology. This team carefully reviewed the literature and prepared a detailed and critical series of reports related to the current law and court rulings, physiological monitoring of officers, selection research studies, etc. From these reviews of previous studies, the Research Design Team developed a detailed work plan for the job-task analysis phase of the Suburban Police Officer Selection Standards Study. This work plan was the primary basis for the contract competitively awarded to the Arthur Young & Company for implementation in August 1976.

This study of suburban police officers was supplemented by two other job analyses. One of these was conducted in South-central Minnesota by Springsted Incorporated of St. Paul. This study utilized the same research design, data collection instruments, and analysis procedures developed for the suburban study; however, the data collection was in a rural, agricultural region with both police and sheriff departments sampled in the project.

The third study was conducted by staff of the Crime Control Planning Board in Northern Minnesota. The study replicated a portion of the data collection and analysis procedures which were applied to police and sheriff's departments in this rural, resort area of the state. The three studies provide a useful sample of essentially all the law enforcement jobs throughout the state, although the largest departments, Minneapolis, St. Paul, the State Patrol, and the sheriff departments of the Twin Cities area are not included in the sample.

The descriptive material concerning the job analysis will focus upon the suburban (MAMA) study done by Arthur Young & Company. This study, the largest, was the model for the other two related projects. In presenting the results, however, comparative data will include the information from the comparable projects.

DATA COLLECTION AND ANALYSIS METHODOLOGY

The Research Design Team specified, in considerable detail, the data collection and analysis procedures to be used by the contractor in the MAMA study. The ultimate goal of the entire project was the development of a selection process for these suburban departments.

The job-task analysis phase consisted of three major stages:

1. Collection and analysis of job-descriptive information of suburban patrol officers.
2. Review and translation of the job information into knowledge, skill, and personal and physical characteristics required to perform the activities/tasks.
3. Ranking of the activities in terms of their relative importance as viewed by citizens served by the officers.

COLLECTION OF JOB DESCRIPTIVE INFORMATION.

Three different methods were used to collect information on patrol job activities, field observations, post-shift interviews, and incident interviews. All of these were conducted by trained job analysts.

The *field observations* involved an analyst accompanying the patrol officer on a full eight hour shift. The trained analyst recorded (a) a detailed account of activities on forms provided which detailed the time required for the activity, (b) the nature of the activity, (c) the mechanisms used by the officer in getting job-related information, (d) how the officer processed the information, (e) the physical activities involved, (f) how, and to whom, information was provided by the officer and (g) the environmental context of the activity. As an additional means of monitoring the physical demands of the patrol job, electrocardiogram monitoring devices were attached to 60 of the 97 officers for which field observations were made. This was utilized in order to measure the range of cardiac demands made by the patrol job.

The *post-shift interviews* were conducted by trained analysts immediately following an officer's 8 hour shift. This interview, which often lasted 2-2½ hours, attempted to provide data comparable to that obtained in the field observations. The officer was asked to describe the preceding shift at a level of detail that would permit estimates of duration of an activity, the information required to perform the activity, the physical demands, etc. The same data collection forms used for the observations were used to record the post-shift interviews. Ninety-four of these interviews were conducted.

The *incident interview* was used to acquire information about infrequent, yet potentially critical, activities performed by patrol officers. Officers were asked to describe in detail any critical episodes of an emergency nature or threatening situations that had occurred in the last year. These activities were recorded on the same data collection forms used for the other methods of task description. Incident interviews were conducted with 94 patrol officers.

These activity descriptions were provided by 285 officers representing approximately 1,600 patrol hours plus critical episodes over a year span for almost 100 officers. Thus, approximately 40% of all of the patrol officers in these departments were utilized in the data collection phase.

SAMPLING PLAN

It was considered possible that certain police departments within the consortium of the 55 municipalities had unique task assignments that would make the overall job analysis not as applicable to their selection system. Therefore, a study to develop an agency classification scheme was conducted.

This study consisted of examination of crime statistics and organizational and demographic factors of the department and the community which might affect duties of a patrol officer. The outcomes of this study provided a classification of departments on the basis of size and a variable based both upon proximity to the Twin Cities and their growth pattern. This provided four classifications (a) large inner suburb, (b) large developing suburb/outlying area, (c) small inner suburb, and (d) small developing suburb/outlying area. The sampling plan for the job analysis retained these four classifications (strata) so that differences, if any, in job activities associated with differences among the characteristics of these four types of departments could be ascertained.

