1975

An Organizational Analysis of Professionalization in Police Departments

Pamela J. Oppenheim
College of William & Mary - Arts & Sciences

Follow this and additional works at: https://scholarworks.wm.edu/etd
Part of the Criminology Commons, and the Organizational Behavior and Theory Commons

Recommended Citation
https://dx.doi.org/10.21220/s2-r6dz-8d51

This Thesis is brought to you for free and open access by the Theses, Dissertations, & Master Projects at W&M ScholarWorks. It has been accepted for inclusion in Dissertations, Theses, and Masters Projects by an authorized administrator of W&M ScholarWorks. For more information, please contact scholarworks@wm.edu.
AN ORGANIZATIONAL ANALYSIS OF PROFESSIONALIZATION IN POLICE DEPARTMENTS

A Thesis
Presented to
The Faculty of the Department of Sociology
The College of William and Mary in Virginia

In Partial Fulfillment
Of the Requirements for the Degree of
Master of Arts

by
Pamela J. Oppenheim
1975
APPROVAL SHEET

This thesis is submitted in partial fulfillment of the requirements for the degree of

Master of Arts

Pamela J. Appenzell

Approved, January 1975

Gary A. Kreps
Satoshi Ito
Jon S. Kerner
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>vi</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vii</td>
</tr>
<tr>
<td>SECTION I. BACKGROUND</td>
<td>2</td>
</tr>
<tr>
<td>SECTION II. A MODEL OF POLICE DEPARTMENT PROFESSIONALIZATION</td>
<td>8</td>
</tr>
<tr>
<td>SECTION III. DISCUSSION OF THE MODEL</td>
<td>14</td>
</tr>
<tr>
<td>SECTION IV. METHODOLOGY</td>
<td>21</td>
</tr>
<tr>
<td>SECTION V. FINDINGS</td>
<td>36</td>
</tr>
<tr>
<td>SECTION IV. DISCUSSION</td>
<td>51</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>56</td>
</tr>
<tr>
<td>NOTES</td>
<td>113</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>116</td>
</tr>
</tbody>
</table>
ACKNOWLEDGMENTS

I want to express my appreciation to the Metropolitan Criminal Justice Center, College of William and Mary, Williamsburg, Virginia, directed by W. Anthony Fitch and Dr. Charles W. Thomas, for their financial support which made this study possible.

Special thanks go to Mrs. Linda Tiller for her patience as she conscientiously typed this thesis; and to Mr. Thomas Wolf for his help with data analysis.

I am indebted to Dr. Satoshi Ito and Dr. Jon S. Kerner, of the department of sociology at the College of William and Mary, for their careful reading and critiques; and to Dr. Jack Weller, of the department of sociology at the University of Kansas for his ideas and suggestions throughout the study.

My deepest appreciation goes to the chairman of my thesis committee, Dr. Gary A. Kreps, for his valuable theoretical insights and endless hard work. His expert guidance and encouragement were invaluable to me throughout the writing of this thesis.
LIST OF TABLES

Table | Page
--- | ---
1 Gutman Scale Analysis of Topics Included in Training in Police Departments | 25
2 Gutman Scale Analysis of Promotional Evaluation Procedures in Police Departments | 26
3 Factor Analysis: Professionalization in Police Departments | 28
4 Factor Analysis: Interorganizational Field Linkages of Police Departments | 31
5 Factor Analysis: Structure-Complexity of Police Departments | 34
6 Multiple Regression Analysis for Interorganizational Field Linkage Factor Scores | 37
7 Multiple Regression Analysis for Professionalization Factor Scores | 38
<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

1 Schematic Presentation of Professionalization Model
ABSTRACT

This study develops a middle range theoretical model of professionalization in police organizations. Professionalization is interpreted as a knowledge development component of organizational technology. The following model dimensions are related to professional development: organizational size, structure-complexity, environmental context, and interorganizational field linkage. The model was tested via a sample of 139 police departments which was obtained from a total population survey of police departments from cities of 50,000 and above. After a series of scaling and factor analyses, a two step multiple regression format was employed for statistical analysis of the model. The findings indicate that model variables have a selective impact on variations in the level of professionalization. Organizational and contextual variables have strongest effects on the interorganizational factor subsuming discretionary funding and community relations employees. Size and interorganizational field linkage show a substantial positive impact on a general education dimension of professionalization but not on factors reflecting the structuring of educational and training practices. The findings suggest that external pressures for professionalization are being responded to by knowledge development processes only marginally related to the structure of police practices.
AN ORGANIZATIONAL ANALYSIS OF
PROFESSIONALIZATION IN POLICE DEPARTMENTS

Background

Technological change, accompanied by alterations in life styles and an unparalleled growth rate of cities, has generated an increasingly complex set of problems for police organizations such as rising crime rates, community demands for personal and property protection, conflicting role definitions of police personnel, and conflicting relationships with other law enforcement agencies. Moreover, recent civil disturbances have heightened the visibility and intensified the problematic nature of police effectiveness. In response to these problems and demands for law and order, law enforcement is currently undergoing rapid change (Tifft and Bordua, 1969).

Much of the scholarly investigation in this area focuses on such topics as equipment, criminal investigation procedure, laboratory techniques, and juvenile delinquency. Relatively little research has been done on police personnel and organization, yet obviously, optimal usage of sophisticated equipment and the success of special programs depends on the quality and structure of police practices. The President's Commission Task Force Report on police pointed out the need for improving the quality and quantity
of manpower, yet they were not able to provide guidelines or specific recommendations. This serves to highlight the lack of understanding of the mandate of police in modern society, and the necessary conditions to fulfill this mandate (Saunders, 1970; Steadman, 1972).

Even given this lack of understanding and research, it has been suggested that the traditional quasi-military approach of police departments is being replaced by a more "professional" orientation to police work and organization (Saunders, 1970; Kreps and Dynes, 1974a). Many police personnel are concerned with achieving the status of a professional (Walsh, 1970) but there is little consensus in the area of law enforcement as to what the concept should include (Saunders, 1970; Skolnick, 1971; Kreps and Dynes, 1974a). It should be added that neither has the concept been adequately elaborated and analyzed by social scientists. The research which is reported here will hopefully contribute to a more succinct conceptual development of the process of professionalization of police organizations. The following paper defines and empirically elaborates elements of the professionalization process, then works toward identifying structural and contextual characteristics of police departments which either promote or constrain this process. The relative impact of these structural characteristics will be assessed through comparative analysis of a sample of U.S. departments from cities of 50,000 and above. It should be specifically noted at the outset
that the level of analysis here is organizational, rather than individual or the social psychological. We are therefore interested in the professionalization of police organizations rather than, for example, the changing role definitions and attitudes of police personnel.

Professionalization will be interpreted as a knowledge resource basic to organizational action; in effect the knowledge development component of organizational technology (Perrow, 1967; Hickson, et al., 1969). Although the literature on professionalization has been predominantly social psychological, it does provide insights for the organizational model to be presented in this paper; changes in police work are part of an overall trend toward the increasing professionalization of the labor force as the complexity of urban industrial society generates demands for professional services. This trend has captured the interests of social scientists, as evidenced by the growing body of literature on occupations and professions. Much of this work involves the attempt to develop a set of attributes to characterize a profession. Vollmer and Mills have defined "profession" as an abstract model of occupational organization; and "professionalization" as a dynamic process by which an occupation moves in the direction of becoming a profession along the dimensions of a continuum.

A considerable degree of consensus has been reached on the core dimensions of a profession.¹ These include:

1) systematic body of theoretical knowledge, 2) specialized
training, 3) autonomy, 4) public definition of the service as essential to society, 5) ideal of service, 6) code of ethics, 7) colleague associations. The preceding are conceived of as dimensions of a continuum; research on particular occupations involves assessment of the degree to which they are professionalized, determined by where they fall on each dimension. Recently researchers have begun to study the police role within this basic conceptual framework, noting definitional problems (Walsh, 1970; White, 1972).

Since the concept of professionalization has not yet been adequately defined within the law enforcement community, it is sometimes interpreted narrowly as administrative efficiency (Saunders, 1970; O. W. Wilson, 1964; Lafave, 1965), or as prestige in the eyes of the public. Until the past few years there was very little interest in gathering data, hence reforms were based on personal experience and observation rather than systematic study. Although the literature frequently refers to the need to professionalize, with particular reference to the training dimension, it is an area of little consensus and specificity (Brerton, 1961; Jameson, 1966; Teasely and Wright, 1973). Education and training are fundamental dimensions of a professional model. As the increasing complexity of the police mandate demands higher levels of competence, it is therefore essential to define professionalization more systematically in terms of the educational background and training of personnel. In
following this approach, we suggest that professionalization reflects the technological capability (knowledge development) of police organizations.

It is also important to consider the effects of the structural setting on the professionalization process (Kornhauser, 1962; Scott, 1966; Pavalco, 1971). It has become axiomatic in the organizational literature that structure is crucial in determining what goes on in an organization (Blau, 1960; Hall, 1967; Aiken and Hage, 1967; Meyer, 1968; Blau, Heydebrand and Stauffer, 1968; Pugh et al., 1968). And a great deal of significant police behavior can be explained in terms of the organizational characteristics of departments. It should also be added that policemen are not independent professionals, i.e., they cannot practice independently; nor is a police department an association of independent professionals. The organization as a whole provides the service (Ference, Goldner, and Ritti, 1971). Therefore, professionalization can be understood more fully by examining organizational and contextual inputs into the change process.

Previous organizational research indicates that professionalization is differentially related to organizational structural dimensions. In a study of student nurses, Corwin found a negative relationship between professional role conceptions developed during training and hospital emphasis on rules and procedures (Corwin, 1961). Scott identified administrative bureaucratic control and conflicting goals as
structural characteristics which constrain professionalization (Scott, 1966). A study of industrial scientists and engineers also revealed an inverse relationship between administrative bureaucratic control and professionalization (Miller, 1967). On the other hand Clark (1963) found a positive relationship between size, complexity, and internal specialization and professionalization in universities. Finally, in a comparative study of several different occupations Hall (1968) documented a relatively weak negative relationship between hierarchy of authority and professionalization, and a strong positive relationship between emphasis on technical competence (merit-based selection and promotion) and professionalization. Although measurement of the concept has varied, reflecting its multi-dimensionality, previous research indicates the utility of defining professionalization as an organizational property. However, there has as yet been no systematic organizational analysis of police professionalization. And in view of the traditionally highly bureaucratic organization of police work, it is important to consider this concept within the structural parameters of given departments.

Finally, the importance of organization-environment relationships is increasingly recognized in organizational research (Litwak and Hylton, 1962; Emery and Trist, 1965; Evan, 1966; Guetzkow, 1966; Terreberry, 1968; Hall, 1972). In a very dynamic interdependent manner, organizations are both affected by and have impact on their environments.
In this paper we define organization-environment relationships as both an organizational property reflecting interorganizational linkages and as a contextual dimension, referring to the setting within which the organization develops (Pugh et al., 1963, 1968). Previous research indicates that interorganizational linkages within law enforcement are increasingly relevant for organizational action, particularly in response to the civil disturbances of the 1960's (Kreps and Weller, 1973; Kreps and Dynes, 1974b). From the broadest level of abstraction this interdependence may be thought of as an interorganization field or social network (Warren, 1967; Turk, 1970).

To sum up, given gaps in the area of law enforcement research discussed above, i.e., inadequate definition of police department professionalization, and the need to consider this concept within organizational and contextual parameters, the following section summarizes a middle range theoretical model of the professionalization of police organizations.

**A Model of Police Department Professionalization**

The model will first be briefly outlined and then its various elements presented. To facilitate discussion, figure 1 provides a schematic presentation.

The model is organized into a two step multiple regression framework. Organizational structural and contextual dimensions are treated as input variables, representing
FIGURE 1

SCHEMATIC PRESENTATION OF PROFESSIONALIZATION MODEL

$X_1$

$X_2$

$X_3$ $X_6$ $X_7$

$X_4$

$X_5$

$X_1$ - Organizational Size

$X_2$ - Organizational Wealth

$X_3$ - Organizational Complexity (Horizontal differentiation, Vertical differentiation, Spatial dispersion)

$X_4$ - Organizational Decentralization

$X_5$ - Environmental Context

$X_6$ - Interorganizational Field Linkage

$X_7$ - Organizational Professionalization
system states. Although there are potential arguments of causal primacy among these input variables, that type of analysis is beyond the scope of the present paper.\(^4\) Our primary concern here is determining the sequence of effects of these variables upon interorganizational field linkages and professionalization. The model is a variation of path analysis. There is some time-order built into the specification of "endogenous" variables, i.e., pressures for increased police professionalization have become noteworthy only quite recently as has expansion of interorganizational contacts among police departments. However, there are many possible arguments of causal primacy among "exogenous" variables and with multiple indicants, the related statistical problem of multicollinearity. Second, path analysis assumes non-recursive effects, yet reciprocal causation can be conceptually argued along a number of lines. For example, Pugh et al., (1963) have suggested that contextual dimensions (they include size, technology, and various environmental factors) cause variations in organizational structure and process, but the causal argument is difficult to decompose. The notion of organizational context is not particularly delimiting and should become more focused. And, if we accept a nonrecursive argument that context causes structure and process, we assume that organizations are passive in a dynamic environment; an assertion contrary to evidence. A more plausible approach is one of reciprocal causation in which the organization is also seen as an
active agent of environmental control. In this paper, interorganizational field linkages and professionalization are focus dependent variables because we are trying to "explain" recent variation in them via assessment of other system states. For other types of analyses, it is clear that structural variables such as complexity and decentralization can also be analyzed as dependent variables.

The interorganizational field dimension of organization-environment relationships is internal to the model because we assume that variation in system states influences organizational capability for developing different types of interorganizational relationships. Moreover, from a temporal standpoint, the expansion of the social network of law enforcement is a relatively recent phenomenon. Not only has the federal government become actively involved, but crescive formal and informal relationships among police departments appear to be developing (Kreps and Weller, 1973). The effort is to organizationally account for variations in degrees of contact among police departments. Professionalization becomes the final output variable. Here again, demands for professionalization have increased recently, quite noticeably from social network sources such as the federal government. The model allows for the assessment of direct and indirect effects of structural, contextual, and interorganizational field dimensions on professionalization.
Concepts

1. Organization - An organization is assumed to be a relatively permanent, problem-solving system which will attempt to reduce or control environmental uncertainty in order to survive and meet charter specified goals. The analytical dimensions of the concept include: 1) charter - the image of the organization, including name, formal objectives, and domain which distinguishes it as an unique element of the social and ecological environment; 2) resources and technology - useable human attributes and material resources; 3) basic activities - including task, maintenance, communication, control and adaptation processes which are interrelated in normative, authority and status structures; 4) organization-environment relationships (context and inter-organizational field linkages) - the sum of an organization's reciprocal linkages with an encompassing physical and social environment (Bakke, 1959; Haas and Drabek, 1973; Kreps and Dynes, 1974b).

2. Professionalization - This concept is considered to be both process and system state (Dubin, 1969). Processually, professionalization is defined as organizational activities related to movement along the following dimensions of the professional model: 1) systematic body of theoretical knowledge; 2) specialized training; 3) autonomy; 4) public definition of the service as essential to society; 5) ideal of service; 6) code of ethics; 7) colleague associations. An organization is considered to be professionalized at any
point in time by the extent to which its structure and activities exhibit professional dimensions. More specific to this research, professionalization is interpreted as a knowledge resource basic to organizational action. It therefore represents a property space of the resources and technology dimension of organization.

Research Hypotheses

1. The greater the organizational size, the greater the interorganizational field linkage.

2. The greater the organizational size, the greater the organizational professionalization.

3. The greater the organizational wealth, the greater the interorganizational field linkage.

4. The greater the organizational wealth, the greater the organizational professionalization.

5. The greater the organizational complexity, the greater the interorganizational field linkage.

6. The greater the organizational complexity, the greater the organizational professionalization.

7. The more decentralized the organizational decision-making structure, the greater the interorganizational field linkage.

8. The more decentralized the organizational decision-making structure, the greater the organizational professionalization.

9. The more complex the organizational environmental context, the greater the interorganizational field linkage.
10. The more complex the organizational environmental context, the greater the organizational professionalization.

11. The greater the interorganizational field linkage, the greater the organizational professionalization.

**Discussion of the Model**

**Concepts**

The model is based on the general premise that organizations, in this case police departments, will rationally adapt to and attempt control of those elements of the environment which affect basic activities. The range of member skills and competencies limits to what extent and by what methods an organization can monitor and actively manipulate its environment (Thompson, 1967; Hage and Drabek, 1973). Thus professionalization, a knowledge generating process, is seen as a technological adjustment to uncertainty. As law enforcement becomes more complex and problematic, police departments may attempt to professionalize as a means of coping with new environmental demands. The professionalization process is considered to be related to the internal form and external relationships of the organization.

