

PROBLEM-ORIENTED APPROACH TO CRIMINAL INVESTIGATION:
IMPLEMENTATION ISSUES AND CHALLENGES

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As a proactive, information-based policing approach, problem-oriented policing emphasizes the use of crime analysis techniques in the analysis of the underlying causes of the problems that police deal with. In particular, analysis applications can be powerful tools for criminal investigation, such as crime reconstruction, profiling, IAFIS, VICAP, and CODIS. The SARA Model represents a problem-solving strategy of problem-oriented policing. It aims to address the underlying causes of the problems and create substantial solutions. However, implementing problem-oriented policing requires a significant change in both the philosophy and structure of police agencies. Not only American policing but also the Turkish National Police should consider problem-oriented policing as an alternative approach for solving criminal activities.

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CHAPTER 1

INTRODUCTION

As crime and criminal activities have become more sophisticated and new trends in crime patterns have developed, law enforcement agencies have responded by enhancing their equipment and technologies. These responses have led to the use of more sophisticated technology and the use of other response strategies and philosophies. Increased technological sophistication in society has resulted from higher levels of education, more opportunities to gather information, and higher living standards. This sophistication has also forced police organizations to change their policing philosophy and the way they use technological systems, including crime analysis and criminal investigative analysis.

The adoption of community policing is one significant change that police organizations have implemented. The basic assumption of community policing is that police departments cannot truly embrace crime prevention strategies without cooperating with the community. It also requires significant change in both the structure and the philosophy of police agencies.

Problem-oriented policing represents the proactive operational component of community policing emphasizing information-based and problem solving policing. A proactive policing approach requires focusing on the root causes of crime. Therefore, problem-oriented policing focuses on identifying problems and creating solutions.

Without an analysis of the underlying causes of a problem, police agencies might be unsuccessful in attempts to eliminate incidents totally, even though they may use more personnel and equipment. A useful strategy that police agencies can adopt problem-oriented policing.

Problem-oriented policing emphasizes information and crime analysis techniques as the primary tools of problem-solving. Crime analysis is unique because it has a dual purpose: crime prevention and arresting criminals (Peterson, 1998). Peterson (1998) also notes that crime analysis supports efforts to deter crime, while investigative analysis allows law enforcement agencies to solve crimes and arrest criminals. There are a number of different programs, applications, and strategies in the field of crime analysis and investigative analysis. However, both problem solving policing and the use of crime analysis in criminal investigation will be focused on in this thesis.

Research Purposes and Objectives

The purpose of this thesis is to explore the application of the concept of problem-oriented policing in the analysis of problem solving policing and investigative analysis applications. To accomplish this, this study will explain concepts of community policing and problem-oriented policing as well as examine the application of problem-solving policing to criminal investigation. This thesis consists of five chapters.

In the first chapter, the purpose and objectives of the thesis are discussed. Since the concept of problem-oriented policing and of community policing have similar characteristics in terms of philosophy and decentralized organizational structure, and in the American policing, these two concepts have been used interchangeably, the second

chapter involves an analysis of the issue of community policing. This chapter also examines the general assumptions, some of the programs, and strategies of community policing. In addition, since problem-oriented policing requires substantial change in both the philosophy and the structure of police agencies, the concept of change process and problems with community policing are analyzed. A detailed explanation and analysis of community policing is given for several reasons. First, an understanding of the scope of this contemporary policing approach in terms of its assumptions and its effects on the practices of policing is necessary to apply the philosophy. Second, problem-oriented policing represents one of the core components of the philosophy of community policing, thus a deeper explanation of problem-oriented policing is needed. Third, community policing places a special emphasis on crime analysis and other analysis applications in policing. Finally, since problem-oriented policing involves similar characteristics to community policing, this chapter provides background information for the analysis of the problem-solving policing in the fifth chapter.

The third chapter of the thesis gives a description of problem-oriented policing and explains the common characteristics of the concept. Since one of the critical characteristics of problem-oriented policing is its emphasis on the use of analysis techniques, the concept of crime analysis is briefly examined. The applications of criminal investigation analysis are examined in this chapter in order to indicate the opportunities that are available for police agencies to perform their critical tasks more effectively and more efficiently. This chapter also evaluates some of the critical problems that police agencies may encounter during the implementation and use of these analysis

techniques. The general objectives of this chapter are: a) examining the concept of problem-oriented policing, b) providing a brief examination of crime analysis, c) explaining, and discussing crime scene reconstruction and criminal investigative analysis, d) providing an examination of computerized analysis applications in criminal investigation, including DNA analysis, fingerprint analysis, bloodstain pattern analysis, and the Violent Criminal Apprehension Program (VICAP), and e) providing an evaluation of the validity and reliability of these applications.

The fourth chapter of this thesis focuses on problem-solving policing and the application of the scanning, analysis, response, and assessment model (SARA). The purpose of this chapter is to analyze the application of the SARA Model in the Newport News Police Department (NNPD). To do so, two of the areas from the eighteen problems that NNPD identified were selected for the analysis of the implementation of the SARA Model. They are analyzed in terms of their usefulness and effectiveness. In the process of implementing the SARA Model, NNPD officers performed a number of functions, such as criminal investigation, interviewing victims and offenders, and using crime analysis. This chapter explores the relationship between the outcome of the study and these efforts. Finally, this chapter evaluates the implementation of the SARA Model in order to assess the reliability and validity of this model. The objectives of the fourth chapter are a) defining the concept of problem solving policing, b) discussing the process of problem solving policing and defining the concept of problem, c) analyzing the process of developing the SARA Model in the NNPD, d) analyzing the effectiveness of the SARA Model in specific two cases, and e) analyzing applications in the SARA Model.

The fifth chapter is the conclusion of the thesis. This chapter consists of two parts. The first section focuses on a discussion of the issues that are presented in the thesis. The second section examines the alternative recommendations. Finally, this chapter provides an analysis of implementation of problem-oriented policing in Turkey.

Limitations of the Study

The limitations of this study involve several dimensions. First of all, some of the issues in this study have not yet been evaluated in terms of their effectiveness. In other words, there is little empirical evidence available to support the validity of the results generated by some analysis applications, such as VICAP. Even though an application is claimed to be successful does not mean that its results are actually due to the implemented program or application; causality is not proven. Second, the controversial aspects of the outcomes of some applications, such as profiling, have led some to seriously question those applications as to whether they are valid in terms of scientific evaluation. Third, some of the analysis applications, such as bloodstain pattern analysis, are new and not fully developed; or some of the applications are only being used by one police agency. Due to a lack of sufficient research on the effects of criminal investigation analysis applications, it is difficult to reach conclusion about their usefulness for law enforcement purposes. Therefore the reliability, external validity and generalizability of these applications is problematic.

Another limitation is that the evaluation of the problem solving process is problematic. As discussed in the fourth chapter, according to Moore (1992), the evidence of the success of problem-solving policing relies on anecdotes, and this creates risks in

the evaluation process. In addition, the basic premises of problem-solving and community policing cause problems for evaluation due to their non-quantitative nature. For example, while both approaches are proposed as means to prevent crime, to reduce fear of crime, and to protect and improve the quality of life in society (Trojanowicz and Bucqueroux, 1990), fear of crime and quality of life are not objectively measurable concepts. There is a lack of objective criteria that may be used to show the effects of community policing. It is, therefore, difficult to evaluate community police organizations in terms of being successful. There are a variety of programs and methods that police organizations use to implement community policing. Unfortunately, it is difficult to find studies related to such activities, as they have not been evaluated by academic studies.

Methodology of the Study

The main method used in this study is a comprehensive literature review. Academic journals, such as Journal of Forensic Identification, Crime & Delinquency, Policing: An International Journal of Police Strategies & Management, and Journal of Criminal Law & Criminology provided invaluable resources for this study. The official web sites of the FBI and National Institute of Justice allowed an examination of recent studies in the area of problem solving policing. In addition to the literature review, interviews with experts provided detailed knowledge for this study. For instance, interviewing Mr. Ed Hueske, who is an expert on crime scene reconstruction, gave invaluable data in this area.

Since the main concern in this topic is the problem-oriented policing approach to analysis applications in criminal investigation, the theory behind problem-oriented policing is explained. The reason that this study explains community policing is to give a comprehensive understanding of the underlying assumptions of this new policing approach and its applications to investigations. Crime analysis has two main components: crime prevention and reactive investigation of incidents. This study, addresses both sides. In order to do so, while the concept of problem-oriented policing is examined, some of the applications in the field of criminal investigation are discussed. The strategy is to illustrate the reality that while police organizations focus on solving crime, proactive problem-solving policing may be more effective and result-oriented in the long term. However, for some types of crime, such as serial murder, serial rape, or other violent crimes, police will need analysis applications for conducting investigations. Therefore, crime reconstruction, profiling, and related analysis programs are selected to emphasize the investigative function of crime analysis in problem-oriented policing.