Random samples from within strata were drawn with some restrictions; i.e., the study plan called for the intensive study of minority and female officers. Therefore, all of the female officers were included in the field observations or post-shift interviews. The sampling plan involved coverage of all shifts and days of the week.

The classification system sorted the 55 suburban departments into the four strata previously listed.

Table 1 lists the number of departments, the range in number of patrol officers in these departments, and the total number of patrol officers in each stratum.

Table 1

Outline of Sampling Plan

<u>Classification (Strata)</u>	<u>Number of Departments</u>	<u>Number of Patrol Officers Within Dept.</u>	<u>Total in Stratum</u>
I. Large, inner ring	11	18-45	300
II. Large, outer ring	7	18-31	161
III. Small, inner	13	4-14	119
IV. Small, outer ring	24	3-14	117
Totals	55	-	697

SAMPLING PLAN FOR COMPARABLE STUDIES

The data collected and sampling plans for the Minnesota Valley Council of Governments (COG) study were essentially parallel to the plans for the MAMA study but on a smaller scale. The same data collection techniques were utilized; however, heart rate monitoring was not a part of the field observations and the field observations were done for one-half of a shift (4 hours) so that more departments and individuals could be included in the sample.

The sampling plan contained three strata; large police departments, small police departments, and sheriff's departments. (The determination of these strata were partially based upon a comparison of patrol activities recorded on officer or dispatcher log sheets.) The two large police

departments had 27 and 12 patrol officers; the five small police departments had from 2-6 patrol officers; and the four sheriff's departments had from 3-6 deputies assigned primarily to patrol functions.

The Crime Control Planning Board (CCPB) study utilized only post-shift interviews. In this sample, there were 15 deputy sheriffs in four northern counties and 23 police patrolment in eight small town departments.

Therefore, job descriptive information on the patrol activities of law enforcement personnel in Minnesota is available for Twin City suburban police departments, for police and sheriff's departments in the South-central agricultural section of the state (COG Study), and for the Northern resort section of the state (CCPB Study).

DATA REDUCTION AND ANALYSIS

The information collected by field observation and post-shift interviews was listed by an activity code and detailed field notes which described the behaviors or processes associated with the activity. This Activity/Behavior Description Form (A/BDF) was designed to provide a way the analyst could describe on a check list the particular activity within five general characteristics:

1. Ways and methods used by the officer to obtain the information needed to perform the activity.
2. Ways and methods used by the officer to process the information to reach a conclusion.
3. The overt physical activities required to complete the activity.
4. Ways in which the officer provided information to others.
5. The environmental context in which the activity occurred.

This total list consisted of 115 items which could be checked to indicate involvement of items in the activity. The analyst was also to indicate on the check list whether the behavior or process was critical to completion of the activity or whether they played a minor

role in the activity. In addition, the analyst wrote a brief narrative description on the activity on the A/BDF. This process was completed for each unique activity observed on a shift, described in a post-shift interview, or described in an incident-oriented interview.

A representative panel was formed to judge the relative importance of the activities to the overall job performance of a suburban police officer. The panel represented each stratum of the study and consisted of adult citizens, youth citizens, police officers, police supervision and city managers. This portion of the study was required to provide a measure that could be utilized in the performance evaluation steps of the validation process. The activity descriptions appended to the A/BDF were utilized by the panel as examples of the specific activities to be rated on a scale of 1-11.

In addition, an *expert* panel was formed to make judgements as to the job knowledges, skills or abilities, physical characteristics, and personal characteristics that are required to perform the activities. The eleven subject area experts included three industrial psychologists, a public administrator, and an attorney. The output of the work of this panel was a set of judgements indicating that certain abilities or attributes are essential for an activity to be performed. In addition, the judges indicated whether these attributes should be the subject of entry-level training.

In the COG study, a representative panel was assembled to judge *importance* of the activities, however, another *expert* panel was not assembled.

RESULTS

The output of the job analysis phase of these studies provides comparative data among the data collection procedures, among the sampled strata, and among sections of the state. In addition, the heart rate monitoring device and the panel judgements provided additional information for estimating job requirements and performance dimensions.