Professionalization has both attitudinal and behavioral referents (Jackson, 1970). However, given the vagueness of the concept, this study will use behavioral measures, specifically educational background and training variables, to avoid making inferences from attitudes to behavior.
Deutscher (1969) concludes, for example, that validity becomes problematic when instruments are designed to provide estimates of hypothetical behavior. Therefore he suggests that direct behavioral measures substantially mitigate validity problems. Furthermore, research has shown that behavioral and attitudinal attributes of professionalization do not necessarily vary together (Hall, 1968). Finally, the education and training dimensions are particularly amenable to survey research. In order to statistically assess the relationships between other organizational properties and professionalization, the following variables will serve as indicants. Size and wealth are also properties of the resources and technology dimension. Wealth is clearly a material resource, while size reflects usable human attributes. Complexity refers to the way basic activities are organized. Elements of this dimension include horizontal and vertical differentiation (Hall et al., 1967; Pugh et al., 1968; Blau and Schoenherr, 1971), and spatial dispersion (Crozier, 1964; Hall, 1972). The structure of activities also involves control and decision-making processes which are, in part, formalized in an authority structure. One property space of this dimension which has been shown to be related to professionalization is the degree of organizational decentralization (Aiken and Hage, 1967). Environmental context represents an element of the organizational-environment relationships dimension. Previous research has demonstrated that the
type and magnitude of client demands are important determinants of the way organizational activities are performed (Perrow, 1967). Here the concept refers to the general physical and social characteristics of the environment relevant to organizational activities. For police organizations, this dimension would be represented by historical and contemporary characteristics of surrounding communities.

The second element of organization-environment relationships employed in this research is labeled interorganizational field linkage. In this case the concept represents that subset of relationships of individuals, groups and organizations relevant to the law enforcement network which involves focal police departments. We suggest that the recent expansion of the social network of law enforcement has increased department awareness of developments in the field, has made more sophisticated information available, and in general, has increased concern with effectiveness (Whisenand, 1971). As previously noted, effective performance logically depends in part upon personnel quality. It is argued that interorganizational contacts generate demands for increased professionalization. The relationship between environmental linkages and professionalization is potentially reciprocal in that the more cosmopolitan orientation of professionals may in turn become a normative orientation for greater social network linkage (Gouldner, 1957, 1958).
Size, Wealth - Interorganizational Field Linkage, Professionalization (Propositions 1, 2, 3, 4)

With regard to size, it is hypothesized that the total number of personnel is related to the potential number of interorganizational linkages. For example, an organization of greater size has more personnel available for attendance at national and regional conventions, seminars, and other meetings. These linkages in turn, may generate new contacts, i.e., a multiplier effect on the number of boundary roles. Through contact with another police organization, a department may become aware of a new program. The subsequent adoption of this program may require knowledge resources beyond present organizational capability, thus prompting additional search within the social network. With regard to professionalization, there has been some debate concerning the relative primacy of size versus other structural variables (such as complexity), on the development of professionalization (Hall, 1972). As a direct effect, size may merely enhance the probability of greater numbers of personnel reflecting "professional characteristics." Previous research on police departments suggests that size has moderate effects upon knowledge generation in organizational decision-making (Kreps and Dynes, 1974a, 1974b). Although not a direct test of professionalization, this past research suggests, at the very least, that size generates demands for professional expertise. The present study provides the opportunity of assessing
Wealth represents an economic resource for action. Proposition 3 suggests that expanded material resources enables an organization to initiate and/or support increased normative and comparative reference contact (Evan, 1966). Quite simply, outside contacts and the seeking of assistance involves costs to the organization. We suspect that organizations will vary in their ability to absorb these costs. In proposition 4, it is reasoned that greater wealth permits an organization to support special programs, planning and research which require, as well as attract, professional personnel. Finally, it is suggested that monetary resources afford training programs of greater sophistication and comprehensiveness.

Complexity - Interorganizational Field Linkage, Professionalization (Propositions 5 and 6)

We assume that a more complex structure entails a more complex orientation to problem-solving. It is therefore hypothesized that with greater complexity the search for problem solutions (information, new ideas, practices, etc.) will increasingly transcend organizational boundaries. A complex orientation to problem solving also reflects the demand for professional personnel. Horizontal differentiation involves greater specialization, while vertical differentiation provides channels for the communication of larger amounts of information and the need for new managerial roles to coordinate professional activities (Clark,
1963; Lawrence and Lorsch, 1967; Whisenand, 1971; Blau, 1973). Greater spatial dispersion is associated with increased loci of organizational action and less contact with central offices, thus increasing coordination complexity and the need for highly qualified personnel. **Decentralization - Interorganizational Field Linkage, Professionalization** (Propositions 7 and 8)

The distribution of organizational authority is another important structural property. Administrative to line operations ratios and the proportion ranked to total personnel both reflect the distribution of formal decision-making power. It is suggested that the effect of greater decentralization of authority is to increase the number of personnel who can legitimately exercise boundary activities. Decentralization permits more specialized components to seek out the specific types of informational and other resources they need from outside the organization.

Proposition 8 deals with the autonomy dimension of the professional model. Diffusion of the decision-making process throughout the organization requires that personnel make judgements (exercise autonomy) based on their own expertise in specialized areas. It is suggested that decentralization stimulates increased professional competence which in turn becomes basic to the redistribution of status and power necessary for organizational action (Corwin, 1973). Reciprocal causation between professionalization and decentralization is therefore evident. The presence of
professionals in an organization may lead to further
decentralization as knowledge becomes a more important
basis of decision-making authority.

Environmental Context - Interorganizational Field Linkage, Professionalization (Propositions 9 and 10)

These propositions deal with the adaptation of an
organization to its task environment; to the kinds of
problems it must solve in order to maintain its charter.
This adaptation process is especially interesting in view
of the recent civil disturbances which police have been
called upon to control and prevent. It is reasoned that
a more complex environmental context is a potential threat
to charter maintenance; and will therefore be related to
more extensive interorganizational linkages. As the or­
ganization seeks problem solutions, including such items as
funds for research, equipment and information, the social
network becomes an increasingly important resource. Much
the same line of reasoning supports proposition 10. In
this case the response to task environment complexity in­
volves seeking to improve the competence level of organiza­
tional personnel thus serving as an impetus to increased
professionalization.

Interorganizational Field Linkage - Professionalization
(Proposition 11)

It is suggested that the external relationships of an
organization have direct implications for the quality of
its personnel. These relationships are of particular
interest here, in view of the crescive nature of the law enforcement network. It is suggested, for example, that interorganizational contact increases awareness of the need for professional development and of current trends and new knowledge sources in law enforcement. It logically follows that professional competence is needed to comprehend and implement this more sophisticated knowledge. It should be reiterated that reciprocal causation may also be involved here as greater professionalization logically creates demands for greater social network contact.

Methodology

Sample

Our findings are based on a total population survey of United States police departments from cities of 50,000 and above (N = 374). A cover letter (see Appendix B) explaining the research and an enclosed questionnaire (see Appendix B) was sent to the chief of each department. Thus entre was established with the chiefs but most of the data on education, training, and other structural characteristics required examination of organizational records. One follow-up questionnaire was sent to the largest departments (cities of 100,000 and above), but only a small number of additional cases were picked up. Of the 152 largest departments, 77 or 50.6% responded; of the 222 smaller departments 62 or 27.4% responded; the resulting response rate for the entire population was 139 or 37.2%. The
sample size is moderately skewed to larger departments but this was expected given the substantial quantity of information requested. While large departments have systematized these types of data, we suspect that smaller departments cannot as readily retrieve them. Finally, the sample exhibits fairly broad regional representation with 22 northeastern, 36 southern, 44 midwestern, and 37 western cities. In conclusion, although the sample is not random, it is reasonably representative of size and region, exhibits considerable variability on model elements and shows no readily discernible response biases.

Measurement of Model Elements

We first list model elements and their indicants, then follow with a sequential discussion of measurement.

1. Professionalization

- Hours of recruit training required
- Recruit training score //Number of hours + (hours above state mandate) 2//
- Number of fulltime training personnel
- Number of library volumes
- Number of officers with college degrees
- Number of officers who have taken college courses
- Number of officers currently enrolled in college courses
- Ordinal Scale of minimum educational requirements for recruits (1 = less than high school; 2 = high school diploma; 3 = high school diploma, plus; 4 = 2 year college degree; 5 = 4 year college degree)
- Guttman scale of topics included in training
- Ordinal scale of promotional evaluation procedures (4 = educational achievement; 3 = formal evaluation of work performance; 2 = oral exams; 1 = written exams)
2. Interorganizational Field Linkage

L.E.A.A. discretionary funding, in thousands of dollars (1969-1974)
Number of officers attending regional, national conferences, 1973
Presence of mailing list (dummy variable)
Number of departments on mailing list
Number of officers making site visits, 1973
Presence of written interorganizational agreements for natural disasters (dummy variable)
Presence of written interorganizational agreements for civil disturbances (dummy variable)
Number of community relations employees

3. Organizational Size

Number of sworn personnel

4. Organizational Wealth

Annual budget of the police department
Baseline salary of police personnel

5. Organizational Complexity

Number of subunits
Number of bureaus and subunits (total number of units)
Number of ranks in the chain of command
Number of precincts

6. Organizational Decentralization

Ratio of ranked to total personnel (vertical)
Ratio of middle ranked to total personnel (vertical)
Ratio of staff to line personnel (horizontal)
Ratio of clerical to total personnel (horizontal)

7. Environment Context

Number of days of civil disturbance, 1965-1969

With regard to professionalization, we assume that the quality of education and training activities is related to the educational background of police personnel and the structuring of recruitment, training, and promotional procedures. A series of questions was therefore designed to
measure the college background of police personnel, the relevance of education for recruitment and promotion, the absolute amount of training within the department, and the content and resources of the training program. Measurement of college education, library volumes, training personnel, and the number of hours of recruit training was straightforward. It should merely be added that the derivative recruit training score assumes that hours above state mandate reflect higher professional commitment and we have weighted this effect by squaring the difference.

Recruit minimum educational requirement was measured by a five item ordinal scale subsuming recruitment standards from less than a high school diploma through a 4 year college degree. Two checklists for topics covered in training and promotional testing procedures were also included. Guttman scaling techniques were employed in both instances in a search for unidimensionality. Tables 1 and 2 list items developed from Guttman analysis in descending order of difficulty. Training topics scaled quite well, revealing a trend from more traditional course content to topics depicting new social service definitions of the police mandate. Number of items passed was employed as an interval measure of training content. Although the number of errors within the promotional evaluation scale was somewhat high, we felt justified in developing an ordinal scale of 1-10 based upon the ordering of items in
**TABLE 1**

GUTTMAN SCALE ANALYSIS OF TOPICS INCLUDED IN TRAINING IN POLICE DEPARTMENTS

<table>
<thead>
<tr>
<th>Scale Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family Crises Intervention</td>
</tr>
<tr>
<td>2. Role in Modern Society</td>
</tr>
<tr>
<td>3. Alcohol</td>
</tr>
<tr>
<td>4. History of Law Enforcement</td>
</tr>
<tr>
<td>5. Minority Groups</td>
</tr>
<tr>
<td>6. Drugs</td>
</tr>
<tr>
<td>7. Juvenile Delinquency</td>
</tr>
<tr>
<td>8. First Aid</td>
</tr>
</tbody>
</table>

**Scale Results**

Coefficient of Reproducibility = .924
Minimum Marginal Reproducibility = .836
Percent Improvement = .088
Coefficient of Scalability = .534
TABLE 2
GUTTMAN SCALE ANALYSIS OF PROMOTIONAL EVALUATION PROCEDURES IN POLICE DEPARTMENTS

<table>
<thead>
<tr>
<th>Scale Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Education</td>
</tr>
<tr>
<td>2. Formal Evaluations of Work Performance</td>
</tr>
<tr>
<td>3. Oral Examinations</td>
</tr>
<tr>
<td>4. Written Examinations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scale Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient of Reproducibility = .871</td>
</tr>
<tr>
<td>Minimum Marginal Reproducibility = .758</td>
</tr>
<tr>
<td>Percent Improvement = .114</td>
</tr>
<tr>
<td>Coefficient of Scalability = .469</td>
</tr>
</tbody>
</table>
the Guttman analysis. The resulting measure assumes that written examinations (e.g., civil service) and oral testing represent more conventional approaches to promotional testing while educational achievement and formal evaluation of work performance entail increased professional emphasis.

Factor analysis was then employed to simplify the multiplicity of measures. A principle components factor analysis with varimax orthogonal rotation was employed and a lower limit eigen value of 1.00 was used to terminate extraction of factors for rotation (see Table 3). Three underlying constructs subsuming over 70% of the variance were revealed. Measures of college education, library resources, and training personnel load on Factor 1 and exhibit a general educational dimension. Factor 2 represents a specific recruit training dimension, containing loadings with hours of recruit training and the recruit training score. Factor 3 is interpreted as a structural requirements construct. Minimum educational requirements for recruits, topics covered in training, and techniques of promotional evaluation all involve formal structural arrangements related to education and training. In sum, three distinct analytical dimensions of the knowledge and training components of professionalization emerge. Factor 1 is related to the general knowledge posture of the organization while Factors 2 and 3 entail more specific organizational arrangements relevant to education and training. Given the substantial variance explained by these
<table>
<thead>
<tr>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
<th>h²</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRREQ</td>
<td>0.087</td>
<td>0.949</td>
<td>0.101</td>
</tr>
<tr>
<td>RECSC</td>
<td>-0.003</td>
<td>0.960</td>
<td>-0.026</td>
</tr>
<tr>
<td>TRPERS</td>
<td>0.983</td>
<td>0.032</td>
<td>-0.014</td>
</tr>
<tr>
<td>LIBVOL</td>
<td>0.928</td>
<td>0.050</td>
<td>0.079</td>
</tr>
<tr>
<td>DEGREE</td>
<td>0.972</td>
<td>0.039</td>
<td>0.064</td>
</tr>
<tr>
<td>COURSE</td>
<td>0.632</td>
<td>0.008</td>
<td>0.058</td>
</tr>
<tr>
<td>ENROLLED</td>
<td>0.941</td>
<td>0.025</td>
<td>-0.037</td>
</tr>
<tr>
<td>EDREQ</td>
<td>0.105</td>
<td>0.030</td>
<td>0.703</td>
</tr>
<tr>
<td>SUBSCAL</td>
<td>0.041</td>
<td>0.005</td>
<td>0.770</td>
</tr>
<tr>
<td>PROMSCAL</td>
<td>0.194</td>
<td>0.183</td>
<td>0.580</td>
</tr>
</tbody>
</table>

Variance: 74.2%

RETRREQ - Hours of recruit training required
RECS - Recruit training score (Number of hours + (hours above state mandate) 2)
TRPERS - Number of fulltime training personnel
LIBVOL - Number of library volumes
DEGREE - Number of officers with college degree
COURSE - Number of officers who have taken college courses
ENROLLED - Number of officers enrolled in college courses
EDREQ - Minimum educational requirements for recruits
SUBSCAL - Guttman scale of topics included in training
PROMSCAL - Ordinal scale of promotional evaluation procedures
constructs, factor scores were assigned to each case in the sample.

Dimension 2 involves an assessment of the knowledge development potential of the interorganizational field. The environment contains both manifest and latent sources of knowledge and information relevant to goal achievement (Dill, 1962). Contacts with other organizations provide opportunities for expanding knowledge technology, thus potentially contributing to increased professionalization. Evan (1966) heuristically distinguished between comparative and normative reference contacts. Comparative reference contacts are those in which members are similar organizations, perhaps having similar structures and objectives. Mailing lists of other departments for purposes of information exchange, site visits and attendance at regional and national conferences all involve comparative reference contact with other departments. In a normative reference situation the focal organization accepts, at least in part, the values and goals of some other environmental element. Written agreements with other community organizations for natural disasters as well as civil disturbances and number of community relations employees conceptually represent local normative reference relationships in that interdependence with other community organizations must be taken into account by those police departments having such ties. Finally discretionary funding from the Law Enforcement Assistance Administration specifically involves normative
reference interplay between the local department and what has become an extremely important federal law enforcement agency. One of the formal mandates of L.E.A.A. is improved professionalism in law enforcement training and practices.

A principle components factor analysis with varimax orthogonal rotation was again used to organize the data (see Table 4). Four underlying constructs accounted for substantial variance. Factors 1 and 3 are interpreted as normative reference constructs subsuming, respectively, contacts at the local and national levels. The high loading of community relations personnel on Factor 3 documents the attention of L.E.A.A. to the community involvement of local departments. Factors 2 and 4 are configurations of comparative reference indicators. There may be a specificity-diffuseness continuum reflected here. Mailing lists are often employed for rather specific information requests (e.g., training bulletins) while site visits and particularly attendance at conferences often involve rather elaborate informal ties beyond the formal purposes of the meetings. Once again, factor scores were assigned to each case in the sample.