In order to indicate the vital role of proactive policing, problem-solving policing is also examined in a detailed analysis. NNPD was chosen for this study for several reasons. To begin with, NNPD is considered one of the pioneer police agencies in the area of problem solving policing. Also, the SARA Model that they implemented has been evaluated in terms of its effectiveness and efficiency. This study, conducted by Eck and Spelman in 1987, provided detailed information regarding the analysis of the SARA model in problem-oriented policing. Finally, NNPD was a mid-size police department with 280 personnel at the time the project was implemented, making it easier to

implement and examine the effects of the new initiatives. The City' s population was 155,000, giving it some of the same kind and amount of crime problem as big cities have. These conditions tend to increase the reliability and external validity of the study. In summary, this study focuses on the usefulness and effectiveness of problem-oriented policing and analysis applications in policing.

CHAPTER 2

ANALYSIS OF THE IMPLEMENTATION OF COMMUNITY POLICING

Introduction

When the history of modern policing is examined, it can be seen that modern policing has had two major forms of implementation: traditional policing and community policing. The primary characteristic of traditional policing is reactive policing. According to traditional policing perspective, the role of the police is focused on incidents rather than problems. Peak and Glensor (1999, pp.43- 44) argue, “the reactive police role means that police respond to isolated incidents.” The preventive role of the police is limited, and this limitation results in gathering a narrow scope of information, limited to offenders, victims, and other components of incidents. On the other hand, community policing emphasizes collaboration between police departments, community agencies, and local citizens to design and implement various types of strategies for crime prevention and problem-solving standards (Ankony and Kelly, 1999).

In the next section, traditional policing and a contemporary community policing approach will be examined in terms of their characteristics and differences. Also, the underlying assumptions of community policing will be discussed. In addition, some specific strategies and programs will be presented. Finally, problems with community policing will be examined.

Traditional Policing

Since the 1960s, the U.S. has seen a comprehensive evaluation of what “policing” means, which has led to significant changes in policing applications. Professionalism and the education of police became prominent issues during this period. Within the framework of traditional policing, the police are seen as a government agency that is responsible for law enforcement. The role of police is seen as fighting against crime, arresting criminals, and maintaining order (Swanson, Territo, and Taylor, 1998).

The Philosophy of Traditional Policing

In traditional policing, the measure of police efficiency is response time, while the efficiency of the police organization is measured by the rate of criminal arrests. The evidence of police success is not the absence of crime, but the arrest rate. In order to accomplish this mission, police have used motorized patrols, rapid response methods, and radio dispatch.

Motorized Patrols and 911 Policing

The main purpose of 911 policing was rapid response to the crime and criminals. Ferrall (1999) argued that, “a good deal of the operational police literature of the 1960s and 1970s dealt with the issue of the quickest appropriate response time to call for assistance.” According to Bratton, 911 has changed the face of American policing “by putting a premium on the three R’s: rapid response, random patrols, and reactive investigation. (as cited in Siegel, 1999). However, response time may have been affected from several situations. For example, the location of an incident impacts response time; crowded cities and traffic jams contribute to increased response times. According to one

study, police made arrests in only 3% of all 911 calls that involved serious crime (Siegel, 1999). This result shows that the traditional measurement of police response may not be effective in arresting criminals. Moreover, the same study indicated that 911 policing did not affect juvenile offenders. Neither the crime rate nor the ineffectiveness of the police has declined as a result of traditional policing applications; moreover, the violent crime rate increased (Swansons et al, 1998).

The Organizational Structure of Traditional Policing

According to traditional organizational theory, organizations can be described as a closed system that is bureaucratic, mechanistic, and stable (Swanson et al, 1998). Further, the administrative structure of traditional policing can be explained through Weber's theory of bureaucracy. According to Weber, the two of the most important characteristics of bureaucracy are: (1) the principles of hierarchy, and, (2) a division of labor that results in specialization (Ritzer, 2000). The organizational structure of traditional policing can thus be characterized as a bureaucratic, centralized, hierarchical, specialized, and closed organization.

Bureaucratic

According to Etzioni, all units in a bureaucracy "are coordinated by set of rules and orders" (as cited in Aydin, 1997, p. 49), and these regulations provide standardization within the organization. Further, standardization occurs through the use of paper-based documentation for all of an organization's work. Guyot (1979) argues that police organizations are characterized by bureaucracy. This bureaucracy results in a rigidly

designed organizational structure, and this structure causes difficulties in terms of the adaptation of new approaches to the organization.

Hierarchy

Traditional police organizations are managed according to the principles of hierarchy, which “requires that each lower level of an organization be supervised by a higher level” (Swanson et al, 1998, p.158). Accordingly, there is a hierarchical structure in police organizations, which consists of several rank levels and the use of disciplinary work resulting from this structure.

A hierarchical structure has a number of aspects within an organization. The primary aspect is that communication between the ranks is top to bottom. Another aspect is the inflexibility that is sometimes caused by a hierarchy. Within every level of rank, duties are defined by rules, and although this provides standardization within police organizations, it also limits the decision-making ability of individuals within the organization.

Specialization

One of the most important principles of Weber’s bureaucracy is that division of labor results in specialization within organizations. In large organizations, specialization provides effective service and efficiency. On the other hand, it makes organizations more complex in terms of communication and coordination (Ritzer, 2000). Specialization also has several advantages, including having well trained personnel, increased proficiency, and the ability carry out effective operations. However, increased specialization may result in increased administrative relations within departments, and in some cases, it

decreases job performance. Particular tasks, such as criminal investigation, traffic control, and combating terrorism are typically assigned to special units in large police organizations. On the other hand, issues of coordination and communication should be considered carefully in a very complex and large police organization.

Centralization

Aydin (1997) argues that the increased bureaucratization of police organizations results in extreme centralization and rationalization. In centralized organizations, the top of the hierarchy tends to keep all decision-making power in its hands. Thus, in large police organizations, administrators tend to retain all or most authority

Closed system

According to the traditional organizational theory, organizations are characterized as closed systems where everything is rational, predictable, and certain (Swanson et al, 1998). Since everything is predictable, traditional bureaucratic organizations consider little need to communicate with their environments. As a result, communication between the community and police organizations is limited.

Community Policing

After some serious and critical questioning of traditional policing, community policing appeared in the U.S. as the latest reform in law enforcement. By the late 1980s, many police departments in the U.S. had begun to implement community policing.

Definition of Community Policing

Community policing has been defined in several ways. For example, Trojanowicz and Bucqueroux defined community policing “ as a new philosophy of policing, based on

the concept that police officers and private citizens working together in creative ways can help solve contemporary community problems related to crimes, fear of crime, social and physical disorder, and neighborhood decay” (1990, p. 5). Also, Rosenbaum defined community policing as “an emphasis on improving the number and quality of police-citizen contacts, a broader definition of `legitimate` police work, decentralization of the police bureaucracy, and a greater emphasis on proactive problem-solving strategies” (as cited in Rosenbaum and Lurigio, 1994).

In order to develop relationships between police officers and the community, police departments have scrutinized their policing philosophies and organizational structures. According to Bayley, “community policing represents the most serious and sustained attempt to reformulate the purpose and practices of policing since the development of the `professional` model in the early twentieth century” (as cited in Barlow and Barlow, 1999). According to the Community Relations Service, “In order to implement community policing, police departments must adopt a community-oriented philosophy as well as policies and procedures...”(as cited in Jiao, 1998, p. 137).

Although these definitions represent only a small sample of those available, they serve to illustrate one of the major problems that most police organizations encounter: identifying specific strategies through which to implement community policing.

General Assumptions of Community Policing

According to some scholars, the desire to implement community policing is based on its philosophy and moral appeal. Short (1983) postulated that the primary nostalgia of community policing is an ambition to create an association between the police and the

community based on values of mutual trust, respect, and understanding. In general, the goals of community policing encompass reduction of fear in society, increased citizen satisfaction with the police, improvement of techniques to address the problems in the society (Goldstein, 1987; Greene, 1987), and the use of the police to reinforce community social control norms (Kelling, 1985).

Community policing involves several characteristics including community involvement in decision making in order to identify the needs and priorities of the community, permanent assignments of police officers to neighborhoods to inspire mutual trust, emotions, and responsibility between the society and officers, and the commitment of personnel and resources to meet the needs of the community (Goldstein, 1987). Some researchers criticize the use of police for “informal social control” (Manning, 1984); while others claim that this role is legal in nature (Kelling, 1985). To complicate the issue, problem-oriented policing strategies are often considered as tools to identify problems in society (Goldstein, 1979).