DIFFERENCES ASSOCIATED WITH DATA COLLECTION PROCEDURES

The field observations and the post-shift interviews attempted to provide identical representations of the patrol officer's activity during a shift. In the MAMA study, the field observation method yielded a mean of 3.77 activities per hour, while the post-shift interview described 2.64 activities per patrol hour. This difference is not unexpected, since analysts were trained to log every activity, even those that officers might perceive as trivial. The post-shift interviews were based on the memory of the officer and the activities logged by the officer.

Although the absolute number of activities recorded is different for the field observations and the post-shift interviews, the relative frequency, i.e., the distribution among the various activities, was essentially identical. Therefore, no bias related to kind of activity is introduced by combining the reported and observed activity frequencies. Similar results were reported for these data collection methods in the COG study. In both of the studies, these data were combined to provide a larger sample from which other comparisons could be made.

DIFFERENCES IN ACTIVITIES BY DEPARTMENT CLASSIFICATIONS

In the MAMA study, departments were classified by size and proximity to the Twin Cities into four strata. Detailed analysis of frequency of an activity by strata provided a picture of striking similarity of activities by all of these officers. The patrol officers in the larger departments tended to perform slightly more activities per shift; however, the kinds of activities were essentially the same.

Table II presents the frequency of the grouped activities of the suburban officers for the four strata. These summary data show marked consistency of activities across these kinds of departments. Similar consistency was found when comparing frequencies for these strata for each specific activity.

Table 2

Comparison of Frequency of Grouped Activities
by Strata for Suburban Police Departments

Activity Group	I*	II	III	IV	Average
I. Administrative and non-Patrol	5.15**	5.47	4.56	3.71	4.91
II. Routine Patrol	9.10	8.80	7.49	10.54	9.16
III. Responding to Service Calls	3.26	3.00	3.07	2.09	2.97
IV. Providing Emergency Service	.29	.28	.42	.14	.27
V. Checking Out Suspicious Situations	.70	.74	.56	.37	.63
VI. Performing Arrests at Scene of Crime/Accident	.18	.35	.28	.03	.20
VII. Preliminary Crime/Accident Investigation	.22	.16	.14	.20	.19
VIII. Follow-up Crime/Accident Investigation	.26	.33	.37	.43	.32
IX. Identifying Physical and Safety Hazards	.20	.30	.19	.40	.26
X. Enforcing Traffic Laws	4.29	3.09	3.53	2.14	3.55
IX. Other Activities	2.49	2.33	2.70	4.14	2.79
Totals	26.14	25.16	23.26	23.91	25.26

* I. large, inner ring suburban department

II. large, outer ring suburban department

III. small, inner ring suburban department

IV. small, outer ring suburban department

** Frequencies are the average number of times an officer engages in the activity per 8 hour shift.

Table 3 presents frequencies of similar grouped activities for police departments in the Twin Cities suburbs (the MAMA study), Northern Minnesota area (CCB study), and the large and small departments in the COG

study of Southern Minnesota. This table shows more areas of differences among these departments; e.g., suburban departments engaged in more traffic enforcement. Again in comparing the specific activities, all of these patrol officers are required to respond to the same requirements, although there are some differences in the frequency of requirements and in the total number of activities performed during an 8 hour shift.

Table 3

Comparison of Frequency of Grouped Activities for Police in Suburban, Northern, and Southern Areas of the State

<u>Activity Group</u>	<u>Suburban Depts. (MAMA)</u>	<u>North Police (CCPB)</u>	<u>South Lg. Dept. (COG)</u>	<u>South Sm. Dept. (COG)</u>
I. Adm. and Non-Patrol Activity	4.91*	**	4.00	3.00
II. Routine Patrol	9.16	9.40	9.00	14.00
III. Responding to Service Calls	2.97	2.68	2.00	1.00
IV. Providing Emergency Service	.27	.22	.29	.55
V. Checking out Suspicious Situations	.63	1.25	.37	.75
VI. Performing Arrests at Scene of Crime/Accident	.20	.39	.27	.55
VII. Preliminary Crime/Accident Investigation	.19	.91	.25	.37
VIII. Follow-up Crime/Accident Investigation	.32	.61	.32	.19
IX. Identifying Physical and Safety Hazards	.26	.39	.28	.42
X. Enforcing Traffic Laws	3.55	1.84	2.00	2.00

* Entries are the average number of times an officer engages in this type of activity per 8 hour shift.