With regard to the input variables, size is a property space of the resources and technology dimension, reflecting usable human attributes. Size both intensifies inherent system problems and serves as a latent functional resource for problem solutions such as the professionalization of
<table>
<thead>
<tr>
<th></th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
<th>FACTOR 4</th>
<th>( h^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMTGRANT</td>
<td>-0.194</td>
<td>0.133</td>
<td>0.849</td>
<td>0.036</td>
<td>0.777</td>
</tr>
<tr>
<td>CONFER</td>
<td>0.216</td>
<td>-0.145</td>
<td>0.203</td>
<td>0.838</td>
<td>0.812</td>
</tr>
<tr>
<td>MAIL</td>
<td>0.263</td>
<td>0.761</td>
<td>0.040</td>
<td>-0.032</td>
<td>0.650</td>
</tr>
<tr>
<td>NOMAIL</td>
<td>0.077</td>
<td>0.732</td>
<td>0.031</td>
<td>-0.006</td>
<td>0.543</td>
</tr>
<tr>
<td>SITE</td>
<td>-0.175</td>
<td>0.563</td>
<td>-0.051</td>
<td>0.628</td>
<td>0.745</td>
</tr>
<tr>
<td>CREMP</td>
<td>0.197</td>
<td>-0.069</td>
<td>0.815</td>
<td>0.132</td>
<td>0.725</td>
</tr>
<tr>
<td>CDCOMPL</td>
<td>0.889</td>
<td>0.087</td>
<td>0.030</td>
<td>0.069</td>
<td>0.083</td>
</tr>
<tr>
<td>NDCOMPL</td>
<td>0.877</td>
<td>0.196</td>
<td>-0.027</td>
<td>0.056</td>
<td>0.811</td>
</tr>
</tbody>
</table>

Variance: 73.3%

AMTGRANT - L.E.A.A. discretionary findings
CONFER - Number of officers attending regional, national conferences, 1973
MAIL - Mailing list (dummy variable)
NOMAIL - Number of departments on mailing list
SITE - Number of officers making site visits, 1973
CREMP - Written interorganizational agreements for natural disasters
CDCOMPL - Written interorganizational agreements for civil disturbances
NDCOMPL - Number of community relations subunit employees
organizational personnel (Kasarda, 1974). The measure employed in this research involves few assumptions as its direct empirical link is readily apparent. Wealth is also an element of the resources and technology dimension; specifically an economic resource basic to the performance of charter specified tasks. We assume that the level of funds available limits knowledge development. The annual budget and the baseline salary of police personnel logically reflect the economic strength of departments.

Complexity is a characteristic of the structuring of basic activities and is often defined with reference to the division of labor (Blau and Schoenherr, 1971; Hall, 1972). In this regard, Hall (1972) notes that complexity is multidimensional, incorporating horizontal differentiation, vertical differentiation, and spatial dispersion. Horizontal differentiation involves the subdivision of organizational tasks, reflected in a proliferation of distinctive work units. Thus, the number of subunits and the total number of bureaus and subunits are indicants of the horizontal division of labor. As work becomes more specialized, problems of administrative coordination increase, evidenced by greater complexity of organizational control structures. Assuming that ranks represent various levels of authority, the total number of ranks is a logical measure of vertical differentiation (Blau and Schoenherr, 1971). Interpreted as a geographic indicator of horizontal differentiation, spatial dispersion refers to increased loci of organizational
activity (Hall, 1972). The empirical link between spatial dispersion and the number of precincts is direct.

Decentralization is defined as one property of organizational authority structures evidenced by the distribution of formal decision-making power. Hall (1972) distinguishes between horizontal and vertical decentralization. Horizontal decentralization refers to the distribution of authority among organizational subunits. One aspect is the ratio of administrative or staff services to line operation functions. The staff-line ratio is more specifically related to the authority structure and decision-making influence; while the clerical ratio reflects a more general dimension of administrative complexity. Vertical decentralization involves the delegation of authority to lower levels of the hierarchy. Assuming that all ranked personnel perform some administrative decision-making function, a higher proportion of ranked to total personnel indicates greater decentralization of authority. The proportion middle ranked to total personnel was also employed as a somewhat more specific measure.

Horizontal and vertical differentiation, spatial dispersion, and decentralization all reflect dimensions of the structuring of organizational activities. In order to assess their interrelationships, we entered all of the measures into a principle component factor analysis with varimax orthogonal rotation. Three factors accounting for 69.1% of the variance were extracted (see Table 5).
# TABLE 5
FACTOR ANALYSIS: STRUCTURE-COMPLEXITY OF POLICE DEPARTMENTS

<table>
<thead>
<tr>
<th></th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBUNIT</td>
<td>0.95572</td>
<td>-0.02457</td>
<td>-0.02873</td>
<td>0.01484</td>
</tr>
<tr>
<td>TOTUNIT</td>
<td>0.95862</td>
<td>-0.02133</td>
<td>-0.03155</td>
<td>0.92041</td>
</tr>
<tr>
<td>PRECINCT</td>
<td>0.75956</td>
<td>-0.06638</td>
<td>0.06033</td>
<td>0.58498</td>
</tr>
<tr>
<td>TOTRANK</td>
<td>0.45822</td>
<td>0.46632</td>
<td>-0.09354</td>
<td>0.43617</td>
</tr>
<tr>
<td>RANKSIZ</td>
<td>-0.08661</td>
<td>0.84994</td>
<td>0.05483</td>
<td>0.73291</td>
</tr>
<tr>
<td>MIDSIZ</td>
<td>-0.04147</td>
<td>0.86945</td>
<td>0.09749</td>
<td>0.76717</td>
</tr>
<tr>
<td>CLERSIZ</td>
<td>-0.03194</td>
<td>0.35685</td>
<td>0.49077</td>
<td>0.36921</td>
</tr>
<tr>
<td>STAFLINE</td>
<td>0.02001</td>
<td>-0.08104</td>
<td>0.89257</td>
<td>0.80364</td>
</tr>
</tbody>
</table>

Variance: 69.1%

**SUBUNIT** - Number of subunits  
**TOTUNIT** - Number of divisions (bureaus) + subunits  
**PRECINCT** - Number of precincts  
**TOTRANK** - Number of ranks in the chain of command  
**RANKSIZ** - Ratio of ranked to total personnel  
**MIDSIZ** - Ratio of middle ranked to total personnel  
**CLERSIZ** - Ratio of clerical to total personnel  
**STAFLINE** - Ratio of staff to line personnel
Subunits, total number of units, and precincts all load highly on Factor 1.Interestingly, the total number of ranks loads about equally on Factors 1 and 2. Since indicants of both horizontal and vertical differentiation and spatial dispersion all exhibit high positive loadings, Factor 1 is interpreted generally as a structural differentiation construct, although the horizontal dimension predominates. The second factor also has high positive loadings on the total number of ranks, as well as the proportion ranked to total personnel and the proportion middle ranked to total personnel. Thus, Factor 2 reflects the formal distribution of organizational authority, emphasizing vertical patterns of decentralization. Staff-line ratio and the clerical ratio both load highly on Factor 3, evidencing a horizontal decentralization dimension. In order to assess effects of organizational structure on professionalization each case was assigned factor scores as measures of structural differentiation, vertical differentiation-decentralization, and horizontal decentralization.

Environmental context is a property of organization-environment relationships, referring to the physical and social setting of organizational activities. Certain characteristics of the surrounding community are potential sources of uncertainty and constraints upon task performance. Of particular relevance to this study, civil disturbances of the late 1960's were disruptive community
events; generating both immediate response and prevention demands upon police departments. We employed criteria and data on civil disturbance from senate subcommittee reports and the Lemberg Center for the Study of Violence to determine the number of days of civil disturbance experience from 1965-1969 for each department in the sample (Kreps and Dynes, 1974a). Given this time frame, it is therefore possible to determine whether these environmental conditions contributed to the level of professionalization measured 5 years later.

Findings

The model depicts a sequence of hypothesized effects of organizational and contextual variables upon interorganizational relationships and professionalization. For reasons stated earlier, we approached the data as a two step multiple regression problem rather than a classic path analytic model. Consistent with that decision, as well as for ease of presentation, we have organized the data in tabular form (see Tables 6 and 7). The statistical analysis is divided into two steps. We first regressed the interorganizational field factor scores with size, wealth, formal structure factor scores, and environmental context to determine their impact upon these recent professionally relevant interorganizational relationships. We then regressed professionalization factor scores with all the preceding measures; the result being a logical test of the direct and indirect effects


<table>
<thead>
<tr>
<th>Interorganizational Field Linkage Factor 1 (Env 1)</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>0.097</td>
<td>0.164</td>
</tr>
<tr>
<td>Civil</td>
<td>0.023</td>
<td>-0.121</td>
</tr>
<tr>
<td>Wealth</td>
<td>0.092</td>
<td>0.029</td>
</tr>
</tbody>
</table>

$R = .126$  $\text{Variance} = .016$

<table>
<thead>
<tr>
<th>Interorganizational Field Linkage Factor 2 (Env 2)</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealth</td>
<td>0.040</td>
<td>0.034</td>
</tr>
<tr>
<td>Salary</td>
<td>0.039</td>
<td>0.033</td>
</tr>
</tbody>
</table>

$R = .047$  $\text{Variance} = .003$

<table>
<thead>
<tr>
<th>Interorganizational Field Linkage Factor 3 (Env 3)</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wealth</td>
<td>0.424</td>
<td>0.377</td>
</tr>
<tr>
<td>Struct 1</td>
<td>0.481</td>
<td>0.377</td>
</tr>
<tr>
<td>Civil</td>
<td>0.219</td>
<td>-0.209</td>
</tr>
<tr>
<td>Size</td>
<td>0.399</td>
<td>0.047</td>
</tr>
<tr>
<td>Salary</td>
<td>0.167</td>
<td>0.065</td>
</tr>
</tbody>
</table>

$R = .539$  $\text{Variance} = .279$

<table>
<thead>
<tr>
<th>Interorganizational Field Linkage Factor 4 (Env 4)</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>-0.035</td>
<td>-0.039</td>
</tr>
<tr>
<td>Wealth</td>
<td>0.013</td>
<td>0.021</td>
</tr>
</tbody>
</table>

$R = .034$  $\text{Variance} = .002$

* All Betas are at least twice the standard error.
### TABLE 7
**MULTIPLE REGRESSION ANALYSIS FOR PROFESSIONALIZATION FACTOR SCORES** * 

<table>
<thead>
<tr>
<th>Professionalization Factor 1 (Prof 1)</th>
<th>Independent Variable</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>0.713</td>
<td>1.682</td>
<td></td>
</tr>
<tr>
<td>Wealth</td>
<td>0.475</td>
<td>-0.804</td>
<td></td>
</tr>
<tr>
<td>Env 3</td>
<td>0.497</td>
<td>0.333</td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td>0.388</td>
<td>-0.333</td>
<td></td>
</tr>
<tr>
<td>Env 2</td>
<td>0.077</td>
<td>0.391</td>
<td></td>
</tr>
<tr>
<td>Env 4</td>
<td>-0.004</td>
<td>0.380</td>
<td></td>
</tr>
<tr>
<td>Struct 1</td>
<td>0.450</td>
<td>-0.234</td>
<td></td>
</tr>
<tr>
<td>Salary</td>
<td>0.158</td>
<td>0.036</td>
<td></td>
</tr>
</tbody>
</table>

R = .877  Variance = .783

<table>
<thead>
<tr>
<th>Professionalization Factor 2 (Prof 2)</th>
<th>Independent Variable</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>0.294</td>
<td>0.128</td>
<td></td>
</tr>
<tr>
<td>Env 4</td>
<td>0.074</td>
<td>0.068</td>
<td></td>
</tr>
<tr>
<td>Salary</td>
<td>0.089</td>
<td>0.037</td>
<td></td>
</tr>
<tr>
<td>Wealth</td>
<td>0.283</td>
<td>0.098</td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td>0.267</td>
<td>0.096</td>
<td></td>
</tr>
</tbody>
</table>

R = .313  Variance = .099

<table>
<thead>
<tr>
<th>Professionalization Factor 3 (Prof 3)</th>
<th>Independent Variable</th>
<th>Simple r</th>
<th>Standardized Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>0.116</td>
<td>0.113</td>
<td></td>
</tr>
<tr>
<td>Env 4</td>
<td>0.085</td>
<td>0.092</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.054</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Civil</td>
<td>0.011</td>
<td>-0.077</td>
<td></td>
</tr>
<tr>
<td>Wealth</td>
<td>0.047</td>
<td>-0.022</td>
<td></td>
</tr>
</tbody>
</table>

R = .161  Variance = .025

* All Betas are at least twice the standard error.
posited in the original model.

With regard to Table 6, the pattern exhibited is one of relatively little variance explained in the dependent variables with the major exception of Environment 3, the factor subsuming discretionary funding and community relations employees. The same selective pattern emerges with professionalization in Table 7. With 78.2% of the variance explained, we have essentially captured the general education dimension of professionalization (Professionalization 1) but account for relatively little variance in professionalization factors which reflect more specific organizational arrangements. This selective empirical power of the model will be discussed further as we highlight specific interrelationships.

Size, Wealth - Interorganizational Field Linkage, Professionalization (Propositions 1, 2, 3, 4)

The effects of size and wealth range from low to quite high on the two sets of dependent variables. With regard to size, we hypothesized that the number of personnel would be related directly to the magnitude of interorganizational relationships because of expansion of potential contact points with the environment. The Betas are low to moderate and in the expected direction (.163 and .047) on factors measuring normative reference (Environment 1 and 3); however, the effect of size washes out completely on factors subsuming contact with other police departments (Environment 2 and 4). This selective as well as at best moderate
impact of size is important to note. Larger departments do not disproportionately seek out knowledge exchanges with other police departments while they do generate somewhat greater involvement with dissimilar but charter relevant groups and organizations, particularly at the local level (natural disaster and civil disturbance arrangements and community relations programs). If we assume that larger departments have more complex and uncertain task environments, this finding implies a rather constricted search for solutions and a failure to utilize the growing knowledge potential of the law enforcement network. Alternatively, the leadership of larger departments may have confidence that internal capability is sufficient to meet charter relevant demands. It is also interesting to note that L.E.A.A. discretionary funding is not being dominated by larger departments. To a certain extent this greater spread of discretionary money is intentional at the federal level, but the data also suggest that grantsmanship skills are not monopolized by big city departments.

Size does show a very substantial positive impact (Beta = 1.68) on the general knowledge posture of police organizations (Professionalization 1) and moderate effects on both training (Professionalization 2, Beta = .128) and the importance attached to education in recruitment, training and promotion evaluation (Professionalization 3, Beta = .111). Our hypothesis was that size enhances the simple
probability of greater numbers of personnel reflecting professional characteristics and also serves as an impetus to professionalization by generating coordinating problems. This hypothesis receives strong support from our data. With regard to the relative importance of size versus other structural variables on the professionalization process, size clearly has direct implications for knowledge generation particularly in terms of the general educational profiles of the departments. Yet the selectivity of effects are intriguing. When we focus upon specific organizational arrangements related to professionalization (Professionalization 2 and 3) the effects of size moderate (as do other relationships) and variance is depleted. It is previously evident from the factor analysis that general education variables do not correlate highly with organizational dimensions of professionalization. The distributions of Professionalization 1 dimensions are generally broad and a substantial proportion of departments exhibit relatively high levels. Although we do not have time lag data, we infer that substantial increases in Professionalization 1 dimensions have occurred. Although the range is lower, clearly patterns of internal variation for Professionalization 2 and 3 also exist but we have simply not accounted for them.

Assuming that organizations vary in their ability to absorb costs of outside contact, we hypothesized that
greater wealth permits them to initiate and support increased normative and comparative reference relationships. Two measures of organizational wealth were employed: the annual budget and the baseline salary of police personnel. Budget displays a positive but low impact on interorganizational field linkage generally but is a moderate stimulus (Beta = 0.267) for efforts to secure discretionary funding and expand community relations programs. The development and processing of grant applications (many related to community relations) as well as expansion of what may be defined as a marginal role (Kreps and Weller, 1973), requires a certain degree of slack in economic resources. We suspect that larger budgets allow for some flexibility in these areas. It should also be added that budget is essentially an alternative measure of size, being highly multicollinear with that variable. The effects of baseline salary are quite minimal. This measure may merely be a function of the socioeconomic status of the community or collective bargaining while having relatively little direct impact on the organization except as an inducement for quality personnel.

With regard to professionalization, we hypothesized that wealth permits an organization to support activities which both require and attract professional personnel. The Betas are inconsistent for the budget measure, evidencing slight positive effects (Beta = 0.098) on training
(Professionalization 2), very little but negative impact on the structural requirements factor (Professionalization 3) and strong negative impact (Beta = -0.804) on the general education dimension. We suggest this latter strong negative effect is a statistical artifact of the tremendous multicollinearity between budget and size and therefore should not be given much conceptual credence. However, it could be argued from our data that economic resources are not being noticeably diverted to the qualitative improvement of organizational personnel. Perhaps general manpower and equipment needs predominate. More systematic research is needed. Again the Betas for salary are relatively slight but in the expected direction. This finding suggests that higher salaries may attract better qualified personnel, but professionalization involves more than simple monetary inducement (Kreps and Dynes, 1974a).