There are several underlying assumptions of community policing, beginning with the notion that increased visibility of police decreases the fear of crime in society (Trojanowicz, 1982). According to this assumption, the community will feel more secure if there is more of a police presence, since police presence can deter criminals from committing crime. However, this assumption can be questioned because a police presence may force criminals to move to other areas. The second assumption is that because society is composed of a homogenous population, satisfaction, or dissatisfaction with the police can be measured (Manning, 1984). This assumption is problematic,

however, because, as Manning (1984) argued, social class characteristics, age and race of the neighborhood result in variations in police service type. Further, since there is not a single community, questions arise regarding how the police identify community and determine what the community needs. This may result in different perceptions regarding police service and the effects of these services in different communities. For instance, while foot patrol is successful in reducing the fear of crime and increasing satisfaction among citizens (Esbensen, 1987), this may be an overgeneralization of the effects of foot patrol activities, and these activities may have different effects depending on the demographic characteristics of the communities involved (Manning, 1984).

The third assumption is that police should help community actively to define and form their norms (Trojanowicz, 1982). This assumption has some very critical shortcomings, however. The primary task of police is to act according to legal norms. Therefore if the police try to enforce society's informal social norms, as Walker (1983) argues, it may cause injustice and corruption among police officers.

The fourth assumption is that disorder leads to more public fear than crime (Kelling, 1985). This assumption also has problems because the sense of fear is a subjective concept and depends on the beliefs and perceptions of the individuals and different social groups. Moreover, it is important how we define the public, since fear of crime is a major dilemma for only a certain proportion of the population (Skogan and Maxfield, 1981).

The fifth assumption is that the likelihood of committing crime is higher in neighborhoods where there are signs of decay and neglect (Wilson and Kelling, 1982).

Further, the fear of crime is higher in these neighborhoods (Taub, Taylor, and Dunham, 1984). Crime is a phenomenon, and there are a number of factors that may result in committing crime. A higher crime rate may result in fear; however, in order to establish a connection between a high crime rate and signs of decay and neglect, reliability and validity issues need to be discussed.

The sixth assumption is that community policing programs are initiated by the police for the purpose of improving service, not to give powerful people control over the police service (Goldstein, 1987). In other words, community policing programs should be implemented without the involvement of political concerns.

The seventh assumption requires that community policing be implemented with no violation of the political neutrality of the police (Short, 1983). Short argues that the use of the police as a means of “informal social control” leads to violations of the political objectivity of the police, which results in corruption (1983).

The eighth assumption is that because of their mechanistic characteristics police organizations can easily adapt to the more organic form that is required to implement community policing (Riechers and Roberg, 1990). This assumption is problematic since police organizations are considered bureaucratic organizations. In bureaucratic organizations, the implementation of the change process is difficult rather than easy. The ninth assumption is that the high quality of personnel in police allows such organizations to respond to the since police organizations have quality personnel, they can respond to the requirements of community policing (Riechers and Roberg, 1990). Both authors claim that quality service in community policing cannot be provided without quality

personnel. Also, they believe that quality personnel should have higher education, such as a college degree. Additionally, they discuss the organizational changes needed in policing in order to implement the new philosophy of community policing; community policing requires a significant change in the structure of the police, to one which is decentralized and more organic. Moreover, the reward structure in police organizations should be reviewed. Finally, mid-level managers have a vital role in implementing community policing, according to Riechers and Roberg (1990).

The final assumption is that police organizations are the appropriate agency for attempting to accomplish the goals of community policing (Riechers & Roberg, 1990). It is argued that police may encounter unexpected problems, such as poverty and discrimination, which are outside their historical scope of practice. Thus, it should be decided whether the role of the police is to simply enforce the law or more of a social service role. Finally, police organizations should realize that community policing is more sophisticated than other initiatives in policing. Therefore, without significant changes in the organization itself, the implementation of community policing will be unsuccessful.

The Philosophy of Community Policing

The foundation of the community policing philosophy is that police departments cannot properly assess crime prevention strategies without cooperating with the community. In contrast to the reactive, closed, and incident-driven characteristics of traditional policing, community policing emphasizes open, dynamic, proactive, and problem-oriented policing (Swanson et al, 1998).

Proactive Policing

Proactive policing requires focusing on the root causes of crime in order to find long-term solutions to crime problems. Therefore, in order to adopt a proactive approach, police departments should establish teams and units in order to develop communication and coordination with the community.

According to Skolnick (1998), community policing has four major principles. The first principle is that problem-oriented policing involves four steps, scanning, analysis, response, and assessment. In fact, community policing uses problem-oriented policing as an operational strategy; however, problem-oriented policing can be implemented without community policing. The second is that better communication between police officers and the community is facilitated by decentralization rather than a top-down organizational structure. The third is that community policing requires citizen participation. Finally, in order to collaborate with the community, police and society should establish neighborhood level organizations.

The Organizational Structure of Community Policing

Both the philosophy and organizational structure are altered under community policing. In order to implement community policing, police organizations should change their organizational structure. Considerations must be given, however, to the impact of organizational structure on shaping police responses (Rubenstein, 1973). For instance, the structure and internal culture of police organizations have a critical impact on the change process (Greene, Alpert, & Styles, 1992). Since police organizations are bureaucratic and resistant to change efforts (Guyot, 1979), organizational change in police bureaucracies

tends to be one way: rather than the organization adapting to the intended change, the change efforts adapt to the police organization. Thus “the study of the adoption of community policing then is the study of organizational structure, culture, and service delivery change” (Greene, Bergman, and McLaughlin, 1994, p. 93). Those who attempt to implement community policing should take into account the variety of sources of resistance to this change process.

Community policing requires a decentralized organizational structure. In fact, community policing has five major organizational characteristics: nonbureaucratic, decentralized, flattened management structure, generalization, and an open organization model.

Nonbureaucratic

Briefly, community policing emphasizes a lesser amount of formalization and bureaucratization in police departments. Bureaucracy requires paper-based work, and this sometimes causes inflexibility in the organization (Aydin 1997). In order to eliminate these problems, community policing involves paperwork only when it is necessary.

Decentralization

As a model, community policing emphasizes adapting decentralization strategies to police organizations. The principle behind these strategies is that police organizations can provide services more efficiently through an organizational plan that focuses on individual neighborhoods and regions rather than the whole city (Swanson et al, 1998). Neighborhood substations are one of the decentralization strategies used in community

policing. Foot patrols are also often used under this decentralized organizational structure.

Flattened Management Structure

In contrast to the principles of hierarchy, community policing promotes more discretion for decision-making at the operational level. Moreover, it advocates a leadership approach rather traditional management styles. Aydin (1997) argues that by reducing the number of ranks, communication within the organizational structure would be more flexible.

Generalization Versus Specialization

Another organizational characteristic of community policing is generalization of the tasks that police officers perform. Because specialization causes additional hierarchy and coordination problems community policing encourages generalization or limited specialization in police organizations.

Open Organizational Model

According to Swanson et al (1998), police organizations are not closed systems because they undergo dynamic interaction with the community. If an open organization is in constant interaction with its environment, it will be responsive to external influences through the openness of the system boundary. Changing social, political, and economic environments directly affect police organizations. Sometimes this interaction results in the adaptation of technology, and sometimes it forces police organizations to implement new philosophies and initiatives. As a new approach, community policing is an attempt to solve problems such as crime, drugs, and fear of crime; it requires police organizations be

open to their environment. In addition, establishing new initiatives to increase community involvement in crime fighting is one of the important cornerstones of community policing.

Programs and Strategies in Community Policing

Police organizations have initiated a variety of strategies and programs in order to implement community policing. Skolnick and Bayley (1988) present four programmatic areas to implement community policing in police organizations: The first is “community-based crime prevention,” which involves typically Neighborhood Watch programs. In the London Metropolitan Police, Neighborhood Watch involves three elements: a) public surveillance, b) property marking, and c) home security. The second programmatic change is the reorientation of patrol activities, which involves several areas, including reorganization of officers from motorized vehicles to small-decentralized police stations, “house visits,” where police officers perform door-to-door communication with the residents about neighborhood problems, and foot patrol. The third change is “increased police accountability,” which requires communication with established groups and organizations in the community in order to get their assistance to solve crime problems. “Decentralization of command” is the final programmatic change in community policing. In general, decentralization of command is seen as a geographical reorganization of policing, such as into small precincts. In fact, “decentralization of command” requires not only geographical decentralization, but also an emphasis on adaptive policing, operational flexibility, and giving police officers more discretion and authority.

In the U.S., police departments have implemented a number of community policing strategies, such as foot patrols, neighborhood substations, school police, and citizens' police academy. The next section will discuss two of them: foot patrol and neighborhood substations.

Foot Patrols

Foot patrol is one of the activities that involve personnel of neighborhood substations. Theoretically, food patrol aims to not only increase communication between the community and police officers, but also to reduce criminal activity. According to Trojanowicz (1986), in order to achieve these goals, foot patrol officers are expected to attend community meetings, identify the problems of the community, and create solutions to disagreements between citizens (as cited in Rosenbaum and Lurigio, 1994). In reality, these goals are often not properly accomplished. Despite this, according to research reported by Trojanowicz and Belknap (1986), "the Foot Patrol Program in Flint, Michigan, reduced crime 8.7 % and calls by 42% between 1979 and 1982" (as cited in Kessler and Duncan, 1996). However, the foot patrol research conducted by Trojanowicz and Belknap was unscientific.