** Administrative and non-patrol activities were not collected in the Crime Control Planning Board study.

DIFFERENCES IN ACTIVITIES FOR POLICE AND SHERIFF DEPARTMENTS

The activities of the deputy sheriffs in northern and southern Minnesota are compared in Table 4 with the average for the suburban police departments of the MAMA study. The sheriff's departments are less involved in traffic enforcement and in responding to service calls. The deputy sheriff in northern Minnesota is involved in more preliminary and followup in investigations than are either the southern sheriff departments or the suburban police. This is undoubtedly a function of the kind of referral resources available to them for investigative work. Inspecting the frequency of individual activities shows some additional key differences.

The deputy sheriff patrol job involves more frequent serving of warrants, summons, and other civil papers, more frequent transporting of prisoners, and less frequent involvement with juvenile problems. Again, however, these differences should not be exaggerated. The deputy sheriff on patrol and the suburban police patrol officer are required to do the same tasks. The frequency of a particular job requirement may differ significantly; however, the specific tasks are not unique to any group of patrol officers.

Table 4
Comparison of Frequency of Grouped Activities for Suburban Police and Sheriff Departments in Northern and Southern Areas of the State

Activity Group	Suburban Depts. (MAMA)	North Sheriff (CCPB)	South Sheriff (COG)
I. Adm. and Non-Patrol Activity	4.91	**	5.00
II. Routine Patrol	9.16	7.32	12.00
III. Responding to Service Calls	2.97	1.41	.86
IV. Providing Emergency Service	.22	.97	.15
V. Checking Out Suspicious Situations	.63	.53	.61
VI. Performing Arrests at Scene of Crime/Accident	.20	.14	.38
VII. Preliminary Crime/Accident Investigation	.19	1.67	.20
VIII. Follow-Up Crime/Accident Investigation	.32	.75	.46
IX. Identifying Physical and Safety Hazards	.26	.20	.63
X. Enforcing Traffic Laws	3.55	1.14	1.00

* Entries are the average number of times an officer engages in this type of activity per 8 hour shift.

** Administrative and non-patrol activities were not collected in the Crime Control Planning Board study.

DIFFERENCES IN ACTIVITIES FOR MALE AND FEMALE PATROL OFFICERS

In the MAMA study, seven female officers were observed for a complete shift and one female officer participated in the post-shift interview procedure. Although this is a very small sample, the comparison of these officers with their male counterparts indicated that they perform the same basic activities and at essentially the same rate per shift and require a similar amount of time to perform the task. No female or minority officers were included in the COG study of rural Minnesota or in the CCPB study in northern areas of the State.

ELECTROCARDIOGRAM DATA

In the field observation data collection procedures of the MAMA study, many of the officers were asked to volunteer to wear a portable electrocardiogram during the shift. Sixty of these officers volunteered and 55 usable records were obtained. The analyst was required to record exact times of onset and completion of an activity, on the log, so that heart functioning could be directly related to a specific activity. The interpretation and statistical analysis of the tapes was done by a cardiologist.

So few critical or emergency situations were encountered during these shifts, so that analyses of elevation of heart rate by type of activity, age, sex, shift, etc. could not be adequately evaluated. Overall, this portion of the study did not provide evidence of marked heart stress in the course of day-to-day patrol activity. The economic feasibility of this method for monitoring heart rate of patrol officers is suspect.

CRITICAL ACTIVITIES AND JUDGED IMPORTANCE

The results of two procedures utilized in the MAMA study are discussed together, since there was a strong relationship between the activities reported to be of a critical or emergency nature by officers and the importance of these activities judged by the representative panel.

Officers were asked to recount activities that they perceived as being of an emergency or critical nature during the last year.