Complexity, Decentralization-Interorganizational Field Linkage, Professionalization (Propositions 5, 6, 7, 8)

The findings on structural complexity and decentralization are, in some cases, substantially different from what was expected. The most general hypothesis was that the more complex the structuring of organizational activity the more complex the orientation to problem solving; an orientation involving environmental search for problem solutions. The findings exhibited on Table 6 are clearly mixed. None of the structural factors display any impact
upon contact with other police departments (Environment 2 and 4), or on the normative reference construct reflecting written agreements with other local organizations (Environment 1). General structural differentiation (Structure 1) does have a relatively substantial positive effect (Beta = .377) on the normative reference construct subsuming discretionary funding and community relations employees (Environment 3). We had expected that horizontal decentralization (Structure 3) would be positively related to Environment 3 because grantsmanship is largely a staff rather than a line activity, and community relations is perhaps only marginally defined as a line function. The Beta was moderate and in the expected direction, but not twice its standard error. The push toward the environment is therefore clearly evidenced, but the process is again selective. Organizationally complex departments are pursuing the federal largess but do not disproportionately seek out other police departments as knowledge resources. As stated earlier, the leadership of large and complex police organizations, operating in fluid environments, may feel rightly or wrongly that internal capability is sufficient to meet charter objectives. More systematic research of this issue is needed, particularly given recent concerns with effectiveness of police practices.

In general, these findings suggest that relationships with law enforcement network at the national level are
substantially enhanced by complex task structures. No such case can be made for other types of contact. It should also be remembered that environmental relationships are reciprocal and it may ultimately be more relevant to look for structural effects rather than antecedents. Considerable recent attention, generated to a substantial degree externally, has been given to improvement of law enforcement; but whether this attention has fundamentally altered the social organization of police practices remains an empirical question in need of systematic research.

Structural complexity has been defined both in terms of the division of labor (Hall, 1972) and with reference to the level of knowledge employed in organizational activities (Price, 1968). With regard to professionalization, we assumed that structural complexity involves a complex orientation to problem solving, creating demands for professional personnel. We also argued that decision making must be more decentralized in order to allow qualified personnel to make judgements based upon expertise in specialized areas. These hypotheses receive only very limited support. Vertical differentiation-decentralization (Structure 2) has no impact on professionalization, and contrary to expectations, structural differentiation (Structure 1) exhibits a moderate negative impact on Professionalization 1 (Beta = -.234). Structure 3 also washes out completely.

We suggest that police professionalization is not
closely associated with the internal structure of police practices. It is interesting to again note that we can clearly account for the most generalized form of knowledge development, namely college training, but not those factors involving structural arrangements. By implication, the general knowledge posture of organizations can be altered with little structural modification. Indeed, we found that by reversing the regressions, professionalization factors exerted little or no structural effects. The tacit question is what are the short term consequences of the recent concern with police professionalization? Our interpretation is that at the structural level, the consequences are at best rudimentary. Police departments have historically been organized along rigid bureaucratic lines, thus recent and largely external pressures for professional development would likely engender bureaucratic resistance. It might logically be inferred from our findings that the short term interrelationships between measures of professionalization and structure in police organizations would be relatively low.

If professionalization, defined as knowledge development, is relatively independent of the structure of police practices, what are its beneficial short and long range consequences and how can they be studied? Our data suggest sociologically that what is occurring is a gradual change in the "culture" of police work, stimulated by a
general expansion of knowledge. The knowledge resources held by police personnel and organizations and the values brought to bear in approaching police problems are probably changing, albeit slowly. These cultural patterns will not be reflected in short term structural changes; in fact it is demonstrably arguable that there is considerable debate and much resistance within law enforcement to any fundamental changes in police practices. Thus change is incremental, highly complex, and involves processes of resistance and accommodation. These processes cannot be addressed sufficiently with survey research. Rather what is now required are intensive case studies of potentially high change organizations which have noticeably expanded these types of knowledge resources.

Environmental Context - Interorganizational Field Linkage, Professionalization (Propositions 9 and 10)

Organization-environment relationships have been given recent attention in the organizational literature as important sources of influence on organizational affairs. The findings on environmental context (civil disturbance experience) are both very interesting and relevant to this growing body of literature. It was hypothesized that a more complex task environment is a potential threat to charter maintenance and as organizations seek solutions to intensified demands, they look to the social network as an important knowledge resource. However, civil disturbance
has had no such effect on police departments. Direct civil disturbance experience does not stimulate contact with other police departments (Environment 2 and 4), has moderate negative impact on civil disturbance and natural disaster agreements at the local level (although little variance is absorbed), and perhaps most interesting, has a moderate negative impact (Beta = -.209) on discretionary funding and community relations efforts (Environment 3). It appears that some retrenchment takes place among those departments directly experiencing civil unrest. We suggest that departments become oriented to symptoms based upon a traditional concern with social control. This may result in minimal attention to underlying problems which would require increased knowledge resources and an expansion of involvement in the local community. The preceding interpretation is given additional support by the findings on professionalization. We also suggested that improving the competence of police personnel to deal with problems in the community would be another result of civil disturbance experience. This hypothesis is also refuted. Civil disturbance has low to moderate effects on Professionalization 3 (Beta = -.077) and Professionalization 1 (Beta = -.333) and a small positive effect (Beta = .096) on Professionalization 2 (recruit training).

Reiterating, these results suggest that civil disturbance experience breeds a concern for control rather than
prevention. Professionalization, particularly the general education factor implies a relatively broad orientation to community problems. The clear deflating effect of civil disturbance experience may reflect a concern with symptoms rather than underlying causes. More subtly, it could also be argued that as a department encounters higher levels of civil disturbance, the symptoms do become more clearly defined as does organizational response capability. Given the traditional social control mandate of police, a specific response to concretely defined problems would likely seem appropriate. A case in point is crowd control training. Crowd control training is relevant to the problem and can be incorporated readily into training. The slight positive effect of civil disturbance experience on the recruit training factor (Professionalization 2) perhaps evidences this process. In any event, it is clear that response to environmental uncertainty can take a number of forms. In this case not only does uncertainty not seem to induce professionalization but it might also be argued reciprocally (although our data cannot be used to test the assertion) that it is low professionalization that breeds a concern with symptoms instead of a more probing look at underlying issues.

**Interorganizational Field Linkage - Professionalization**

(Proposition 11)

Assimilating the resources of other organizations is another way of adapting to environmental uncertainty. The
complexity of urbanism has created the need for more sophisticated information. We have argued that the crescive social network of law enforcement has enhanced the knowledge potential of the environment of police organizations. By implication, interorganizational contacts should heighten awareness of new knowledge and other resources in law enforcement and stimulate professional development. The interorganizational field factors operate strongly in the expected direction but again the effects are selective. Both comparative and normative reference contacts have the greatest impact on the educational dimension of professionalization, while noticeably, if not totally enervating on Professionalization 2 and 3. This finding is perhaps consistent with the fact that public attention and pressure on law enforcement has focused, in part, on improving the educational background of police personnel. Yet that concern is not well articulated; there is merely the generalized assumption that expanded knowledge will improve law enforcement effectiveness. Whether the premise is supported or not, in responding to public concerns as well as fiscal impetus from the federal level, police departments can expand their general educational posture without fundamentally altering the structure of police practices. Stated another way, if the assumed benefits of education are not well articulated generally, or if there is some debate about these benefits, it is logical to conclude that the
actual translation of expanded knowledge resources in terms of changed organizational performance would be quite difficult.

Notice again the fact that our findings concerning the more specific organizational aspects of professionalization (Professionalization 2 and 3) are far less impressive. In analyzing knowledge developments, the closer we get to specific organizational arrangements, the lower the variance we explain and consequently the more ambiguous the results. As stated earlier, our inference is that the general knowledge posture of police organizations is expanding, but in a structurally isolated manner. The process appears to be one of subtle and complex changes in the "culture" of police work; changes which are not well defined (certainly not well researched), but potentially have far reaching implications.

Discussion

An important aspect of recent attempts to improve law enforcement in the United States has been the effort to professionalize police practices. Yet the concept has remained vague as does the actual process of professional development. The general notion of professionalization of police services obviously involves a number of elements, but all seem to have in common the underlying premise that general education and specialized training are central aspects of professional development. Focusing upon education
and training, this study was designed to define and empirically elaborate professionalization organizationally. While previous research has been largely social psychological, emphasizing a multidimensional "professional model", this research has documented the usefulness of interpreting professionalization as a knowledge development process basic to the technological posture of police organizations. In so doing, we have also contributed to a more precise understanding of what has been an empirically elusive concept in the organizational literature; namely knowledge technology.

Given this organizational translation of the concept, a model was developed to assess the effects of organizational and environmental characteristics on professional development. After a series of scaling and factor analyses, a two step multiple regression format was used to test the model. The findings indicated the selective impact of model dimensions on variations in professionalization. Size had both direct and indirect effects, thus once again documenting its importance for organizational affairs. However, the effects of size were not uniformly great, but generally moderate. They were most apparent in terms of the general educational dimension of professionalization. Yet the effects of size noticeably enervated in terms of specific organizational arrangements related to knowledge development and use.
The effects of wealth were generally quite low. Interestingly, structural measures had little direct impact on professionalization and by reversing the regressions in various ways we found minimal, if any, structural effects. These findings again imply an isolation between knowledge development and the structure of police practices. Obviously the translation of technological resources into workflow is a complex process, particularly when these resources are potential sources of change.

Of equal interest were the effects of the environment. The present research joins a growing number which have shown the genuine importance of the environment for organizational processes. As a contextual dimension (measured by direct civil disturbance experience), the environment had relatively clear negative effects on professionalization. These findings evidence, perhaps, a well articulated concern with symptoms rather than underlying causes, thereby deflating more complex knowledge development processes. On the other hand, police departments are positively responding to other environmental sources in terms of professional development; but again the effects were selective. Normative and comparative reference ties had substantial impact only on the general education dimension of professionalization. We suggest that the public and law enforcement network attention to education has been based on the assumption of its relationship to police
effectiveness. However, it is not all clear how this resource is employed organizationally. Police departments are clearly responding to these pressures, but in a manner that is to a very great extent structurally marginal.

When we think of this elusive concept of professionalization, interpreted organizationally as a knowledge development process, we should ask what is the relationship between tasks performed and human and material resources employed in task performance? This question is particularly important, given the assumed relationship between professionalization and organizational effectiveness. Certainly the educational background, special skills and training of organizational personnel must be identified as well as the material resources employed in knowledge development. We must also be able to characterize the knowledge potential of the environment and how it is being used. And we must finally ask how these technological resources are translated into workflow activities. The present research suggests that this latter translation is highly complex. General education is not highly related with organizational dimensions of professionalization and the relationships between professionalization and structure are quite ambiguous.

If professionalization is developing in a structurally isolated manner, what are its short term benefits? Perhaps the question is not correctly put in that the expectation
implied is unrealistic. We suggest that the knowledge held by police personnel and organizations and potentially the values brought to bear in approaching police problems are being affected by the push for professionalization. But these beneficial effects are subtle cultural changes, many involving considerable resistance. What is most sociologically interesting about police organizations is that they are in a state of adaptation. There are efforts at experimentation, innovation, and diffusion. There are environmental pressures for change. And there is considerable internal reflection and strain. What is needed now are intensive case studies of these change processes.
The literature review and model development is divided into three sections. The first section works toward precise conceptualization of formal organizations. Briefly summarizing the literature, we draw out assumptions which underly our own interpretation of the concept and delineate logical properties of organizational behavior. In the second section we develop the concept of police professionalization. Drawing insights from previous social psychological work, we elaborate police professionalization as an organizational property. The final section outlines elements of the professionalization model which informs the present study.

**Organization**

Although the literature is quite diverse, historical review of the field reveals two major lines of development: the managerial tradition and the structural tradition (Mouzelis, 1968; Perrow, 1972). The managerial school was initially preoccupied with identifying universal principles of administration for increasing organizational efficiency (Taylor, 1947; Fayol, 1949). Critique of the rational economic model of man underlying these studies
stimulated development of the human relations approach. Emphasis shifted to more complex psychological and sociological variables of the work place, thereby prompting a modicum of concern with organizational structure (Mayo, 1945; Roethlisberger and Dickson, 1947). An important by-product of managerialism and human relations approaches was Barnard's (1938) theory of organizations as cooperative systems. Virtually all of the above works involved efforts to explain organizational behavior with concepts developed for the individual level of analysis. Yet empirical research revealed the conceptual weakness of reducing an organization to a simple collectivity. The field now emphasizes decision-making models which interrelate individual behavior and structural characteristics (Simon, 1947; March and Simon, 1958; Cyert and March, 1963), and systems models which view organizations as unique problem-solving entities (Gouldner, 1954; Selznick, 1957).

These latter models of the managerial tradition rebound with the second major line of theoretical development, namely structuralism. For this approach, the organization as a unique whole is the basic analytical unit. The problem is to assess the interrelationships among structural properties and internal and external processes. Weber's (1947) writings on bureaucracy are of seminal import. Via a macro historical study of the concept, Weber identified relevant aspects of formal structure. His works provided the basis for more recent, middle range,

Although managerialism and structuralism began with divergent definitions of the problem certain similarities are historically evident (Mouzelis, 1968; Perrow, 1972). These points of theoretical convergence, outlined below, reflect assumptions about organizational behavior which underly our definition:

1. Organizations are established purposefully to attain relatively specific ends.

2. Organizations are open systems; thus organizational rationality is constrained by a fluid environment (Simon, 1947; Thompson, 1967).

3. As total systems, organizations have emergent structural characteristics which merit study at that level of analysis.

4. Organizations have identifiable properties which exhibit various levels of functional interdependence (Thompson, 1967).

A comprehensive definition of organization should reflect these assumptions and clearly specify basic analytic properties. Organization is defined here as a relatively permanent problem-solving system which will attempt to reduce or control environmental uncertainty in order to
survive and meet charter specified goals. Organizations, as distinct social entities, are therefore assumed to be purposefully established, rational, and bounded by an encompassing social and ecological environment. Rationality is limited by the extent to which an organization articulates its needs with a fluid environment. Defined objectives are attained through various human behaviors, integrated into systems of patterned activity. In what follows, the basic analytical elements of organizations are identified and their interrelationships discussed.

Analytical dimensions of organization

1. Charter

Charter is defined as the image of an organization, including name, formal objectives, and domain which distinguish it as a unique element of the social and ecological environment (Bakke, 1959). As a guideline for ordering activities (Thompson, 1967), charter influences organizational structure, (Pugh et al., 1969), decision-making (Warren, 1969), and responses to environmental conditions (Haas and Drabek, 1973).

2. Resources and technology

Although this dimension is not particularly well delimited in the organizational literature, two basic elements have been distinguished; namely, the nature of organizational tasks and human and material resources employed in task performance (Perrow, 1967; Terreberry, 1968). Given this general framework, Hickson et al., (1969) specify
workflow, materials, and knowledge technologies as sub-elements of this abstract concept. Workflow or operations technology refers to specific techniques and procedures used in task performance. It therefore involves actions performed on raw materials to make appropriate changes in them (Perrow, 1967). Materials technology refers to equipment, physical plant, and economic resources employed in organizational activities. Knowledge technology subsumes information, expertise, and other forms of knowledge development related to organizational problem-solving (Dill, 1962; Kreps and Dynes, 1974a). We argue that professionalization be conceptualized as an important property of knowledge development. For example, the education and training of organizational members represents a type of knowledge resource. The range of technological resources available to the organization serves as a constraint on performance, and, in turn, has implications for organizational structure. Logically, certain tasks and technologies require particular types of work arrangements and organizational controls (Woodward, 1962; Perrow, 1967; Hage and Aiken, 1969; Mohr, 1971; Pugh et al., 1969; Hrebinak, 1974).

3. Activities

This dimension includes integrated sets of behaviors directed toward organizational survival and achievement of charter-specified objectives. Included here are task, control, communication, maintenance and adaptation processes (Bakke, 1959; Haas and Drabek, 1973). Though empirically
linked, these processes may be conceptually distinguished. Task performance activities are specifically related to central organizational production goals. These activities are, in turn, coordinated by intentional control processes (Tannenbaum, 1962). Control is achieved, in part, through communication activities, represented by exchanges of information, directives, and formal evaluations. The remaining two activity sets explicitly link the organization to its environment. Maintenance activities include member recruitment and socialization. Adaptation activities involve modification of organizational or environmental elements in response to changes in environmental conditions.

The above activities are patterned and interrelated by organizational normative, status and authority structures (Bakke, 1959; Haas and Drabek, 1973). Together these structures form a generalized system of stratification. The normative structure delimits official and unofficial guidelines (directive, evaluative, or coordinative) for social interaction. Research has demonstrated that the degree to which these rules and procedures are formalized is related to other organizational characteristics (Hall, 1972). The status structure involves patterns of differentiation among individuals or positions according to expertise, prestige, power, and authority. Status may rest in a position or be achieved on the basis of performance evaluation. Control and communication processes are formalized in organizational authority structures.
Authority may be defined as legitimized power residing in an office or position (Weber, 1947; Rosengren, 1967). Patterns of authority relationships involve translation of goals into directives for organizational action and their transmittal throughout the hierarchy. Major dimensions of the authority structure shown to be related to other organizational characteristics include degree of centralization, staff-line relationships and leadership styles (Etzioni, 1959).