Neighborhood Substations

Common initiatives of community policing include creating neighborhood substations to provide decentralized police services in individual neighborhoods. In general, these substations work 24 hours a day, and have access and computer links to other police departments (Skolnick and Bayley, 1988). These stations are used to eliminate the physical and psychological distance between police officers and citizens

(Rosenbaum and Lurigio, 1994). Detroit, Michigan is one the example of this type of implementation, with a program that involves 52 substations throughout the city. In order to accomplish their main job of crime prevention, the substations use a number of different strategies, such as foot and car patrols, community meetings, and providing other police services. Unfortunately while decentralization provides more flexibility for police departments, it does have shortcomings, which may result in high operational costs and role confusion within the organization. For instance, the lack of an exact definition of what community policing is and what community policing officers do causes role confusion among police officers (Skolnick and Bayley, 1988).

Evaluation of the Change Concept in Community Policing

Implementation of community policing requires significant change in the culture and philosophy of policing as well as the organizational structure (Roberg, 1994). It requires organizational change in the police department.

Organizational change consists of a transformation of an organization from one position to another in time. Each change proposal in an organization sets into action a cycle of resisting change, realizing the need for change, agreement with the style of change, and finally, improvement of implementation strategies (Moran and Brightman, 2000). Since police organizations are commonwealth organizations, there are considerable pressures from both external and internal sources (Swanson et al, 1998). Police organizations should accommodate such pressure by applying new approaches, techniques, and philosophies, such as community policing and problem-oriented policing.

Organizational change may be initiated due to external factors. Police organizations might be forced to change their organizational philosophies and structures as a result of governmental investigations. For example, during the 1960s, because of the questionable responses of police to race riots, professional policing methods were challenged in terms of the adequacy of their goals (Walker, 1983). While some academicians suggested new training methods, some suggested changing the bureaucratic structure of policing.

In addition to governmental investigations, the introduction of a new program by government can provide resources to initiate a change in an organization (as cited in Barnett and Carrol, 1995). For example, the Violent Crime Control and Law Enforcement Act of 1994 provided \$8.9 billion in resources for police agencies to purchase new technology and recruit 100,000 new police officers in order to support the implementation of community policing (Swanson et al, 1998).

Furthermore, public perception may force police organizations to reevaluate their activities and change them if necessary. For example, the impetus for organizational change in Philadelphia Police Department (PPD) was a number of incidents that occurred between 1983 and 1985 (Greene et al, 1994). Two major events occurred which resulted in negative public attitudes of the police: the discovery of major corruption within the police department and the MOVE incident, where the PPD was blamed for bombing an urban neighborhood. The Police Study Task Force reviewed these incidents and concluded that PPD was “unfocused, unmanaged, under-trained, under-equipped, and

unaccountable” (1987). As a result of that study, PPD has begun to implement community policing.

In addition to the Police Study Task Force there are a number of studies that criticize traditional policing applications. According to Bryett (1999), crime has become more sophisticated in recent years, and this sophistication has forced police to change their structures. Academic studies often indicate that traditional policing applications, such as increasing quantity of police, random motorized and saturation patrolling, and improving response time has been ineffective in fighting crime (Skolnick and Bayley, 1986). If executives in the police organization identify a performance gap as a fundamental problem, they may attempt to create substantial change (Stojkovic, Kalinich, and Klofas, 2000).

The Process of Planned Organizational Change

The best approach to create substantial change in an organization is to enter into a conscious and rational process of planned change (Stojkovic et al, 2000). Planned change can be understood as a connection between theory and application, between knowledge and deed (Bennis, 1965). According to Goodman and Kruke, planned organizational change is composed of “a set of activities designed to change individuals, groups, and organizational structures and processes” (as cited in Stojkovic et al, 2000, p. 350).

There are a number of requirements in the process of planned organizational change. Besides innovation and acceptance problems, planned change requires a view to the future rather than solving immediate problems, and it requires leadership and vision in order to defeat organizational habits that may threaten planned change (Stojkovic et al,

2000). The concept of planned change requires a systematic planning process, which involves identifying the problems of organizations and generating and selecting proper alternative solutions for these problems (Hudzik and Cordner, 1983).

Besides a formal organization, every collective system has a set of connections of factions and informal groupings. Both the informal and formal associations in an organization must therefore be taken into account in planning any change process (Benne and Birnbaum, 1968) Moreover, an efficient model of change should accommodate and support on-going interaction, and the involvement must be improved in order to transform the whole system as it is trying to adapt (White, 2000).

Organizations may consider a need for change; however, this process will encounter a variety of problems in terms of resistance to change initiatives. One general reason for resistance to change is that change represents uncertainty- there is no guarantee that a new proposal will be as satisfactory as the old one, even if the old one was defective (White, 2000). For instance, in the New York Police Department (NYPD), the 72nd precinct was selected as an experimental area for implementation of community policing. One study revealed that many of the Special Operation Units (SOU), patrol officers and detectives believed that there was uncertainty about their chances of promotion due to their participation in the model precinct (Pate and Shtull, 1994).

Individual and Organizational Sources of Resistance to the Change Process

It is essential to consider that there are individual and organizational sources of resistance to change. However, this does not mean that the change process is free from

external influences. Moreover, according to Stojkovic et al (2000), external barriers to change are common and difficult to recognize.

Individual sources of resistance to change may result from a lack of identification of involvement in the change process. In addition to individual resistance to change organizational sources of resistance is another critical issue that police administrators should consider in the change process. Organizational change essentially requires changing the routines of the organization. However, the organization and its members will encounter uncertain situations because of the elimination of traditional routines, which may result in resistance to change (Stojkovic et al, 2000). The nature of the eliminated traditional routines is broad, ranging from the loss of power in the hierarchy, or it might affect a particular segment of the members. For instance, according to Swanson et al, “ lower level members of organizations in particular might have had direct experience that has led them to associate change with negative consequences (1998, p. 643).

The structure of police organizations stresses values such as efficiency, reliability, and precision (Janssen, de Vries, and Cozijnsen, 1998). Organizational values are very important factors in terms of influencing change process. In addition to organizational values, traditional applications, compositions, or leadership style may influence the success or failure of an organization’ s efforts to perform change (Stojkovic et al, 2000, p. 360).

Finally, the internal culture of police organizations also has a critical impact on the change process (Greene et al, 1992). Watson (1966) also considers culture as a source

of resistance to change. Skolnick and Bayley (1988) have identified some commonalities in police culture. They argue that the first characteristic of police culture is an exaggerated feeling of danger. The second commonality is that police officers develop a defense mechanism, suspicion. They use it to be protected against signs of danger, crime, and probable threat. A third characteristic of police culture, named brotherhood, or solidarity, is the combination of danger and suspicion.

In addition to solidarity, Harrison (1998) notes that isolation and management versus street distrust among police officers are other cultural characteristics of policing. For example, in the NYPD, 72nd precinct patrol officers continued to complain that tasks that the SOU officers performed were not “real” police jobs (Pate and Shtull, 1994). Harrison further states that isolation in the police organization leads individuals to engage in abnormal behavior (1998). Sparrow (1988) explains police isolation from a different perspective. He believes that lengthy and frequently changing shifts exterminate most prospects for a regular social life. Therefore, he argues, majority of the officer’s social life is restricted to his or her personal professional circle. Both isolation and management versus street distrust are potential negative powers in implementing change a process.

In addition to individual and organizational sources of resistances to change, there may be other sources of resistance, such as characteristics of the innovation itself, public perception about the innovation, and the influences of police unions and the media. Stojkovic et al (2000) argue that characteristics of the innovation may cause resistance to change. According to them, fundamental change will encounter more resistance than efforts to create circumstantial change. Also, if the innovation will be costly in terms of

money, time, and manpower, then it will encounter more resistance from executives within the organization and other local or federal administrators. Innovation with a higher cost tag is typically implemented with great unwillingness (2000). Finally, if the impetus to change comes from outside the police organization, there may be residual resistance to change (Trajonawicz and Bucqueroux, 1990).

Another source of resistance to change is public perception. While there is apparent support for traditional functions of policing, particularly for traditional evaluation criterion such as visible motorized beat and response time, a significant part of society does not want law enforcement to change (Skolnick and Bayley, 1986). The media also has a critical function in the change process, especially for law enforcement agencies. Criminal justice officials such as police officers consider the media as a threat and seldom do they attempt to develop the support of the media (Stojkovic et al, 2000).

Strategies to Overcome Resistance to Change

When change initiative is being implemented in an organization, the individual impact of the change must be considered (Moran and Brightman, 2000). The assumption in individual change strategies is that members or groups of members within an agency must change their attitudes, abilities, and behaviors (Stojkovic et al, 2000). The usual intervention methods of individual change strategies are training, education, attitude change, and socialization (Porter, Lawrel, and Hackman, 1975). Participation is a critical part of organizational change.