Table 5

Officer Activities Related to Critical Emergency
or Threatening Incidents*

<u>Activity</u>	<u>Number Reported</u>	<u>Frequency/ Year</u>	<u>Importance Rating</u>
Provide emergency medical service (first aid) at scene of accident/crime.	351	3.73	9.94
Handle report of arguments/disputes among family/neighbors.	282	3.00	6.96
Respond to report of serious crime (shooting, breaking and entering, robbery, assault, rape, homicide, etc.).	86	.91	10.67
Handle report of traffic accident.	81	.86	7.81
Handle report of fighting, disorderly conduct, or mischievous conduct.	72	.77	8.15
Handle report of noise complaints.	69	.73	5.78
Participate in traffic chase.	66	.70	6.10
Handle report of intoxicated (liquor/drugs) person	57	.61	7.25
Other response to service call.	51	.54	-
Respond to emergency, non-routine service call (red light, siren, etc.).	42	.45	9.76
Place individual under arrest (search, give rights, question).	26	.28	9.33
Respond to burglar alarm.	10	.11	9.50
Provide backup to responding officer.	8	.09	9.46
Control or extinguish fires.	8	.09	6.37
Handle crowd control at parades, fairs, etc.	8	.09	5.10
Handle missing/found person call.	7	.07	7.23
Drive persons to hospital.	6	.06	5.32
Stop and interrogate suspicious persons, vagrants, possible runaways.	6	.06	7.31
Participate in "raid" to serve warrant.	6	.06	6.55
Write traffic citation or warning for moving, mechanical or safety violation.	5	.05	7.42

* Based on critical, emergency or threatening incidents reported as having occurred during the last 12 months of service by 94 officers.

Table 5 lists the activities that were reported five or more times by the 94 officers interviewed. (Similar procedures were used in the COG study with similar output). Table 5 also presents the frequency per year that this critical activity occurs for the average patrol officer in these communities and the rating of importance by the representative panel. The importance value represents an average rating of 11 point scale of the entire panel.

The most frequent emergency situation reported concerns administering emergency medical service. This is reported as a critical, emergency, or threatening situation approximately once every 3 to 4 months; however, the frequency of this activity reported in the field observations and post-shift interviews (not necessarily a critical episode) was approximately once every 20 shifts or about once a month. The next most frequent critical episode was the handling of arguments among family or neighbors; a *domestic*. The reported frequency of this activity is approximately once every seven shifts, and develops as a critical incident about three times per year.

There is a general correspondence between activities that are considered *important* by the panel of citizens and those considered as critical or threatening by patrol officers. These important and/or critical activities, however, are not necessarily those that occur frequently.

EXPERT PANEL JUDGEMENTS

The panel of experts were charged with the task of developing a list of knowledges, abilities, personal and physical characteristics essential to effective patrol officer performance. They further judged whether these characteristics should be utilized as a basis of the pre-employment selection system or should be central to the recruit training program. These judgements were anchored to specific activities shown to be an essential part of the patrol officer job. The extensive list of abilities, knowledge, and individual characteristics form the basis for the current research contact in which a pre-employment selection system is being developed.

CONCLUSIONS

The recent job-task analyses conducted in Minnesota provides the basis for several on-going projects. The Metropolitan Area Management Association is currently

developing, and will validate, a selection procedure for suburban police departments. The task analysis information is being used in the development of performance evaluation procedures and in the development of trial entry examinations procedures. The Minnesota Valley Council of Governments is planning to adapt the results of the MAMA selection study to their law enforcement selection problems.

Recent legislation in Minnesota requires a restructuring of entry-level training for law enforcement officers as well as the licensing of these peace officers. The task analysis data is being used in the development of training objectives and in the construction of a licensing examination.

If there are court challenges to the selection procedures or the licensing examination, the extensive job-task information will provide an important basis for defending the job relevance of the contested procedure.

These job-task analyses provided specific reaffirmation of the generally accepted view that patrol officers in sheriff and police agencies are basically doing the same tasks. Some differences in job requirements across the State of Minnesota were observed, but the similarity of the specific tasks that are performed by patrol officers is the most striking finding of these studies.

REFERENCES

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* Available through Metropolitan Council, Public Safety Planning Program, 300 Metro Square Building, St. Paul, MN 55101.

** Available through C.C.P.B, 444 Lafayette Road, St. Paul, MN 55101.

*** Available through Springsted Incorporated, 800 Osborn Building St. Paul, MN 55102