4. Organization-environment relationships

Organizations as open systems exhibit varying degrees of autonomy and interdependence with their environments. This reciprocal organization-environment interaction is considered basic to organizational functioning (Thompson, 1967). Since organization-environment relationships are relatively new areas of research, there are no universally accepted defining properties. However, two approaches to this problem may generally be distinguished; those which classify environments and those which classify specific types of social relationships. The first approach suggests that environments vary both in terms of level of complexity, stressing the number of environmental elements and their degree of interconnectedness; and in terms of degree of fluidity, reflecting frequency and magnitude of change (Emery and Trist, 1965; Duncan, 1972; Jurkovitch, 1974). Terreberry (1968) argues for a general societal trend toward increasing environmental complexity and dynamism.
As problem-solving systems organizations will develop adaptive mechanisms to deal with uncertain environments (Osborn and Hunt, 1974). Thompson (1967) suggests that as the environment changes, organizations will modify technologies and structures in order to maintain charter. Logically, the nature of the task environment affects the structure of organization-environment relationships. These relationships are the primary foci of the second approach.

Various classificatory schemes have been offered such as those based on type of product, degree of formalization, degree of specificity, duration, and degree of organizational control (Thompson and McEwen, 1958; Litwak and Hylton, 1962; Thompson, 1967). Evan (1966) heuristically distinguished between comparative and normative reference contacts. Comparative reference contacts are those in which members are similar organizations, perhaps having similar structures and objectives. The assumption is that these organizations have a basis for comparison of output, problems, and needs. In a normative reference relationship, the focal organization accepts, at least in part, the values and goals of some other environmental element. Taken together, the above schemes identify important analytical properties of organization-environment relationships. Variations in these properties have been shown to be related to organizational goals, structural differentiation, patterns of authority and influence, and organizational change (Thompson and McEwen, 1958; Aiken and Hage,
In this paper, organization-environment relationships are defined as the sum of an organization's reciprocal linkages with an encompassing physical and social environment. Drawing upon Hall's (1972) useful distinction, we identify two relevant property spaces; distinguishing between the general environmental context and more specific interorganizational relationships. As a contextual factor, the environment constitutes the setting for organizational activity (Eisenstadt, 1959). Here the concept refers to physical, political, social and economic conditions which have an impact on organizational structure and functioning (Pugh et al., 1969). Interorganizational contact articulates the environment in social terms. Here specification of types of relationships (such as normative or comparative reference) becomes very important. By way of summary, the environment provides energy inputs for organizational activities and absorbs organizational outputs. It therefore represents a potential source of uncertainty which organizations will attempt to control. For example, external ties may be generated as internal resources become insufficient to maintain charter in a fluid environment. These contacts may assume a variety of forms, depending on both organizational and environmental characteristics. Finally, by incorporating environmental inputs, organizations may be confronted with the
need for basic structural changes.

Organizational charter, resources and technology, activities and organization-environment relationships are the abstract concepts underlying the organizational model of professionalization employed in this research. In order to empirically assess interrelationships these dimensions must of course be linked to measurable variables at a lower level of abstraction. After a discussion of professionalization in the next section, we will outline this organizational model of professionalization, specifying linkages among analytical dimensions, model elements, and empirical indicators.

**Police Professionalization**

This section works toward conceptualizing police professionalization and is divided into three parts. The first part summarizes the general sociological orientation to the broader concept of professionalization. Although the majority of this work is social psychological, it does provide insights for organizational research. The second part involves a discussion of professionalization as an organizational system-state and is a logical lead-in to a concluding discussion which defines and elaborates police professionalization as a technological resource. **General sociological orientations to professionalization**

Professionalization is difficult to conceptually and empirically decompose. Although it has been the focus of
much sociological research, the concept is not yet well delimitled in terms of formally stated and tested propositions. Even though most studies in the sociology of occupations and professions focus on individual characteristics rather than organizational processes, this research provides some insights for higher levels of abstraction. Professionalization can be referred to as a process by which an organized occupation, by virtue of making claim to special competence and having concern for the quality and benefits of its work, obtains the exclusive right to perform a particular kind of work. That right involves control of training and considerable autonomy in the evaluation of work performance (Vollmer and Mills, 1966). Definitions such as the above imply changes in work activities which are a response to increasing societal complexity and demands for expertise. The complex nature of these changes has made them difficult to identify and study (Corwin, 1970). Thus before professionalization can be meaningfully related to organizational structure and process, its underlying dimensions must be clearly specified.

Efforts to formulate a succinct conceptualization are centered around what might be called a professional model. Where variations are found it is more a matter of relative emphasis or degree of specificity than one of using totally different sets of dimensions. For example, Goode (1957) identifies two dimensions, i.e., specialized and abstract knowledge and a service orientation, as basic to
the professional model. Other researchers such as Greenwood (1957), Kornhauser (1962), and Pavalco (1971) expand upon Goode's discussion and develop as many as eight dimensions.

The following seven core dimensions appear to summarize the professional model developed in the literature: 1) systematic body of theoretical knowledge; 2) specialized training; 3) autonomy; 4) public definition of the service as essential to society; 5) ideal of service; 6) code of ethics; 7) colleague associations.

1. **Systematic body of theoretical knowledge** - Knowledge constitutes the basis for professional activities which involve unstandardized products, or unique problems. Principles or theory, often derived from systematic scientific research, provide the groundwork for practice, i.e., rational actions in concrete situations. There is frequently a division of labor within a profession between the researcher-theorist role (concerned with knowledge-generation) and the practitioner role (involved with the application of this knowledge). Since the public is generally unfamiliar with this knowledge, it legitimates work activities and therefore serves as a potential power base.

2. **Specialized training** - Mastery of a body of knowledge requires a prolonged period of specialized training. As a prerequisite for professional performance, this training must emphasize the ability to manipulate ideas and understand general principles as well as technical skills.
In addition to knowledge and experience, Goode (1957) and Pavalco (1971) suggest that values, a unique set of norms, and work role conceptions are also acquired. This dimension is deemed particularly important in that training provides a means for acquiring the knowledge base, is used to justify a claim for autonomy, and begins the process of inculcating a service orientation and codes of ethics. In his description of the transitions from occupation to profession, Hughes (1958) observes that soon after recruitment, the question of training arises. This training becomes increasingly sophisticated as professionalization develops.

3. Autonomy - This dimension deals with the degree to which professional expertise, acquired through training, becomes the basis for self-regulation. Autonomy is defined as the amount of control over matters related to work activities, justified, in this case, by professional competence.

4. Public definition of the service as essential to society - This dimension is concerned with the relationship of service to basic social values; the health and welfare of the individual and society. Pavalco (1971) observes that professional activities involve the generation and application of knowledge and service to crucial, recurring human problems or intense crises. Goode (1957) and Hughes (1968) further point to the necessity of public recognition that professional activities contribute to
human betterment.

5. **Ideal of service** - Service to clients is said to be the primary goal and ideology of a profession (Pavalco, 1971). Thus motivation to work stems from a desire to improve client welfare and the intrinsic rewards from accomplishing this task are considered more important than material gains. Moreover, the career aspect of this dimension is exemplified by Greenwood's (1957) distinction between activity engaged in for a short period of time and the professional sense of life long commitment.

6. **Code of ethics** - This dimension is concerned with the degree to which a value and normative system defines relationships among professionals and provides guidelines for work evaluation. This system also formalizes the service orientation, thereby protecting society from abuse of professional authority. And as behavioral guidelines, work standards help to assure higher levels of performance and universalism in providing public services (Greenwood, 1957).

7. **Colleague associations** - A sense of common identity and shared values, fostered by the service ideal and a code of ethics, are related to the formation of formal and informal professional organizations. Systematic research, generating needs for discussion and evaluation, also provides stimulus for these types of organizations. It logically follows that these social arrangements become major reference groups serving as sources of ideas, identity
reinforcement and social control.

It is recognized that these dimensions of professionalization have attitudinal as well as behavioral components. For example, Hall (1969) discusses the importance of attitudes such as identification with colleagues, dedication to work, the desire to perform a service, and freedom to exercise judgement and discretion. Perhaps prompted by ease of measurement, much of the empirical work in this area has involved attitudinal indicants (see, for example, Sorenson and Sorenson, 1964; Miller, 1967; Corwin, 1970). But the work of Hall (1968) is of special interest in this regard. He differentiates attitudinal and structural components of professionalization and then suggests that they do not necessarily vary together. Given this observation and problems of validity with attitudinal measures (Deutscher, 1969), the weakness of many previous empirical studies of professionalization is readily apparent; this problem being further complicated by the vagueness of the concept.

The above dimensions, incorporating both behavioral and attitudinal components, represent an abstract model of professional organization; a heuristic device designed to permit assessment of the degree to which an occupation is professionalized. Each dimension is conceived of as a continuum. Thus rather than debate whether or not an occupation is a profession, it is more appropriate to ask how professionalized an occupation is at a particular point
in time (Vollmer and Mills, 1966). Professionalization is also defined as a dynamic process. Caplow (1964) and Wilensky (1964) suggest that this process be conceptualized as a set of stages involving changes in characteristics identified by model dimensions. It is generally accepted that the sequence of the professionalization process can vary; and that the degree to which each of the dimensional characteristics are present or absent at any given point is affected by type of occupation (Vollmer and Mills, 1966; Pavalco, 1971).

The so-called professionalization model, encompassing both system-state and processual elements, reflects the general sociological orientation of this concept. Clearly greater specificity regarding model dimensions and necessary and sufficient conditions for them are needed. The utility of the model for the present research lies in its division into simpler components and the description of component characteristics.

Professionalization as an organizational system state

Much of previous organizational research on professionalization stresses its relationship to structural dimensions. Both conceptual and empirical works have involved evaluating the argument that many of the changes in work activities referred to earlier are incompatible with more traditional bureaucratic models of organization. Weber's extensive elaboration of the rationalization of work is the basis for identifying properties of a
bureaucratic model. Then as Freidson (1973) argues, professionalization represents a counterrtrend of work organization which seems to logically contrast with bureaucratic structural characteristics. Investigation of the hypothesized conflict has made significant contribution to conceptualizing professionalization organizationally. The research can be divided into two parts: 1) role analysis, including studies of individuals in bureaucratic settings and professional versus bureaucratic models (principles) of work organization; and 2) professionalization as an organizational system property.

1. Role Analysis - The professional-bureaucratic conflict is characterized by professionals, desiring autonomy and personal judgement in carrying out activities, being confronted with bureaucratic restrictions (Zald, 1971). The effort is to analyze organizational activities in terms of individual work role conceptions. Some role conflict studies of professionals employed in formal organizations have served, in part, to identify organizational characteristics related to professionalization; e.g., goals, tasks, authority structures, promotional procedures, etc. (Reissman, 1949; Corwin, 1961; Miller, 1967; Sorenson and Sorenson, 1974). Other studies have moved toward considering professionalization and bureaucratization as contrasting models, systems, or institutions of work organization (Kornhauser, 1962; Scott, 1966).

It is apparent that the dimensions of both professional
and bureaucratic models should be treated as separate continua. For example, Hall (1968) observes that occupations exhibit different configurations of professional dimensions and that bureaucratic characteristics of organizations do not necessarily vary together. The relationship of bureaucracy and professionalization is not inherently problematic, i.e., a balance may be achieved with formalization on some dimensions and flexibility in others (Udy, 1961; Kornhauser, 1962; Hall, 1968; Eisenstadt, 1969). Thus professional-bureaucratic conflict can be seen as involving relationships between two systems of social organization. Each system is said to have multiple dimensions but their interrelationships are not well specified. What is needed is more systematic research of dimensions of professionalization as they relate to other organizational properties such as size, complexity, authority structure and task environment. That is the goal of the present research. In other words, from defining the issue as professional-bureaucratic conflict to one of the interrelationships between the two systems of organization, it becomes a logical step to define professionalization at the organizational level of analysis.

2. Professionalization as an Organizational System Property - Professionalization is defined as both a system-state and a process. An organization is considered to be professionalized to the extent that its structure and activities exhibit the dimensions of a professional model.
Processually, professionalization refers to movement of organizational activities along these dimensions. In considering this definition, three points must be addressed: first, acceptance of organization as the level of analysis; second, specification of organizational activities to which the concept can be meaningfully applied; and third, identification of organizational dimensions related to professionalization.

Recognition that organizations should be studied at their own level is well documented in the organizational literature (Mouzelis, 1968; Hall, 1972; Haas and Drabek, 1973). However, an organizational approach to professionalization has only recently received sustained attention. Hughes (1960) and Vollmer and Mills (1966) both observe that organizations as well as occupations can become more professionalized. The recent research on priests and the church conducted by Ference et al. (1971) makes a crucial distinction between organizations which employ professionals and a "profession-as-organization." In the latter, the service is provided under the auspices of an aggregate of individuals joined into an organization. This distinction is particularly important to the present research. Police work may only be performed under organizational auspices, i.e., the department as a whole, not independent professionals, provides the service. Considerable thought and research is needed to systematically observe how and in what respects an organization may become professionalized.
What constitutes organizational professionalization? By what criteria do we identify an organization as professionalized? The professional model confronts the complexity of the concept by breaking it down into multiple dimensions. We assume that the variable presence of these dimensions as well as their interrelationships, determine the extent of professionalization of a given organization. As stated earlier, our view is that professionalization involves changes in the structure of organization (Vollmer, 1964). The specification of dependent and independent variables is a matter of researcher designation, but is constrained by logic and the space-time context of the research. For this paper professionalization is defined as the focus dependent variable because our objective is to "explain" its variance in terms of other organizational structural and contextual characteristics. This arrangement is further justified by the fact that pressures for increased police professionalization have only recently become noteworthy.

The dimensions of the professional model outlined earlier may be used to specify what organizational activities can become professionalized. Thorough assessment of organizational professionalization involves defining it systematically in terms of each of these dimensions. However, that kind of closure would be beyond the scope of any single study. Given the ambiguity of the concept, our effort is to systematically analyze professionalization
in terms of dimensions 1 (systematic body of theoretical knowledge) and 2 (specialized training), focusing in particular on education and training. In this manner, we hope to contribute to a more precise formulation of the concept; one that interprets professionalization as a technological resource of organizations. Moreover, education and training are amenable to direct behavioral measures, thus alleviating the problem of making inferences from attitudes to behavior (Deutscher, 1969). Considered as an organizational element, professionalization here subsumes structural arrangements for recruitment, education and training, and promotional activities. For example, an organization may be considered to be professionalized to the extent that it has high educational requirements for recruits, extensive and well-equipped training programs emphasizing theoretical principles and practical application, and effective measures related to performance assessment (see Vollmer, 1964).

Finally, with regard to identification of the organizational dimensions related to the process of professionalization, the underlying question is why does an organization become professionalized? To answer this question, basic assumptions about the nature of organizations and the relationship of environmental conditions to organizational structure should be considered.

Organization has been defined as a problem-solving system which will attempt to control environmental
uncertainty. The works of Dill (1958), Thompson (1967), and Haas and Drabek (1973) are of particular interest in relating this definition to professionalization. Thompson defines environmental uncertainty as outcomes of organizational activities affected by interaction with environmental elements. As actions cause changes in an organization's task environment, and organization will attempt to control these changes through structural and/or technological adaptation. Following Dill's suggestion of defining the task environment as a flow of information, adaptation involves environmental monitoring and the search for knowledge relevant to organizational problem-solving. Dill argues that as environmental complexity increases, organizational search strategies become more elaborate. Haas and Drabek observe that the scope and method of environmental monitoring and manipulation is related to the range of member skills and the structure of organizational activities. Thus professionalization, as defined in this study, is one form of elaborating knowledge search strategies related to coping with environmental uncertainty (Kreps and Dynes, 1974a). Environmental uncertainty for police departments is evidenced by the increasing level and complexity of community demands for law enforcement services. Professionalization is one manner in which police organizations attempt to meet these demands.
Police professionalization as an organizational property

Since police work must be performed under organizational auspices, it logically follows that the structure of police organizations is relevant to any analysis of law enforcement practices (Balch, 1974). The problem is a paucity of genuinely organizational research on police departments. Thus an organizational approach to police professionalization is not well grounded in the literature. A few studies point to the organizational dimensions of police work (Banton, 1964; Clark, 1965; Skolnick, 1966; Preiss and Erlich, 1966; Cain, 1968; Wheeler, 1968; Tifft and Bordua, 1969; Cain, 1973), but these studies only relate one or perhaps two elements of structure to police attitudes and behavior. This research is more appropriately labeled social psychological in that the effort largely involves interpreting work orientations of police personnel. Given the dearth of organizational research in general, there are few guidelines for a systematic organizational study of professionalization.