Personnel voicing of ideas for resolving job-related problems could play a critical role in successful organizational functioning (Janssen et al, 1998). If individuals do not clearly understand the reason for change, they will probably resist it (Hart, 1996). Without participation, there is no way to know how change is effective or the extent to which individuals buy into the new organizational goals (Zajac and Bruhn, 1999). Therefore, to be successful in the change process, leaders should support individuals' participation in the change process.

The structure of the police organizations has critical impact on change process. Structural change provides an environment for individuals to perform according to the requirements of change. There are significant differences between the administrative structure of traditional policing and community policing. Therefore, in order to implement community policing, police organizations must first change their structure and philosophy.

Another critical point in implementing community policing is the way that police agencies perform change requirements. For instance, in some police organizations, a special unit in the department has implemented community policing. But this causes coordination and communication problems among other units. Also, since community policing gives the discretion of decision making to police officers, this causes internal problems among the personnel who are assigned and who do not work in this special unit within the organization. In order to eliminate this problem, studies have revealed that community policing should be implemented in the entire organization rather than in one isolated unit (Lewis, Rosenberg, and Sigler, 1999).

In order to be successful in implementing change in police organizations, police managers should realize that they will encounter variety of obstacles. The sources of these obstacles might be individual, structural, or even external. “It is the responsibility of police management to identify values... and enunciate them persuasively and unambiguously” (Kelling and Moore, 1988, p. 3). Police executives must support the implementation of community policing. Skolnick and Bayley (1986) demonstrate the importance of leadership in successful innovation. They identify four crucial factors to change in police organizations that are attempting to implement community-oriented policing. First, the police chief must be abiding, and have a vigorous commitment to the values of a crime prevention focused police organization. Second, the chief must advocate the values and programs of community policing by motivating and even influencing personnel in the organization into approving those values. Third, once a new program is established, conscious efforts must be kept to protect the integrity of the program. Fourth, innovation is not likely without community support. Leaders should develop methods to gain public support in their effort to implement the new program and to be successful in that implementation.

Conclusion and Analysis of the Concept of Community Policing

Community policing has been very popular among citizens, politicians, and police departments. It was the heart of the Clinton Administration’s crime prevention policy (Rosenbaum and Lurigio, 1994). A number of police departments have adopted community policing philosophies and adapted its necessary organizational structure to their organizations, each initiating a unique package of programs in order to implement

community policing. Despite these efforts, neither community nor police organizations were completely satisfied with the community policing approach.

On the other hand, studies indicate that police organizations have no evidence to prove that real change has taken place because of the implementation of the community policing. Zhao and Thurman (1997) argue that “reality has not yet caught up with the rhetoric of community policing.” However, it appears that problems with community policing are not a result of the concept of community policing, but instead it is the implementation process that causes problems.

There are a number of major problems that commonly arise with community policing:

a) Definition of community policing and role confusion

Multiple definitions of community policing result in each police organization using different strategies to implement community policing. The variety of definitions also contributes to role confusion among police officers who are assigned to community policing efforts (Swanson et al, 1998)

b) High expense of implementation process

Implementing community policing requires a substantial change in police organizations in terms of procedures, recruitment, training, and most importantly structural changes to the entire organization. These efforts require high fiscal and resources expenditures.

c) Evaluation process in community policing

Reducing fear of crime among citizens, reducing the crime rate, and increasing quality of life are some of the goals of community policing. However, such goals are subjective concepts in terms of evaluation. For instance, while it is possible to evaluate any police organization based on the comparison of past and current crime rate statistics, fear of crime is a subjective concept that may vary among different groups of people. Therefore, evaluation of community policing is somewhat difficult when based on those concepts.

Evaluation is also more difficult because of the number of programs and strategies that police organizations have used to implement community policing; not all of these programs and strategies have been evaluated in terms of their success. It is therefore difficult to conclude that community policing efforts have been successful in attaining their intended goals, such as crime reduction. There is little empirical evidence to support the success of community policing in reducing crime rate (Taylor, 1997). Although the crime rate may decrease in one jurisdiction, in order to be reliable and valid those who conduct studies to evaluate community policing should explain factors other than community policing that may affect the crime rate.

d) Problems in the change process

Since community policing requires substantial changes in policing applications as well as organizational structure, police organizations should develop strategies to overcome problems that may exist in the change process. Individual, organizational, and other external sources of resistance to the change process should be carefully evaluated.

Failure to consider these sources may hinder successful attempts to implement community policing. In addition to police organizations, other agencies, such as community associations, businesses, and media, should be involved in the change process. Without this additional involvement, police agencies may not be able to successfully implement community policing. The drawback is that such involvement requires extensive effort on the part of all of these institutions (Swanson et al, 1998).

There are additional problems in the change process. For instance, community policing advocates generalization versus specialization in police functions. One way to implement generalization in police departments is that special functions are performed by all of the police officers in the team. This conflicts with studies that indicate that some police functions, such as fingerprinting should be performed by specialized officers (Pate and Shtull, 1994).

Finally, the most critical factor in community policing in the U.S. is that the implementation of community policing aims not to reduce crime; rather police agencies implement or seem to implement community policing in order to get financial support from federal funds. Consequently, community policing becomes politicized. In order to depict themselves as contemporary police agencies, some police departments implement various programs, such as bike patrol or additional patrol to the specific jurisdiction where the crime rate is higher. However, most of these programs or initiatives have not been evaluated in terms of establishing reliability or validity. Moreover, the politicized approaches result in the negligence of some of the divisions, such as criminal investigation. It is true that community policing emphasizes proactive policing. However,

the other reality is that the reactive police divisions are sometimes as critical as the proactive ones. Therefore, those who attempt to implement community policing need to consider the complexity of the crime phenomenon, and create solutions not only for proactive policing but also reactive police responses.

As Moore (1992) argues “no police department in the United States has yet fully made the transition to these new style of policing and operated long enough to produce a convincing record of performance.” It is imperative that police agencies consider the concept of change and its outcomes. This process takes time and requires patience; therefore, although it may be premature to say whether community policing is successful or not, the programs and strategies must be scientifically evaluated by scholars in order to become fully cognizant of all that is involved with community policing.

CHAPTER 3

PROBLEM-ORIENTED POLICING:

ANALYSIS OF CRIMINAL INVESTIGATION APPLICATIONS

Introduction

Before beginning the analysis of the concept of problem-oriented policing, the concepts of problem-oriented policing and community policing need to be discussed in terms of differences or similarities. On the one hand, some scholars, such as Skolnick (1998) claim that the problem-oriented approach is an alternative to incident driven traditional policing, and results from the proactive philosophy of community-oriented problem solving policing. On the other hand, to some, problem-oriented policing and community policing have been used interchangeably, and problem-oriented policing can be implemented without community policing. Problem-oriented policing was initially described by Herman Goldstein in 1979. In fact, considering the early sources of problem-oriented policing, it can be seen that problem-oriented policing was implemented before the initiatives of community policing. Nevertheless, community policing has used problem-oriented policing as an operational strategy.

Problem-oriented policing gives critical emphasis to the issue of analysis and focuses on the identification of a problem and its solution process (Peterson, 1998). The National Institute of Justice defines problem-oriented policing as “ a department-wide strategy aimed at solving persistent community problems. Police identify, analyze, and respond to the underlying circumstances that create incidents” (as cited in Eck and

Spelman, 1987, p. XV). Therefore, that problem-oriented policing is more than just solving incidents on an individual basis. It also emphasizes the identification of and response to the causes of these incidents. Problem-oriented policing emphasizes the use of crime analysis to gain a deeper understanding of the scope of the problems that police deal with. These problems have a variety of dimensions, including geographical area, offender and victim profile, weapon, behavioral type, and other elements (Goldstein, 1990). Police require appropriate knowledge and technological tools to analyze and develop effective responses. However, this leads the use of analysis techniques by not only the crime analysis unit, but also other divisions, such as criminal investigation and anti-drug divisions. Recent developments in technology have forced police departments to use analysis applications in other areas of policing. For example, computerized database software allows police departments to collect, store, and analyze a tremendous amount of data in order to find more effective and efficient solutions for the problems that they confront. Criminal investigation is another division within the structure of a police department that uses several analysis techniques and computer-aided systems.

Apart from the philosophy of problem-oriented policing, some criminal investigation applications are reactive rather than proactive. In other words, they are being used to solve individual incidents, such as homicide, robbery, and sexual assault. The next section will briefly introduce the concept of crime analysis, followed by a more in-depth discussion of some of the major analysis applications that are used in criminal investigation. Finally, these applications will be analyzed in terms of their reliability, validity, and effectiveness.

Crime Analysis

As Swanson et al (1996, p. 160) describe, crime analysis “involves identifying trends and patterns within crime data to attempt to solve crimes or prevent their repeat occurrence Crime analysis supports several departmental functions, including patrol and special operations, tactical units, investigations, planning and research, crime prevention, and administrative services. SARA model is one of the applications that uses analysis applications in the process of problem analysis, identification of criminals, and crime patterns. Crime analysis aims to classify massive quantities of raw data from databases that are used in automated records systems, and estimate specific future incidents from the statistical exploitation of these data (Swanson et al, 1998). There are several applications and software programs in the field of crime analysis, including geographic information systems (GIS).

Geographic Information Systems (GIS)

According to Harries (1999), GIS is a “ computerized mapping system that permits information layering to produce detailed descriptions of conditions and analysis of relationships among variables” (p. 92). A variety of different GIS software exists, such as Mapinfo, Arcview, and Arcinfo. Arrests and incidents, vehicle recoveries, and calls for service are the types of data that are typically mapped. The most common applications are archiving data and the analysis of clusters or hot spots.

Problem-oriented policing requires comprehensive information gathering and analysis in order to make decisions about responding to the underlying causes of incidents. GIS provides police agencies with the ability to analyze a variety of

information, and therefore respond to incidents more effectively. Specifically, GIS has a number of specific law enforcement applications.

Problem-oriented policing uses GIS in a number of areas. GIS helps decision-makers by illustrating the geographical patterns of crime in terms of their occurrences. This facilitates more effective decision-making about incident response and crime prevention strategies. Also, GIS applications assist law enforcement with the presentation of some major crimes, such as homicide in courts. Another application of GIS is to enable critical event manpower deployment to be done more effectively. Finally, searches for victims, suspects, and evidence can be done more easily and efficiently as a result of GIS mapping capabilities (Hills, 1995, as cited in Swanson et al, 1998).

The more police organizations use crime analysis techniques the more easily they are able to analyze information and identify the response strategies for the specific problems and incidents in their jurisdictions. In addition, since problem-oriented policing emphasizes information-based proactive policing, police administrators can make effective decisions concerning the problems that they have. Finally, by using GIS applications, police organizations are more likely to be successful in their missions. Consequently, there will be a positive effect on the relationship between the police and the community.

Analysis Applications and New Technologies in Criminal Investigation

As the nature of crimes and the way they are committed change, law enforcement agencies must develop and adapt new technologies and applications in order to deal with

these incidents. Another motivation that police agencies have for adopting these technologies is to apprehend the criminal quickly so as to eliminate the fear of crime among citizens. Crimes, such as mass murder, serial murder, rape, and other violent crimes affect neighborhoods and create a situation where citizens do not feel that they are safe and secure.

Also, effective use of analysis techniques enables police to reach the evidences and use them against the criminals at the trial process. Especially, for those police agencies that are blamed for illegal conduct in the process of interrogating the suspects, criminal investigation analysis techniques would be invaluable tools.

The activities of criminal investigation analysis can be categorized into two major groups. The first group involves gathering information from a variety of sources, and the second group of activities involves analysis of this information and response to the incident by either apprehending the suspect or identifying the real causes of the incident.

Crime Scene Reconstruction

Saferstein (2001) in his book, *Criminalistics: Introduction to Forensic Science*, defined crime scene reconstruction as “the method used to support a likely sequence of events by the observation and evaluation of physical evidence, as well as statements made by those involved with the incident (p. 69). Crime scene reconstruction can be used for a number of purposes by different experts. As Garrison (1993, p.1) states,

all areas of criminalistics and investigation are geared to the reconstruction of the criminal act. The latent print examiner can "reconstruct" the position of a suspect's hand on a door; the serologist can sometimes "reconstruct" the stabbing victim's position from stain patterns on clothing; the medical examiner can "reconstruct" the wounding of a human body.

At the most basic level, crime scene reconstruction involves reconstructing the circumstances of a crime. To do so successfully, however, crime scene reconstruction requires effective and efficient crime scene handling. Since the reconstruction process is based on the physical evidence and other information that police gather from the victim, suspect, or witness, the protection and security of the crime scene is of vital importance.

Reconstruction is the final purpose of analysis, and it requires both the consideration of the actions identified, and whenever feasible, the series of those events (Bevel and Gardner, 1997, p. 20). Crime scene reconstruction provides invaluable information regarding the incident. In fact, as Bevel (1991) argued, crime scene reconstruction provides three major benefits for law enforcement. First, it can assist in recognizing and determining the location of potential evidence. Second, it can indicate to the jury a possible sequence of events based on information provided by the evidence. For example, crime scene reconstruction may describe to the jury the order in which a number of bullets must have been fired through a glass window, and the resulting conclusions that can be drawn about the shooter's position when firing. Finally, crime scene reconstruction may eliminate the burden on a laboratory by reducing the number of unnecessary items sent for analysis.

According to Bevel and Gardner (1997), there are four stages in crime scene reconstruction:

- 1) Collection and the Generalist Attitude: In order to have a value for criminal investigation, evidence must be collected or recognized by the investigator.

- 2) Evaluation: In this stage, the analyst should consider two critical points; reliability and credibility of the evidence. Reliability concerns the source of the information that the analyst gathers from the crime scene or from other sources, such as victim, witness, and suspect. Credibility deals with the issue of whether the evidence is related to the event.
- 3) Assessment: This stage examines whether the evidence proves anything about the incident. The final aim in assessment is to bring the “point of defined action” (p. 25). In the reconstruction, all the evidence or information should support three points: the basic nature of the segment and evidence, the rational aspects to other segments and evidence, and time and sequencing aspects.
- 4) Integration: This final stage consists of combining the information and evidence in order to reconstruct the events in the incident.

An alternative view explanation to crime scene reconstruction staging is to explain it step by step. Clemens (1998) identified several steps in crime scene reconstruction:

1. Recognition of evidence,
2. Documentation of evidence,
3. Collection of evidence,
4. Evaluation of evidence,
5. Hypothesis,
6. Testing,
7. Reconstruction.

Because collecting and documenting physical evidence is the basis of reconstruction, law enforcement personnel should enhance the crime scene search in order to optimize the reconstruction outcome (Saferstein, 2001). The ultimate goal in

crime scene reconstruction is to determine what happened, where it happened, and who was involved in the incident in terms of suspects or victims. Examining the presence and absence of physical evidence has crucial importance in crime scene reconstruction. This determination process requires teamwork involving experienced law enforcement officers, criminalists, and medical examiners.

The presence or absence of DNA, fingerprint evidence, and other physical evidence can help to determine who was or not present at the crime scene at the time an incident occurred. Also, if blood is part of the evidence at the crime scene, bloodstain analysis can help an investigator determine what could or could not have happened during the course of bloodshed (Bevel and Gardner, 1997). Criminals are critical components of the crime problem. If every crime is considered a problem for police, criminal investigation applications could be useful tools for police agencies in the process of problem-oriented policing.

DNA Analysis and

Combined Offender DNA Index System (CODIS)

Deoxyribonucleic Acid (DNA) is the molecule within each cell that carries the body's genetic information. Every cell in a given human body carries the same DNA, and each human has a unique DNA sequence, or fingerprint. The National Commission on the Future of DNA Evidence (1999) defines DNA as "the fundamental building block for an individual's entire genetic makeup" (1999, p. 1). A variety of physical evidence, including sweat, skin, blood, saliva, hair, or tissue, can be evaluated through DNA

analysis. DNA is therefore one of the most crucial piece of evidence for helping investigators identify the victim or the suspect of an incident.

DNA analysis involves three-step process that results in the comparison of DNA from a crime scene with known DNA samples (Friedman, 1999). The first step of the process is to generate a DNA profile for a number of polymorphic loci. The second step involves comparing the DNA that was collected from a crime scene with the suspect's DNA. Finally, if they contest each other, a random match possibility is calculated. This method also enables law enforcement agencies to establish DNA databases to facilitate the rapid identification of suspects in given incidents. Such databases also provide the ability to conduct DNA profiling of convicted criminals.

In order to increase the reliability and validity of DNA analysis, a number of technologies and policies have been developed. Combined Offender DNA Index System (CODIS) is one technology that aims to increase the abilities of law enforcement in the field of DNA analysis. In the U.S., the DNA Identification Act of 1994 gives permission and provides financial support for states to establish criminal DNA databases (Friedman, 1999). The Act also gives authorization to the Federal Bureau of Investigation (FBI) to create a nationwide DNA Identification Index for of law enforcement purposes (Saferstein, 2001). CODIS is a computerized system which consists of three indexes: "convicted offenders, profiles from crime scene evidence, and population samples for statistical purposes" (Friedman, 1999, p. 174). Implementing DNA indexing involves data entry of the DNA profiles of offenders or suspects into a DNA database. In the early

1999, there were more than 250,000 DNA profiles in the convicted offender database and 4,600 DNA profiles in the crime scene database (Kluger, 1999).