Considerable research has been done on police professionalization within a role analysis framework. Yet the concept remains ambiguous because the parameters of a professional model have not been made explicit. Police professionalization has variously been defined in terms of high public status (Teasely and Wright, 1969), task differentiation (Clark, 1965; Steadman, 1972; Cain, 1973), self direction and personal behavioral control (Skolnick,
community service orientation of police personnel (Steadman, 1972), and finally, education and training (Brerton, 1961; Jameson, 1966; Saunders, 1970; Leonard and Moore, 1971; Whisenand, 1971). Moreover, attitudinal surveys are often employed to measure professionalization, but the measures used do not explicitly link attitudes to a projected set of behavioral outcomes (White, 1966). The consequence is an inadequate basis for differentiating levels of professionalization among police personnel and minimal insight for an organizational treatment of the concept. Walsh's (1970) work is a notable exception. Although still concerned with police role orientations, he discusses police attitudes and behavior in terms of the conceptual framework of the sociology of professions. For example, he suggests that organizational memberships, familiarity with professionally relevant journals and academic training are behavioral referents of professional commitment. In so doing he more clearly articulates certain behaviors with the dimensions of the professional model discussed earlier and provides some insight for the present organizational framework.

Specifically, a concern with the nature and problems of education and training does inform our research. We can begin to enumerate professionalization of these activities in police organizations as they relate to recruitment, training, and promotional criteria (Epstein,
1971). We assume that police departments, as social service agencies, must deal with difficult human problems (Saunders, 1970). Professionalization, defined in terms of education and training, involves a theoretical as well as practical approach to law enforcement (Jameson, 1966; McNamara, 1967; Whisenand, 1971; Steadman, 1972). The need for education in law enforcement and behavioral science is increasingly stressed and professional recruitment standards incorporate educational prerequisites (Saunders, 1970). In addition, promotional techniques often include educational achievement and performance quality as well as length of service as criteria of advancement. Thus organizational professionalization is reflected in personnel quality. Logically personnel quality is constrained, in part, by recruitment standards, the amount of training required, resources allocated to training and the reward structure of given departments. We suggest that higher educational standards for recruits and training personnel, greater numbers of hours of basic and in-service training, more sophisticated training materials, and promotions based upon educational achievement and quality of performance reflect greater knowledge capability of police organizations. Therefore, professionalization is logical referent for the knowledge development component of organizational technology. All of the above structural arrangements can be linked to direct behavioral measures. In sum, this research addresses professionalization as a
logically refers to the number of organizational employees. While there is general agreement about the relevance of size for organizational behavior, there is considerable debate as to its importance vis-a-vis other organizational characteristics. For example, Hall et al., (1967), Blau and Scott (1962), Woodward (1962), and others argue that size does not have predominant causal impact on organizational outcomes, i.e., its effects are largely mediated by technology and complexity of the task environment. However, an alternative argument frequently made is that size is a major determinant of structure. Size has been shown to be systematically related to organizational wealth, complexity, formalization, decentralization of authority, and the administrative component (Meyer, 1968; Pugh et al., 1969; Blau and Schoenherr, 1971; Hall, 1972; Kasarda, 1974). The works of Kreps and Dynes (1974a) and Kasarda (1974) are particularly important for this study. Kreps and Dynes demonstrate the moderate effects of size on knowledge generation in police departments. Kasarda argues that size both intensifies inherent system problems and serves as a latent functional resource for problem solutions. For example, size creates coordination problems, but is also a stimulant to the professionalization of organizational personnel. The professionalization process represents, in part, a system solution to coordination problems.
technological property of police organizations, referring to expansion of knowledge resources employed in organizational activities.

As stated earlier, in elaborating organizational professionalization in terms of education and training, we empirically treat two important dimensions of the professional model as developed in the sociology of professions literature. The effort is to explicitly ground our research to a crystallized conceptualization of professionalization, thereby avoiding the discontinuity that presently prevails. Measurement of the concept involves assessment of behavioral outcomes rather than attitudes. We then determine the effects of other organizational and contextual properties upon levels of professionalization, as measured.

Elements of the Professionalization Model

The model elements are size, wealth, complexity, decentralization, environmental context, interorganizational field linkages, and professionalization. They are developed and logically interrelated in the thesis proper. In this section we present an overview of these elements and their empirical indicators.

1. Organizational Size

Size is a property space of the resources and technology dimension, reflecting usable human attributes. Size intensifies system problems but also serves as a latent functional resource for problem solutions. Size is logically measured by the number of uniformed personnel.
2. Organizational Wealth

The level of material resources available to an organization limits the range of its activities and techniques used to perform them. Organizational wealth is one property space of the resources and technology dimension; specifically an economic resource basic to performance of charter specified tasks. We assume that the level of funds available acts as constraint upon resource development. It is therefore logical to suggest that professionalization (a knowledge resource) is affected by the economic posture of the organization. The annual budget and baseline salary of police personnel are employed as indicators of the economic strength of departments.

3. Organizational Complexity

Complexity is a characteristic of the structuring of basic activities. Complexity has been defined, although infrequently, as knowledge resources related to work specialization (Hage and Aiken, 1967; Price, 1968). This interpretation clearly links complexity to the knowledge component of organizational technology. However, the more common approach defines complexity with reference to the division of labor (Blau and Schoenherr, 1971; Hall, 1972). In this regard, Hall (1972) notes that complexity is multidimensional, incorporating horizontal differentiation, vertical differentiation and spatial dispersion. Horizontal differentiation involves greater task specialization and is evidenced by a proliferation of subunits. Vertical
differentiation refers to the number of levels in the hierarchy. Multiple centers of organizational activity represent spatial dispersion. Little is known about the relationships among these dimensions. For example, both Meyer (1968) and Blau (1973) suggest that vertical and horizontal differentiation may be seen as alternative methods of organizing work activities. It is clear, however, that considerable empirical research is needed before definitive conclusions can be made.

In general, the structuring of activities can be seen as an organizational response to particular system problems (Kasarda, 1974). Complexity has been shown to vary with organizational size and authority structures (Meyer, 1968; Blau, 1973), technology (Litwak, 1961), environmental relationships (Aiken and Hage, 1967; Lawrence and Lorsch, 1967), and organizational change (Kreps and Dynes, 1974b). However, its relationship to other important organizational properties and outcomes remains empirically unresolved (Hall, 1972). Here we assess the impact of the structuring of police activities upon environmental linkages and the level of professionalization. Three elements of complexity are of primary interest. Divisions (bureaus) and subunits are indicants of the horizontal division of labor. Assuming that ranks represent various levels of authority, the total number of ranks is a logical measure of vertical differentiation (Blau and Schoenherr, 1971). Spatial dispersion, or the number of sites of organizational action, is logically
measured in this study by the number of precincts.

4. Organizational Decentralization

Decentralization is defined as one property of organizational authority structures, measured by the distribution of formal decision-making power. Weber argued that relatively rigid, centralized decision-making is a distinctive feature of bureaucratic administration. More recent empirical efforts suggest that other organizational characteristics such as size, horizontal and vertical differentiation (Meyer, 1968), materials technology (Blau and Schoenherr, 1971), and formalization (Child, 1972) affect the degree to which authority is confined to the top of the hierarchy. The works of Aiken and Hage (1967) and Hage and Aiken (1967) are particularly relevant to the present research. They suggest that interorganizational linkages and professional training have important consequences for decentralization of organizational decision-making.

It is recognized that decentralization is a multidimensional concept. Hall (1972) distinguishes between horizontal and vertical decentralization. The former refers to the distribution of authority among organizational subunits. The relative decision-making responsibility of staff and line positions is one important aspect of this dimension (Etzioni, 1959). The latter refers to the delegation of authority to lower levels of the hierarchy. Blau and Schoenherr (1971) suggest that the extent to which decision-making responsibility is decentralized to
lower levels of the authority structure is of basic importance for organizational behavior. Here we assume that organizational ranks are differentiated in terms of formal decision-making power. Thus, a higher proportion of ranked to total personnel logically indicates greater organizational decentralization.

5. Environmental Context

Context is the first property of organization-environment relationships, referring to the physical and social setting of organizational activities. Context may vary both in complexity and fluidity, together interpreted as degree of environmental uncertainty. As problem-solving systems, organizations will attempt to modify technology and structure to maintain charter in an uncertain environment (Thompson, 1967). We assume that environmental context has implications for structural complexity, control processes and performance (Pugh et al., 1969). Logically, variations in the level of uncertainty affects organizational strategies for adaptation. For police departments, the characteristics of the surrounding community are potential sources of uncertainty and constraints upon task performance. To illustrate, civil disturbances are disruptive community events which generate new demands for police protection. Variation in the frequency and magnitude of civil disturbance experience should therefore discriminate among police organizations as an indicator of environmental uncertainty.
6. Interorganizational Field Linkage

Interorganizational field linkage is the second property of organization-environment relationships, subsuming normative and comparative reference types (Evan, 1966; Warren, 1967). As the level of environmental uncertainty rises, activities of other field members become increasingly important for action by the focal organization (Thompson, 1967). Reiterating, it is assumed that organizations will attempt to adapt to or control impinging environmental forces in order to maintain charter. Interorganizational contact is seen as one type of coping mechanism. Levine and White (1961) argue that exchanges of resources such as products, personnel, and knowledge are crucial types of linkages. In this research we address the knowledge development potential of the interorganizational field. The environment contains both manifest and latent sources of information relevant to survival and goal achievement (Dill, 1962). Thus contact with other organizations provides opportunities for expanding knowledge technology. We assume that organizations will engage in information search activities as internal resources become inadequate to deal with increased demands (Wilensky, 1967; Kreps and Dynes, 1974a). We argue that those organizations which more fully exploit the knowledge potential of the environment will exhibit substantially greater professionalization.

Police organizations are faced with increasingly complex task environments. In particular, the civil
disturbances of the 1960's constituted significant threats to charter. Efforts to heighten police effectiveness prompted search for knowledge resources within the expanding network of law enforcement (Kreps and Dynes, 1974a). Information exchange through site visits and mailing lists reflect comparative reference contacts, while participation in national and regional conferences may be seen as having both comparative and normative reference elements (Evan, 1966). Police departments also have many ties at the local level such as police community relations programs and a variety of intergovernmental cooperative arrangements.

7. Professionalization

Professionalization is a logical referent for the knowledge development component of organizational technology. Clearly the expertise of organizational personnel influences knowledge generation and processing (Price, 1968; Kreps and Dynes, 1974b). Professionalization may be conceptualized as one response to an uncertain task environment, involving the quality and structure of work activities. Given the complexity of this concept and its importance for this study, an entire section of this review was devoted to its treatment in the literature. At this point we merely stress again its relevance for understanding organizational behavior. Previous research has shown relationships between professionalization and other organizational properties such as authority structures (Blau, 1968), complexity (Blau and Schoenherr, 1971), materials technology (Hall,
1972), interorganizational linkages (Aiken and Hage, 1967), and innovation (Corwin, 1973; Kreps and Dynes, 1974b).

Recently pressures for professionalization of police work have intensified (Saunders, 1970; Whisenand, 1971). The present research stresses two dimensions of a professional model, i.e., a systematic body of theoretical knowledge and specialized training. We focus specifically upon the education and training of police. The quality of these activities is logically related to the structure of recruitment, training and promotional procedures.

To briefly sum up, the preceding review lays the groundwork for an organizational treatment of professionalization. The analytical dimensions underlying the model are organizational charter, resources and technology, basic activities, and organization-environment relationships. The properties of size, wealth, complexity, decentralization, environmental context and interorganizational field linkage are measured and their relationships with professionalization assessed.
APPENDIX B
Cover Letters and Questionnaire

Dear Chief:

The Metropolitan Criminal Justice Center operates the Pilot City Program in Chesapeake, Norfolk, Portsmouth and Virginia Beach, Virginia. Established in September, 1971, the Center is a research and program planning and development component of the College of William and Mary in Williamsburg, Virginia. The Center's Pilot City Program is one of eight throughout the nation funded by the Law Enforcement Assistance Administration of the U.S. Department of Justice. The basic purpose of each Pilot City project is to assist local jurisdictions in the design and establishment of various programs, often highly innovative and experimental in nature, which will contribute over a period of years to the development of a model criminal justice system. Each Pilot City team is also responsible for assuring comprehensive evaluation of such programs, for assisting the development of improved criminal justice planning ability within the host jurisdictions, and for providing technical assistance to various local agencies when requested. Since its inception, the Center has concentrated its efforts on the various issues involved in modern policing.

Our work indicates that police departments continue to face new challenges and problems in a rapidly changing society. It is also apparent that law enforcement agencies are actively responding to these challenges, seeking solutions to the problems that confront them. As a result, the police profession is one of the most rapidly changing American institutions.

Although policing has been receiving increased attention, both locally and nationally, we believe that more systematic study is needed about the effects of that attention. We realize that these change efforts, and research and evaluation of them, have added greatly to the already heavy burden of police administrators. But as you know, the gathering of objective information is basic to research and program development. Mindful of your many obligations, we ask for your cooperation in our research of police professionalization, education, training, and other innovations and changes made by departments in the past few years.
To gain as much data as feasible about these topics, we have developed the two enclosed questionnaires: a very brief one for your own opinions and perceptions, and a second designed to gather specific information about your department. We expect that much of the latter information can be obtained from organizational records. Two addressed, stamped envelopes are provided so that the two questionnaires can be filled out and returned separately.

The first questionnaire, "Police Problems and Sources of Solutions", asks you to indicate problems you consider to be most pressing in your department, possible sources of solutions to these problems, and finally, your opinions about the developments of your department and the profession. Given the importance of police problem-solving efforts, the perceptions and opinions of police chiefs are an essential source of information.

The second questionnaire, "Selected Police Innovations and Characteristics", is divided into four parts and concerns such matters as the educational background and training of police personnel, possible innovations made by your department in the past few years, and selected background information about your department. The latter background information will enable us to see how changes, problems, and attempted solutions are associated with different organizational characteristics.

Under our supervision, this research is being conducted as part of the police research being undertaken by the Pilot City Program. We are faculty members at the College of William and Mary and the University of Kansas, respectively, and have both done previous research in cooperation with several police departments throughout the United States.

We have made every effort to conserve your valuable time by making the questionnaire as straightforward as possible. Again, we recognize that police departments face difficult problems. Research such as this should be very helpful in determining the effects of recent attention to police problems. We, therefore, will share our results with police departments both through the Center's report series and through publication in an appropriate police professional journal.

However, it should be stressed that your responses are confidential. At no time or place will a particular police organization or respondent be identified. Your department was selected as part of a random sample of all U.S. departments of large size. Our results will be reported only in general terms concerning trends and patterns for such departments.
We thank you in advance for the assistance you are able to provide us in this study.

Sincerely,

Gary A. Kreps, Ph.D.

Jack M. Weller, Ph.D.

GAK/ph

enclosures
Dear Chief:

Your department is part of a randomly selected sample of U.S. police departments. Several weeks ago we mailed the enclosed letter, questionnaires, and stamped return envelopes to the police organizations in our sample. A substantial number of departments have favorably responded to our request for information.

However, the validity of our research will be considerably enhanced if we can persuade some departments that have not yet responded to do so. On the chance that our original mailing has not reached you, we have enclosed another set of questionnaires and return envelopes.

We fully appreciate that studies like this involve an investment of your time and resources. We are also confident that knowledge gained through research will more than compensate this investment. We thank you for whatever assistance you are able to provide.

Sincerely,

Gary A. Kreps, Ph.D.

Jack M. Weller, Ph.D.

GAK/ph

enclosures
SELECTED POLICE INNOVATIONS AND CHARACTERISTICS

Part I  EDUCATIONAL BACKGROUND AND TRAINING

(1) How many hours of recruit training does your state mandate? _____________

(2) How many hours of recruit training does your department require? ________________

(3) How many hours of in-service training per month or year (please specify) does your state mandate? _____________

(4) How many hours of in-service training per month or year (please specify) does your department require? _____________

(5) Please indicate the number of full-time personnel whose primary function is police training. _____________

(6) Does your department maintain its own library?  ___Yes ___No.
   a. If "Yes", how many volumes (approximately) does your library contain? _____________

(7) How many officers in your department have college degrees? _____________

(8) How many officers have taken college courses for credit? _____________

(9) How many officers are presently enrolled in college courses? _____________

(10) We recognize that your training program includes important and basic police practices. We would also like to know if any of the following topics are included as well. Please check the following topics that you include in training.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family crisis intervention</td>
<td></td>
</tr>
<tr>
<td>First aid</td>
<td></td>
</tr>
<tr>
<td>Alcohol related problems</td>
<td></td>
</tr>
<tr>
<td>Drug abuse</td>
<td></td>
</tr>
<tr>
<td>History of law enforcement</td>
<td></td>
</tr>
<tr>
<td>Role of police modern society</td>
<td></td>
</tr>
</tbody>
</table>
Number of Hours

___ Minority groups
___ Juvenile delinquency

(11) Is your training program coordinated with a local college or university? __Yes __No. If "yes", please briefly describe the nature of the relationship.