The tremendous value of CODIS is that even though law enforcement officers cannot initially identify a suspect, by comparing crime scene evidence with the DNA profiles from the database, CODIS can help them to identify possible suspect(s). This ability is of remarkable value to law enforcement officers in complex cases, such as sex offences and serial murder.

Fingerprint Analysis and Integrated Automated Fingerprint Identification System (IAFIS)

Fingerprints are another types of evidence that help investigators identify persons at a crime scene. Fingerprints have unique characteristics when compared to other evidence that can be found at crime scenes. The first unique characteristic of fingerprints is fingerprint individuality, which means “no two fingers have yet been found that have identical characteristics” (Becker, 2000, p. 136). The fingerprint individuality is not determined by its general pattern or shape but by a cautious study of its right characteristics (Saferstein, 2001). The second characteristic of fingerprints is fingerprint immutability, which means that during an individual’s life fingerprints remain unchanged in terms of classifiable characteristics (Becker, 2000). As the hand and fingers grow, fingerprints enlarge, but the right characteristics will not change. Finally, “fingerprints have general ridge patterns that permit them to be systematically classified” (Saferstein, 2001, p. 401). All fingerprints are classified into three classes by reason of their common

pattern: loops, whorls, and arches. About 65% of the population has loops, approximately 35% has whorls, and about 5% has arches (Becker, 2000).

Fingerprint classification was historically made based on the Henry System. This system “converted ridge patterns on all 10 fingers into a series of letters and numbers arranged in the form of fraction” (Saferstein, 2001, p. 402). As the number of the fingerprint records increased, an expanded classification system became necessary. Additionally, the Henry system is labor-intensive and inefficient, particularly, for larger police organizations. Faced with this problem, the FBI established an Automated Fingerprint Identification System (AFIS) in 1970s (Swanson et al, 1996). AFIS enables law enforcement agencies to make fingerprint comparisons of applicants and suspects with a number of on-file prints in a very short time. AFIS relies on the ability of a computer to scan and digitally code fingerprints, and this allows very fast comparisons (Saferstein, 2001). AFIS has two major functions. The first function of AFIS is to classify, search, and match prints. The second function is to store and retrieve fingerprint data (Swanson et al, 1996). After searching its prints file, the computer generates a list of people whose fingerprints are most closely matched to the subject’ s fingerprints. The rapid speed of the AFIS process gives more time for investigation, and it may actually shorten the total investigation period.

The Integrated Automated Fingerprint Identification System (IAFIS) is the latest system development in fingerprint analysis. IAFIS will supply ten-print, offender record request services, and subject search, file submission and image request assistance to law enforcement agencies. IAFIS also provides several advantages to law enforcement

agencies. For example, it can provide a more comprehensive picture of an individual's criminal background history. Through a quick and comprehensive background check, law enforcement officers can identify someone who has previously committed serious crimes even though he or she was eventually stopped only because of minor crime. This new automated system also has the ability to search the entire database to find matches for fingerprints. In order to facilitate the effectiveness of this advance technology, the next step should be conducting all fingerprints processing in a computerized environment (Swanson et al, 1996).

Bloodstain Pattern Analysis

Like other crime scene evidence analysis, bloodstain pattern analysis attempts to define the details of a given incident. Bloodstain pattern analysis helps investigators find answers to the question “what” rather than “who” or “why”. On the other hand, the investigator should be aware of the fact that clarity of the information provided by bloodstain pattern analysis may not be guaranteed.

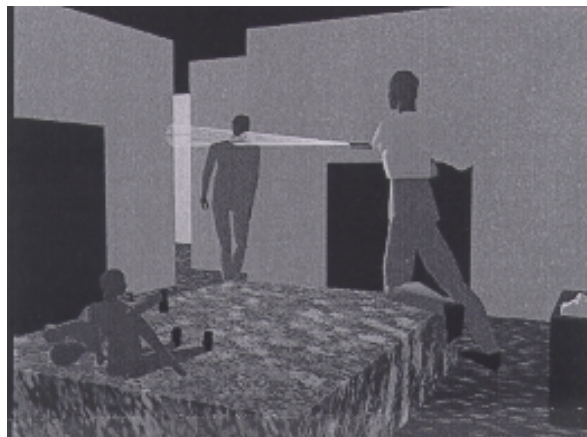
The information that bloodstain pattern analysis provides includes: a) The path of a droplet that was traveling at the time of impact, b) The angle of impact that causes bleeding, c) the approximate distance between the droplet and the target that was the origin of the bloodstain, d) type of instrument used in the incident, e) the positions of the victim, suspect, and other materials at the crime scene, f) movements and the sequences of these events, g) the estimated number of blows throughout an incident (Becker, 2000), h) “may indicate a staged or secondary scene” (Clemens, 1998).

Bloodstain pattern analysis is an effective tool that investigators can use in the process of crime scene reconstruction. Presentation of the sequence of event in a crime, especially at trial, can be powerful evidence to determine out guilt or innocence. The function of bloodstain pattern analysis is therefore of great importance.

There are few software programs used for bloodstain pattern analysis. Those that do exist consist of simulation and computer-aided analysis applications. Simulation applications help analysts to take data from a crime scene and apply known equations to construct a simulation of what an incident may have looked like.

Figure 1

Shooting Animation That Shows Possible Source and the Position of an Impact



Source: From Crime Scene Reconstruction Animations, by TETRA Forensic Animations (1999) [Online]. Available: <http://members.home.net/trial-animations/crime-scene-reconstruction.html>. Copyright 1999 by the TETRA Forensic Animations (864-288-1961). Adapted with permission.

Computer-aided analysis applications can help investigators take the data from the crime scene and view it in a different mode (Bevel and Gardner, 1997). These applications provide an opportunity to develop a match between the circumstances and the data from crime scene. For instance, the simulation application, TRACKS designed by Dr. Alfred Carter of Forensic Computing of Ottawa, Canada, has the ability to adjust blood droplets variables, including angle, size, and speed, to discover what such changes do to the droplet's direction of flight (Bevel and Gardner, 1997). Unfortunately, there is not a standard technique that is used in the bloodstain pattern analysis.

Criminal Investigative Analysis or Profiling

According to Peterson criminal investigative analysis is “the use of components of a crime and/or the physical and psychological attributes of a criminal to ascertain the identity of the criminal” (1998, p. 42). Swanson et al (1996) in their book *Criminal Investigation*, define criminal investigation analysis as “the analysis of crime scene patterns in order to identify the personality and behavioral characteristics of offenders who commit serial crimes of rape and homicides” (p. 282). In essence, criminal investigation analysis is the same as psychological profiling. According to Peterson, however, criminal investigation analysis, and psychological profiling are not the same concepts, but psychological profiling is the result of the criminal investigation analysis process (1998). Currently the FBI uses the term criminal investigative analysis for profiling. For clarity's sake, since the term profiling is used more commonly than criminal investigative analysis, in the next section the term profiling will be used in place of criminal investigative analysis.

In the field of criminal investigation, profiling has been treated differently than other crime scene reconstruction techniques. On one hand, proponents of profiling stress their views about profiling cautiously, and they do not claim that it is a perfect tool for law enforcement agencies. Rather, they express the limitations of profiling applications and state profiling is an art rather than a science (Geberth, 1990). On the other hand, for some experts, there are validity and reliability issues that cause the limited applicability of profiling into specific crime groups, such as serial rape, serial murder, and arson. In the next section, profiling will be examined in terms of definition and its goals. Also, some of the definitions of profiling types, such as offender profiling, crime scene profiling, and psychological profiling will be presented. Finally, computerized profiling applications will be evaluated in terms of their effectiveness, validity, and reliability.

Douglas, Ressler, Burgess, and Hartman (1986) define profiling as “a technique for identifying the major personality and behavioral characteristics of an individual based upon an analysis of the crimes he or she has committed (p. 405). Holmes and Holmes (1996) summarize the goals of profiling into three general groups;

1. Social and psychological evaluations of offenders.
2. Psychological assessment of property found in the ownership of suspected offenders.
3. Suggestions and tactics for interrogating suspected offenders once they are detained.

There are different types of profiling applications, such as psychological profiling, crime scene profiling, geographical profiling and offender profiling. For some experts,

there is no significant difference between these concepts since all of these terms have been used interchangeably. However, definitions of these concepts will be presented so as to gain a broad understanding of the issue of profiling.

Psychological Profiling

Geberth (1981) defines psychological profiling as “an educated attempt to provide investigative agencies with specific information as to the type of individual who committed a certain crime” (as cited in Holmes and Holmes, 1996, p. 2). This process tries to determine whether a given individual’s characteristics are consistent with the established individuality characteristics of a certain type of offender (Homant and Kennedy, 1998). Psychological profiling was developed specifically for sexual abuse.