(12) Which of the following outside resources are employed in your recruit training program? (please check)

___ Guest speakers
___ Field trips
___ Films
___ Police technical journals, reports, books, etc.
___ Social science journals, reports, books, etc.
___ Other (Please list)

(13) What are the minimum educational requirements for your recruits?

(14) Have these requirements increased in the past 10 years? __Yes __No.

a. If "yes", what was the standard 10 years ago?

b. 5 years ago?

(15) Please check which of the following testing procedures your department employs for promotion purposes.

___ Oral exams
___ Written exams
___ Formal evaluation of work performance
___ Length of service
___ Educational achievement
___ Other (Please specify)

(16) Does your department have formal minimum qualifications for all training personnel? __Yes __No.

If "yes", please list these qualifications.
Part II  CIVIL DISTURBANCE RELATED INNOVATIONS AND SUBSEQUENT MODIFICATIONS

(17) Below is a checklist of innovations sometimes adopted by police departments between 1965 and 1970. Please indicate first whether your department did adopt each. If adopted, then please indicate what has happened to this innovation since 1970. Has it been discontinued, or continued, and if continued, at a reduced level or at the same or higher level as in 1970?

<table>
<thead>
<tr>
<th>INNOVATION</th>
<th>(1965 - 1970)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NOT ADOPTED</td>
</tr>
<tr>
<td>Written civil dist. plan</td>
<td></td>
</tr>
<tr>
<td>Mass arrest procedures</td>
<td></td>
</tr>
<tr>
<td>Crowd control training</td>
<td></td>
</tr>
<tr>
<td>Community relations training</td>
<td></td>
</tr>
<tr>
<td>Emergency operations center</td>
<td></td>
</tr>
<tr>
<td>Mobile command and communications facilities</td>
<td></td>
</tr>
<tr>
<td>Special effort to recruit minority police officers</td>
<td></td>
</tr>
</tbody>
</table>

(Since 1970) DISCONTINUED CONTINUED:

<table>
<thead>
<tr>
<th>INNOVATION</th>
<th>LOWER LEVEL</th>
<th>SAME OR HIGHER LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written civil dist. plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass arrest procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crowd control training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community relations training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency operations center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile command and communications facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special effort to recruit minority police officers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part III  ADDITIONAL POLICE DEPARTMENT INNOVATIONS

(18) Please indicate whether in the last 10 years your police department has made substantial changes in the areas listed below (or any other areas).

- Automatic data processing for general organizational records
- Automatic data processing for crime and arrest information
Automatic data processing for personnel deployment
Automatic data processing for research and development
Program evaluation methods (e.g. effectiveness assessment, cost-benefit analysis)
Promotional evaluation procedures
Personnel relations or collective bargaining
Equipment
Recruitment procedures
Recruit training
In-service training
Team policing
Alcohol and drug abuse programs
Family crisis intervention programs
Other community crime prevention programs (please specify ____________________________)
Other innovations (please specify) __________________________

Part IV  BACKGROUND CHARACTERISTICS

(19) How many sworn personnel does your department employ? ________________

(20) How many clerical personnel does your department employ? ________________

(21) What is the number of precincts in your department? ________________

(22) What is the total number of bureaus (or divisions) listed at the top of your department's organization chart? ________________

(23) Please list the names of these major bureaus or divisions and if possible, the number of personnel within them.

<table>
<thead>
<tr>
<th>Name of Bureau</th>
<th>Number of Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(24) What is the total number of subunits (within bureaus or divisions) listed in your department's organization chart? ________________

(25) What is your department's annual operating budget? ________________
(26) What is the starting annual salary of new sworn police personnel in your department? _______________

(27) Under what auspices does your department operate (e.g. commission, safety director)? ______________

(28) How many non-retirement resignations did your department have in 1973? ______________

(29) How many new recruits did your department accept in 1973? ______________

(30) How many 1973 recruits either resigned or were screened out during their probationary period? ______________

(31) In the space below, please list each rank in your chain of command and the number of police officers in each rank.

1. 4. 7.
2. 5. 8.
3. 6. 9.

(32) Does your department have a formal community relations program? _Yes _No.

(33) Does your department have a subunit whose primary task is community relations? _Yes _No. If "yes", how many full-time employees are members of your community relations subunit? ______________

(34) Does your department have a written plan for operations in natural disasters? _Yes _No.

(35) Do you have a written plan for operations in civil disturbances? _Yes, as part of the disaster plan, _Yes, a separate plan, _No.

(36) Does your department have written plans governing your relations with local organizations (other than police) for civil disturbances? _Yes _No.

(37) Does your department have written plans governing your relations with local organizations (other than police) for natural disasters? _Yes _No.

(38) Do your department and the local prosecutor have any arrangement for developing policies, standards or procedures on matters affecting both offices (e.g. guidelines for the decision to arrest or to charge, procedure for filing charges, etc.)? _Yes _No.
If "yes", since when ________? Do other agencies participate? _Yes _No. Do citizen representatives? _Yes _No.

(39) Please estimate the number of officers who attended regional and national police conferences, training seminars and conventions in 1973. _____

(40) Does your department have a mailing list of other police departments for the purposes of exchanging information about police practices and problems? _Yes _No. If "yes", about how many departments are on the mailing list? _____

(41) Please estimate the number of your police personnel who were sent to other departments (site visits) to obtain information about police practices in 1973. _____

(42) Please list any LEAA discretionary grants your department has received since 1968.

<table>
<thead>
<tr>
<th>Grant Title</th>
<th>Amount</th>
</tr>
</thead>
</table>

(43) For the purpose of LEAA state level planning, how many jurisdictions are in your regional planning district? _______________________
## APPENDIX C

### CORRELATION MATRIX OF MODEL ELEMENTS

<table>
<thead>
<tr>
<th></th>
<th>PROF 1</th>
<th>PROF 2</th>
<th>PROF 3</th>
<th>ENV 1</th>
<th>ENV 2</th>
<th>ENV 3</th>
<th>ENV 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROF 1</td>
<td>1.000</td>
<td>0.104</td>
<td>-0.027</td>
<td>0.093</td>
<td>0.077</td>
<td>0.498</td>
<td>-0.004</td>
</tr>
<tr>
<td>PROF 2</td>
<td>0.104</td>
<td>1.000</td>
<td>0.035</td>
<td>0.051</td>
<td>-0.081</td>
<td>0.112</td>
<td>0.073</td>
</tr>
<tr>
<td>PROF 3</td>
<td>-0.027</td>
<td>0.035</td>
<td>1.000</td>
<td>0.127</td>
<td>-0.062</td>
<td>-0.075</td>
<td>0.085</td>
</tr>
<tr>
<td>ENV 1</td>
<td>0.093</td>
<td>0.051</td>
<td>0.127</td>
<td>1.000</td>
<td>-0.610</td>
<td>0.042</td>
<td>0.637</td>
</tr>
<tr>
<td>ENV 2</td>
<td>0.077</td>
<td>-0.081</td>
<td>-0.062</td>
<td>-0.610</td>
<td>1.000</td>
<td>-0.901</td>
<td></td>
</tr>
<tr>
<td>ENV 3</td>
<td>0.498</td>
<td>0.112</td>
<td>-0.075</td>
<td>0.042</td>
<td>-0.901</td>
<td>1.000</td>
<td>-0.008</td>
</tr>
<tr>
<td>ENV 4</td>
<td>-0.004</td>
<td>0.073</td>
<td>0.085</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SALARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEALTH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED
APPENDIX C, Continued

<table>
<thead>
<tr>
<th></th>
<th>SIZE</th>
<th>SALARY</th>
<th>WEALTH</th>
<th>STRUCT 1</th>
<th>STRUCT 2</th>
<th>STRUCT 3</th>
<th>CIVIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROF 1</td>
<td>0.713</td>
<td>0.149</td>
<td>0.475</td>
<td>0.449</td>
<td>0.028</td>
<td>0.025</td>
<td>0.388</td>
</tr>
<tr>
<td>PROF 2</td>
<td>0.294</td>
<td>0.109</td>
<td>0.283</td>
<td>0.254</td>
<td>0.013</td>
<td>-0.014</td>
<td>0.267</td>
</tr>
<tr>
<td>PROF 3</td>
<td>0.054</td>
<td>0.119</td>
<td>0.047</td>
<td>0.065</td>
<td>0.019</td>
<td>-0.032</td>
<td>0.011</td>
</tr>
<tr>
<td>ENV 1</td>
<td>0.097</td>
<td>0.028</td>
<td>0.092</td>
<td>0.143</td>
<td>0.087</td>
<td>-0.019</td>
<td>0.023</td>
</tr>
<tr>
<td>ENV 2</td>
<td>0.038</td>
<td>0.036</td>
<td>0.040</td>
<td>0.038</td>
<td>-0.045</td>
<td>-0.035</td>
<td>0.033</td>
</tr>
<tr>
<td>ENV 3</td>
<td>0.400</td>
<td>0.168</td>
<td>0.424</td>
<td>0.481</td>
<td>-0.073</td>
<td>0.092</td>
<td>0.218</td>
</tr>
<tr>
<td>ENV 4</td>
<td>0.010</td>
<td>-0.034</td>
<td>0.013</td>
<td>0.070</td>
<td>0.046</td>
<td>-0.081</td>
<td>0.051</td>
</tr>
<tr>
<td>SIZE</td>
<td>1.000</td>
<td>0.181</td>
<td>0.883</td>
<td>0.699</td>
<td>-0.025</td>
<td>-0.025</td>
<td>0.761</td>
</tr>
<tr>
<td>SALARY</td>
<td>1.000</td>
<td>0.195</td>
<td>0.181</td>
<td>-0.010</td>
<td>-0.010</td>
<td>0.126</td>
<td></td>
</tr>
<tr>
<td>WEALTH</td>
<td>1.000</td>
<td>0.645</td>
<td>-0.016</td>
<td>0.016</td>
<td>0.672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 1</td>
<td>1.000</td>
<td></td>
<td>-0.151</td>
<td>-0.076</td>
<td>0.542</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 2</td>
<td>1.000</td>
<td></td>
<td>-0.361</td>
<td>-0.018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCT 3</td>
<td>1.000</td>
<td></td>
<td>-0.090</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED
APPENDIX C, Continued

PROF 1 - Professionalization Factor 1
PROF 2 - Professionalization Factor 2
PROF 3 - Professionalization Factor 3
ENV 1 - Interorganizational Field Linkage Factor 1
ENV 2 - Interorganizational Field Linkage Factor 2
ENV 3 - Interorganizational Field Linkage Factor 3
ENV 4 - Interorganizational Field Linkage Factor 4
SIZE - Total Number of Personnel
SALARY - Baseline Salary of Police Personnel
WEALTH - Annual Budget
STRUCT 1 - Structure-Complexity Factor 1
STRUCT 2 - Structure-Complexity Factor 2
STRUCT 3 - Structure-Complexity Factor 3
CIVIL - Civil Disturbance Experience
APPENDIX D
### APPENDIX D

**CORRELATION MATRIX OF ALL MODEL VARIABLES**

<table>
<thead>
<tr>
<th></th>
<th>RETRREQ</th>
<th>RECS</th>
<th>TRPERS</th>
<th>LIBVOL</th>
<th>DEGREE</th>
<th>COURSE</th>
<th>ENROLL</th>
<th>EDREQ</th>
<th>SUBSCAL</th>
<th>PROMSCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRREQ</td>
<td>1.000</td>
<td>.301</td>
<td>.273</td>
<td>.270</td>
<td>.199</td>
<td>.180</td>
<td>.080</td>
<td>.040</td>
<td>-.274</td>
<td>.134</td>
</tr>
<tr>
<td>RECS</td>
<td>1.000</td>
<td>.176</td>
<td>.169</td>
<td>.102</td>
<td>.099</td>
<td>.009</td>
<td>-.009</td>
<td>.068</td>
<td>.045</td>
<td></td>
</tr>
<tr>
<td>TRPERS</td>
<td>1.000</td>
<td>.930</td>
<td>.808</td>
<td>.568</td>
<td>.649</td>
<td>.091</td>
<td>.071</td>
<td>.141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBVOL</td>
<td>1.000</td>
<td>.784</td>
<td>.514</td>
<td>.505</td>
<td>-.020</td>
<td>.123</td>
<td>.174</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEGREE</td>
<td>1.000</td>
<td>.659</td>
<td>.901</td>
<td>-.000</td>
<td>-.016</td>
<td>.181</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COURSE</td>
<td>1.000</td>
<td>.672</td>
<td>-.047</td>
<td>.063</td>
<td>.127</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENROLL</td>
<td>1.000</td>
<td>-.054</td>
<td>-.217</td>
<td>.123</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDREQ</td>
<td>1.000</td>
<td>.213</td>
<td></td>
<td>.108</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBSCAL</td>
<td>1.000</td>
<td>.212</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROMSCAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED
APPENDIX D, continued

<table>
<thead>
<tr>
<th></th>
<th>AMTGRANT</th>
<th>CONFER</th>
<th>MAIL</th>
<th>NOMAIL</th>
<th>SITE</th>
<th>CDCOMPL</th>
<th>NDCOMPL</th>
<th>CREMP</th>
<th>SIZE</th>
<th>WEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRREQ</td>
<td>.077</td>
<td>.109</td>
<td>.059</td>
<td>.279</td>
<td>-.014</td>
<td>.076</td>
<td>-.004</td>
<td>.231</td>
<td>.364</td>
<td>.330</td>
</tr>
<tr>
<td>RECS</td>
<td>-.020</td>
<td>.052</td>
<td>.020</td>
<td>.002</td>
<td>-.054</td>
<td>-.003</td>
<td>-.070</td>
<td>.113</td>
<td>.264</td>
<td>.251</td>
</tr>
<tr>
<td>TRPERS</td>
<td>.250</td>
<td>-.191</td>
<td>.173</td>
<td>.260</td>
<td>.037</td>
<td>.097</td>
<td>.110</td>
<td>.724</td>
<td>.831</td>
<td>.571</td>
</tr>
<tr>
<td>LIBVOL</td>
<td>.181</td>
<td>-.001</td>
<td>.179</td>
<td>.257</td>
<td>-.028</td>
<td>.167</td>
<td>.140</td>
<td>.399</td>
<td>.770</td>
<td>.499</td>
</tr>
<tr>
<td>DEGREE</td>
<td>.433</td>
<td>.019</td>
<td>.154</td>
<td>.272</td>
<td>.076</td>
<td>.132</td>
<td>.108</td>
<td>.527</td>
<td>.594</td>
<td>.447</td>
</tr>
<tr>
<td>COURSE</td>
<td>.399</td>
<td>.019</td>
<td>.207</td>
<td>.116</td>
<td>-.016</td>
<td>.143</td>
<td>.143</td>
<td>.351</td>
<td>.523</td>
<td>.403</td>
</tr>
<tr>
<td>ENROLL</td>
<td>.611</td>
<td>-.014</td>
<td>.170</td>
<td>-.030</td>
<td>.206</td>
<td>.071</td>
<td>.126</td>
<td>.417</td>
<td>.705</td>
<td>.373</td>
</tr>
<tr>
<td>EDRREQ</td>
<td>-.006</td>
<td>-.015</td>
<td>-.025</td>
<td>.013</td>
<td>.021</td>
<td>.004</td>
<td>.009</td>
<td>-.108</td>
<td>-.037</td>
<td>-.028</td>
</tr>
<tr>
<td>SUBSCAL</td>
<td>-.183</td>
<td>.066</td>
<td>.018</td>
<td>.086</td>
<td>-.340</td>
<td>.079</td>
<td>.111</td>
<td>.088</td>
<td>.098</td>
<td>.078</td>
</tr>
<tr>
<td>PROMSCAL</td>
<td>.028</td>
<td>.121</td>
<td>.076</td>
<td>.063</td>
<td>.020</td>
<td>.136</td>
<td>.174</td>
<td>.076</td>
<td>.094</td>
<td>.059</td>
</tr>
</tbody>
</table>

CONTINUED
<table>
<thead>
<tr>
<th></th>
<th>SALARY</th>
<th>SUBUNIT</th>
<th>TOTUNIT</th>
<th>TOTRANK</th>
<th>PRECINCT</th>
<th>RANKSZ</th>
<th>MIDSIZ</th>
<th>STAFLINE</th>
<th>CLERSIZ</th>
<th>CIVIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETRREQ</td>
<td>.138</td>
<td>.032</td>
<td>.107</td>
<td>.161</td>
<td>.173</td>
<td>.213</td>
<td>.638</td>
<td>.156</td>
<td>.300</td>
<td>.097</td>
</tr>
<tr>
<td>RECSCE</td>
<td>.049</td>
<td>.215</td>
<td>.227</td>
<td>.069</td>
<td>.104</td>
<td>-.037</td>
<td>-.073</td>
<td>-.075</td>
<td>-.030</td>
<td>.217</td>
</tr>
<tr>
<td>TRPERS</td>
<td>.162</td>
<td>.567</td>
<td>.564</td>
<td>.266</td>
<td>.540</td>
<td>-.015</td>
<td>-.010</td>
<td>-.003</td>
<td>-.000</td>
<td>.498</td>
</tr>
<tr>
<td>LIBVOL</td>
<td>.162</td>
<td>.473</td>
<td>.460</td>
<td>.280</td>
<td>.331</td>
<td>.016</td>
<td>-.001</td>
<td>-.051</td>
<td>.068</td>
<td>.452</td>
</tr>
<tr>
<td>DEGREE</td>
<td>.201</td>
<td>.352</td>
<td>.348</td>
<td>.276</td>
<td>.276</td>
<td>.018</td>
<td>.035</td>
<td>.046</td>
<td>.117</td>
<td>.233</td>
</tr>
<tr>
<td>COURSE</td>
<td>.101</td>
<td>.317</td>
<td>.325</td>
<td>.265</td>
<td>.223</td>
<td>.020</td>
<td>-.004</td>
<td>-.024</td>
<td>-.032</td>
<td>.333</td>
</tr>
<tr>
<td>ENROLL</td>
<td>.109</td>
<td>.273</td>
<td>.266</td>
<td>.245</td>
<td>.193</td>
<td>.047</td>
<td>.132</td>
<td>.119</td>
<td>.031</td>
<td>.365</td>
</tr>
<tr>
<td>EDRQ</td>
<td>.159</td>
<td>-.077</td>
<td>-.083</td>
<td>.066</td>
<td>-.076</td>
<td>-.010</td>
<td>-.008</td>
<td>-.072</td>
<td>.096</td>
<td>-.036</td>
</tr>
<tr>
<td>SUBSCAL</td>
<td>-.025</td>
<td>.140</td>
<td>.129</td>
<td>.120</td>
<td>-.027</td>
<td>-.395</td>
<td>-.601</td>
<td>-.250</td>
<td>-.395</td>
<td>.142</td>
</tr>
<tr>
<td>PROMSCAL</td>
<td>.093</td>
<td>.167</td>
<td>.143</td>
<td>.001</td>
<td>-.054</td>
<td>.012</td>
<td>.080</td>
<td>.026</td>
<td>.122</td>
<td>-.024</td>
</tr>
</tbody>
</table>

CONTINUED
APPENDIX D, continued

<table>
<thead>
<tr>
<th></th>
<th>AMTGRANT</th>
<th>CONFERENCE</th>
<th>MAIL</th>
<th>NOMAIL</th>
<th>SITE</th>
<th>CDCOMPLE</th>
<th>NDCOMPLE</th>
<th>CREMP</th>
<th>SIZE</th>
<th>WEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMTGRANT</td>
<td>1.000</td>
<td>0.017</td>
<td>0.100</td>
<td>0.089</td>
<td>0.043</td>
<td>0.073</td>
<td>-0.047</td>
<td>0.326</td>
<td>0.208</td>
<td>0.091</td>
</tr>
<tr>
<td>CONFERENCE</td>
<td>1.000</td>
<td>0.083</td>
<td>0.190</td>
<td>0.007</td>
<td>0.075</td>
<td>0.063</td>
<td>0.052</td>
<td>0.016</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td>MAIL</td>
<td>1.000</td>
<td>0.339</td>
<td>0.280</td>
<td>0.175</td>
<td>0.313</td>
<td>0.136</td>
<td>0.157</td>
<td>0.139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOMAIL</td>
<td>1.000</td>
<td>-0.019</td>
<td></td>
<td>0.157</td>
<td>0.149</td>
<td>0.201</td>
<td>0.114</td>
<td>0.154</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SITE</td>
<td>1.000</td>
<td>-0.067</td>
<td></td>
<td>0.019</td>
<td>0.207</td>
<td>0.072</td>
<td>0.116</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDCOMPLE</td>
<td>1.000</td>
<td></td>
<td></td>
<td>0.672</td>
<td>0.077</td>
<td>0.082</td>
<td>0.029</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NDCOMPLE</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td>0.148</td>
<td>0.118</td>
<td>0.098</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREMP</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.855</td>
<td>0.826</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEALTH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CONTINUED
### APPENDIX D, continued

<table>
<thead>
<tr>
<th></th>
<th>AMTGRANT</th>
<th>CONFER</th>
<th>MAIL</th>
<th>NOMAIL</th>
<th>SITE</th>
<th>CDCOMPL</th>
<th>NDCOMPL</th>
<th>CREMP</th>
<th>SIZE</th>
<th>WEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>.147</td>
<td>-.033</td>
<td>.059</td>
<td>-.039</td>
<td>.018</td>
<td>.065</td>
<td>.065</td>
<td>.134</td>
<td>.179</td>
<td>.194</td>
</tr>
<tr>
<td>SUBUNIT</td>
<td>.310</td>
<td>.081</td>
<td>.251</td>
<td>.238</td>
<td>.062</td>
<td>.151</td>
<td>.148</td>
<td>.510</td>
<td>.700</td>
<td>.656</td>
</tr>
<tr>
<td>TOTUNIT</td>
<td>.308</td>
<td>.085</td>
<td>.204</td>
<td>.214</td>
<td>-.022</td>
<td>.137</td>
<td>.142</td>
<td>.513</td>
<td>.694</td>
<td>.661</td>
</tr>
<tr>
<td>TOTRANK</td>
<td>.167</td>
<td>.129</td>
<td>.198</td>
<td>.102</td>
<td>.216</td>
<td>.010</td>
<td>.179</td>
<td>.163</td>
<td>.325</td>
<td>.266</td>
</tr>
<tr>
<td>PRECINCT</td>
<td>.274</td>
<td>.006</td>
<td>.102</td>
<td>.330</td>
<td>.971</td>
<td>.042</td>
<td>-.021</td>
<td>.327</td>
<td>.447</td>
<td>.422</td>
</tr>
<tr>
<td>RANKSIZ</td>
<td>-.028</td>
<td>.029</td>
<td>-.057</td>
<td>-.050</td>
<td>.630</td>
<td>.067</td>
<td>.091</td>
<td>-.104</td>
<td>-.035</td>
<td>-.045</td>
</tr>
<tr>
<td>MIDSIZ</td>
<td>.007</td>
<td>.026</td>
<td>-.025</td>
<td>-.077</td>
<td>.919</td>
<td>.097</td>
<td>.110</td>
<td>-.058</td>
<td>-.022</td>
<td>-.028</td>
</tr>
<tr>
<td>STAFLINE</td>
<td>.055</td>
<td>-.085</td>
<td>.102</td>
<td>.330</td>
<td>.253</td>
<td>.030</td>
<td>-.092</td>
<td>.153</td>
<td>.000</td>
<td>.053</td>
</tr>
<tr>
<td>CLERSIZ</td>
<td>-.031</td>
<td>-.007</td>
<td>-.054</td>
<td>-.064</td>
<td>.655</td>
<td>.117</td>
<td>.133</td>
<td>-.042</td>
<td>-.036</td>
<td>-.040</td>
</tr>
<tr>
<td>CIVIL</td>
<td>.179</td>
<td>.040</td>
<td>.115</td>
<td>.081</td>
<td>-.020</td>
<td>.025</td>
<td>.059</td>
<td>.356</td>
<td>.759</td>
<td>.672</td>
</tr>
</tbody>
</table>

CONTINUED
APPENDIX D, continued

<table>
<thead>
<tr>
<th></th>
<th>SALARY</th>
<th>SUBUNIT</th>
<th>TOTUNIT</th>
<th>TOTRANK</th>
<th>PRECINCT</th>
<th>RANKSIZ</th>
<th>MIDSIZ</th>
<th>STAFLINE</th>
<th>CLERSIZ</th>
<th>CIVIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALARY</td>
<td>1.000</td>
<td>0.231</td>
<td>0.209</td>
<td>0.030</td>
<td>-0.038</td>
<td>-0.143</td>
<td>-0.052</td>
<td>0.025</td>
<td>-0.055</td>
<td>0.119</td>
</tr>
<tr>
<td>SUBUNIT</td>
<td>1.000</td>
<td>0.996</td>
<td>0.340</td>
<td>0.559</td>
<td>-0.097</td>
<td>-0.087</td>
<td>0.002</td>
<td>-0.075</td>
<td>0.604</td>
<td></td>
</tr>
<tr>
<td>TOTUNIT</td>
<td>1.000</td>
<td>0.310</td>
<td>0.536</td>
<td>-0.079</td>
<td>-0.071</td>
<td>-0.050</td>
<td>-0.093</td>
<td>0.534</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTRANK</td>
<td>1.000</td>
<td>0.207</td>
<td>0.018</td>
<td>0.177</td>
<td>0.076</td>
<td>-0.033</td>
<td>0.304</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRECINCT</td>
<td>1.000</td>
<td>-0.102</td>
<td>-0.054</td>
<td>-0.027</td>
<td>-0.031</td>
<td>0.298</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RANKSIZ</td>
<td>1.000</td>
<td>0.800</td>
<td>0.181</td>
<td>0.850</td>
<td>-0.061</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIDSIZ</td>
<td>1.000</td>
<td>0.361</td>
<td>0.823</td>
<td>-0.087</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAFLINE</td>
<td>1.000</td>
<td>0.282</td>
<td>-0.073</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLERSIZ</td>
<td>1.000</td>
<td>-0.097</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIVIL</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTES

1. These core dimensions of the professional model are conceptualized as follows: 1) Systematic body of theoretical knowledge - constitutes the basis for the claim to expertise, i.e., a power base frequently derived from scientific research with which the general public is unfamiliar; 2) Specialized training - a relatively prolonged training period necessary to master a theoretical body of knowledge emphasizes the ability to manipulate ideas and to understand general principles, as well as techniques and skills; 3) Autonomy - self regulation based on the training through which specialized knowledge is acquired, justifies claim to make decisions about work activities; 4) Public definition of the service as essential to society - the relationship of the professional service to basic social values, i.e., the degree to which it is legitimated by or supports the health and welfare of the individual and society; 5) Ideal of service - extent to which the client's welfare represents an intrinsic reward for professional service; 6) Code of ethics - the degree to which a normative system defines relationships among professionals, and professionals and clients;
7) Colleague associations - extent of development of formal and informal relationships among professionals.

2. Note that an organizational approach has proven insightful in studies of police role orientation, attitudes, and behavior, and changes in law enforcement (Tifft and Bordua, 1969; Cain, 1973; Kreps and Weller, 1973; Balch, 1974; Kreps and Dynes, 1974a, 1974b).

3. It is recognized that policemen often exercise substantial personal discretion in their work; this itself being a stimulus to greater expertise. However role performance requires the legitimacy of organizational auspices.

4. There is some logic for assessing the effects of size, wealth and civil disturbance on structure (Blau, 1971). Any interesting findings in this regard will be reported.

5. We asked each department for the total number of bureaus (or divisions) on their organizational chart. However, some departments distinguish between divisions and bureaus, incorporating both into their organizational setup. For example one department may indicate 3 divisions (and also have 5 bureaus, for a total of 8 units) while a smaller department may only have 5 bureaus. The most generalized unit was therefore confounded. Although there are some problems with collapsing these categories, by adding the number of these units to our basic subunit measure we have a derivative indicator of
the subdivision of organizational tasks.

6. As suggested earlier, it could be argued that size is causally antecedent to structure. Regressing structural dimensions with size, wealth, and civil disturbance measures, we found that only size has moderate effects on structural differentiation (Structure 1) and none of the independent variables have significant impact on Structure 2 and Structure 3.

7. Given the large effects of size (Beta = 1.59), we also analyzed each high loading variable of Professionalization 1. Each high loading variable was measured as a proportion of total personnel: logically a higher proportion of officers holding degrees, training personnel, etc., represent higher levels of professionalization. The effects of size although still positive, were considerable lower; the impact of interorganizational linkages remained moderately positive, and the effects of structure became slightly more pronounced.
BIBLIOGRAPHY

Aiken, M. and J. Hage

Bakke, E.

Balch, W.

Banton, M.

Barnard, C.

Baty, G., W. M. Evan and T. W. Rothermel

Blau, P. M.

Blau, P. M. and R. A. Schoenherr

Blau, P. M. and R. W. Scott

Brerton, G. H.

Cain, M.

Caplow, T.

Child, J.

Clark, B. R.

Clark, J. P.

Corwin, R. G.


Crozier, M.  

Cyert, R. M. and J. G. March  

Deutscher, I.  

Dill, W. R.  


Dubin, R.  

Duncan, O. D.  


Eisenstadt, S. N.  

Emery, F. E. and E. L. Trist  

Epstein, S.  

Etzioni, A.  


Hage, J. and M. Aiken 1967 "Relationship of centralization to other organizational properties." Administrative Science Quarterly 12(June): 83-84.

Hall, R. H.


Hall, R. H., E. Haas and N. Johnson

Harris, R. N.

Hickson, D. J., D. S. Pugh and D. C. Pheysey

Hrebinak, L. G.

Hughes, E. C.


Jameson, S. H.

Jurkovich, J.

Kasarda, J. D.
Kornhauser, W. M.

Kreps, G. A. and R. R. Dynes
1974a "The organizational intelligence concept: An interpretation of knowledge technology in organizations." (Currently under review).
1974b "Innovation in crisis relevant organizations: A model of the process of organizational change." (Currently under review)

Kreps, G. A. and J. M. Weller

LaFave, W.

Land, K. C.

Lawrence, P. and J. Lorsch
1967 Organizations and Environment. Boston: Graduate School of Business Administration, Harvard University.

Leonard, V. A. and H. W. Moore

Litwak, E.

Litwak, E. and L. Hylton
1962 "Interorganizational analysis: A hypothesis on co-ordinating agencies." Administrative Science Quarterly 6(March): 396-420.

Lynch, B. P.

March, J. G. and H. A. Simon
McNamara, J. H.  

Meyer, M. W.  
1968 "The two authority structures of bureaucratic organizations." Administrative Science Quarterly 13(September): 211-228.


Miller, G. A.  

Mohr, L.  

Mouzelis, N. P.  

Osborn, R. N. and J. G. Hunt  
1974 "Environment and organization effectiveness." Administrative Science Quarterly 19(June): 231-244.

Paulson, S. K.  

Pavalco, R. M.  

Perrow, C.  

Price, J. L.

Pugh, D. H., et al.

Randall, R.

Reissman, L. G.

Roethlisberger, F. J. and W. J. Dickson

Rubenstein, R. M.

Saunders, C. B., Jr.

Scott, W. R.

Selznick, P.
1957 Leadership in Administration. Evanston, Ill.: Row, Petersen.

Simon, H. A.

Skolnick, J. H.
Sorenson, J. E. and L. Thomas

Steadman, R. F. (ed)

Taylor, F. W.

Teasely, C. E. and L. Wright

Terreberry, S.

The Lemberg Center for the Study of Violence

Thompson, J. D.

Thompson, J. D. and W. J. McEwen

Tifft, L. and D. J. Bordua

Turk, H.

Udy, S.
United States Senate, Ninetieth Congress.
1968 "Riots, civil and criminal disorders: Part 13."
From hearings before the Permanent Sub-committee
on Investigation of the Committee on Government
Operations.

Vollmer, H. M.
1964 Applications of the Behavioral Sciences to Re­
search Management: An Initial Study in the
Office of Aerospace Research. Menlo Park,
Calif.: Stanford Research Institute.

Vollmer, H. M. and D. L. Mills (eds)
1966 Professionalization. Englewood Cliffs, N. J.: 
Prentice-Hall.

Walsh, J. L.
1970 "Professionalism and the police." American 
Behavioral Scientist 13(May): 705-725.

Warren, R. L.
1967 "The interorganizational field as a focus for 
investigation." Administrative Science Quar­
terly 12(December): 396-419.

1969 "The concerting of decisions as a variable in 
organizational interaction." Paper for a con­
ference on Interorganizational Decision-Making.
Northwestern University, Evanston, Ill.

Weber, M.
New York: Oxford University Press.

Wheeler, S.
1968 "Agents of delinquency control." Pp. 31-60 in 
S. Wheeler (ed), Controlling Delinquents. New 
York: John Wiley and Sons.

Whisenand, P. M.
1971 Police Supervision: Theory and Practice. Engle­

White, P.
1974 "Resources as determinants of organizational be­
behavior." Administrative Science Quarterly 19 
(September): 366-379.

White, S. O.
1972 "A perspective on police professionalization." 
Law and Society Review 7(Fall): 61-85.

Wilensky, H.
1964 "The professionalization of everyone?" American 
Journal of Sociology 70(September): 137-158.
1967  Organizational Intelligence, New York: Basic Books

Woodward, J.

Zald, M.
VITA.

The author was born in Washington D.C., July 24, 1951. She attended Wells College, Aurora, New York, for two years, transferred to Syracuse University, Syracuse, New York, and was awarded the Bachelor of Arts Degree in May 1973, with a concentration in sociology.

In September 1973, the author entered the graduate program in the department of sociology at the College of William and Mary as a research assistant.