Offender Profiling

In offender profiling, an investigator gathers and evaluates a variety of information from an incident and crime scene in an attempt to construct a portrait of the type of individual who most commonly commits this type of crime. In the offender profiling process, it is imperative that several personal characteristics be considered. According to Jackson and Bekerian (1997), in order to generate the offender profiling, the following information needs to be gathered about the individual offender:

- 1) demographic information such as age, range, degree of occupational skills, marital and socioeconomic status,
- 2) educational level and estimates of intellectual functioning,
- 3) legal and arrest history,
- 4) military background,
- 5) family characteristics,
- 6) habits and social interests,
- 7) evidence in relation to crime scene,
- 8) age and type of vehicle,
- 9) personality characteristics including form of psychopathology, and

10) suggested interview techniques.

However, there are some concerns regarding the outcome of this process. In particular, it may result in debates on the issue of discrimination against certain group of people in terms of gender or age.

Crime Scene Profiling

Crime scene profiling “rests on the assumption that that at least certain offenders have consistent behavioral traits” (Homant and Kennedy, 1998).

Also, crime scene profiling assumes that a description of an offender can be drawn that will discriminate that person from what is known about a group of offenders in general (Homant and Kennedy, 1998). There are different classifications in crime scene profiling, two of which are organized nonsocial and disorganized asocial killers (Holmes and Holmes, 1996). Differences of crime scene characteristics are shown in Table 1.

Table 1

Comparison of Crime Scenes of Organized Nonsocial and Disorganized Asocial

Lust Killers

Organized Nonsocial Killer	Disorganized Asocial Killer
Planned Offense	Spontaneous event
Targeted stranger	Victim unknown
Personalizes victim	Depersonalized victim
Controlled conversation	Minimal conversation
Controlled crime scene	Chaotic crime scene
Submissive victim	Sudden violence
Restraints used	No restraints
Aggressive acts	Sex after death
Body moved	Body not moved
Weapon taken	Weapon left
Little evidence	Physical evidence

Source: From Profiling Violent Crime: An Investigative Tool (p. 56), by R. M.

Holmes and S. T. Holmes, 1996, Thousand Oaks, CA: Sage Publications, Inc.

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Geographic Profiling

Geographic profiling is an information management approach designed to support serial violent crime investigation, and it focuses on the possible spatial actions of the offender within the circumstances of the locations of and spatial interaction between a

number of crime sites (Rossmo, 1997). It is an investigative technique that utilizes scenes of a connected series of crimes to narrow down the most likely area where an offender lives (Harries, 1999). It is applied in robbery, arson, serial murder, and bombing cases, as well as in individual crimes when there is a significant geographical characteristic in the crime. Geographical profiling process involves the following sequences (Rossmo, 1997, p. 163):

- a) “Occurrence of a crime series.
- b) Employment of traditional investigative techniques
- c) Linkage analysis determining which crimes are connected.
- d) Preparation of a psychological profile.
- e) Construction of a geographical profile.
- f) Development of new investigative strategies.”

Geographical profiling can be used for several investigative strategies, including tip prioritization and suspect, police record systems for address-based searches, patrol saturation and surveillance, and DNA screening prioritization (Harries, 1999).

Geographical profiling does not solve the crime, but it allows police agencies to manage a tremendous amount of information and analyze this information in a crime investigation.

Violent Criminal Apprehension Program (VICAP)

Violent crime, which includes homicide, assault, serial violent crime, robbery, rape, and accounted for 5% of arrest for all offenses during 1992 (Peterson, 1998). Each type of offense involves its own unique investigation techniques and analysis

applications. Profiling applications vary from computer database analysis to interviewing suspects and victims. Some analysis applications are being used by law enforcement agencies on an individual basis. For instance, in New York, the Division of Criminal Justice Services and the Division of State Police have established the Homicide Assessment and Lead Tracking System (HALT), which focused on gathering data on non-domestic homicides in the state of New York and distributing the data within the state (Holmes and Holmes, 1996). The hallmark of computerized database profiling applications is named the Violent Criminal Apprehension Program (VICAP). VICAP has been designed by the FBI and used by several law enforcement agencies.

The FBI established the National Center for the Analysis of Violent Crime (NCAVC) in Quantico, Virginia. Currently, the FBI's Training Division manages NCAVC, whose core mission is to strengthen investigation, operational support, and training activities for the purposes of providing proficiency to any valid law enforcement agency who is confronted with unusual, strange, and/or predominantly sadistic or repetitive violent crimes (National Center for the Analysis of Violent Crime, 1998). NCAVC is a leader in the area of crime scene analysis and automated profiling applications in homicide and sexual crimes, and it categorizes murders in terms of intent, motive, and type and number of victims (Peterson, 1998).

VICAP is the computerized analysis program of NCAVC, and it began operation in May 1985. VICAP was established in order to deal with the following types of cases: a) unsolved or solved homicides, specifically those involving an abduction or which are sexually-oriented, b) circumstances that involve missing people, and c) incidents that

involve unidentified bodies when the manner of death is suspected or known to be a homicide (Howlett, Hanfland, and Ressler, 1986). VICAP is now a nationwide data information center that gathers, arranges, analyzes, and classifies information on serial homicide in order to determine the relationship between incident, modus operandi, or victim (Becker, 2000).

Analysis of Profiling and VICAP

The validity of profiling is a critical issue in profiling. According to Homant and Kennedy (1998), the validity of profiling changes depending on the group who use or evaluate it. They claim that for enforcement agencies since there are no other alternatives, profiling is a valid process. From the forensic science point of view, profiling is an important process at trial if the profiler successfully articulates the source for a variety of inferences. However, Homant and Kennedy also assert that until now there has been no information regarding evaluations of the validity of profiling. According to Holmes and Holmes (1996), there is little empirical evidence available to support the validity of the results generated by VICAP (1996). The major problem “is the lack of objective criterion against which to test a sample of actual profiles” (Homant and Kennedy, 1998). Furthermore they (1998) concluded that there are two limitations that negatively affect the validity of profiling: the lack of access to representative sample of real profiles and the reality that most of the profiles are established based on the solved cases. These limitations result in limited validity of profiling studies.

In 1994, Bartol (1996) conducted a survey of 152 police psychologists, and found that 70% of them did not feel comfortable with profiling and critically questioned its

usefulness and validity. Another issue with profiling is that the level of education and experience of an individual profiler affects the profiling process. Although the FBI has tried to establish some standards, the complexity of the crime, and the motivation and personal traits of offenders make it difficult to create these standards. Moreover, according to Keppel (1995), “many FBI profiles are generalizations about what is known of serial killers and are not helpful for narrowing suspect lists” (as cited in Homan and Kennedy, 1998, p. 329). Nevertheless, VICAP can provide a central automated computerized system for law enforcement agencies, which may increase the speed of the investigations. The faster that police reach data about a possible suspect or suspects the quicker they can find and apprehend them. Consequently, the individual crime will be solved.

Conclusion and Analysis of Criminal Investigation Applications

Problem-oriented policing places a critical emphasis on the use of crime analysis. Specifically, in criminal investigation, the concept of analysis allows police agencies to analyze the information with a crime to in order to determine the suspect and identify the real motives of the incident.

There are several applications in criminal investigation analysis. It is imperative to claim that since there is a relationship between different applications, every application has its critical importance. For example, in the crime scene reconstruction, information is gathered from crime scene examination, bloodstain pattern analysis, or from an interview with the victim, witness and suspect. Also, the profiling process gathers all the information as a result of the crime scene reconstruction. If the information gathered from

the crime scene reconstruction is problematic then the profiling process will be problematic.

It is a reality that police sometimes perform more reactive policing tasks than proactive policing. Specifically, in some instances, such as mass murder or serial rape, police have to consider reactive applications of investigative analysis in order to identify and apprehend the criminals. From the standpoint of general policing, criminal investigation has an assistance function to other divisions in the whole structure.

In fact, there is a critical interaction between proactive policing strategies and criminal investigation. Criminal investigation units are responsible for investigating crimes, and based on the information from the crime scene, offenders, victims, and witnesses, criminal investigation units try to determine the suspect and if possible they apprehend him or her. At this point, from the micro perspective, the reliability of information from third party sources, including victims and witnesses relies on the relationships between the individual investigator and those people. From the macro perspective, on the other hand, the relationships between the citizens and the police agency would be the ultimate determination whether citizens will provide the necessary information for police or not.

Problem-oriented policing can affect police agencies, specifically, criminal investigation units with an emphasis on the use of crime analysis and criminal investigative analysis. On the other hand, problem-oriented strategies can enhance the relationship between the police agency and citizens; consequently, people will be more willing to cooperate with police by providing necessary information that police need. As

a result, while problem-oriented policing strategies provide a convenient environment for criminal investigation units, criminal investigation activities can also provide essential information regarding a problem.

Although the ultimate goal of the police should be proactive policing, most of the time police should practice reactive policing applications, such as investigating crimes and finding criminals. Therefore, while police are developing proactive strategies, they should take into account some of the analysis applications that are available, in order to increase the response rate in terms of arresting criminals.

CHAPTER 4

PROBLEM SOLVING POLICING: AN ANALYSIS OF THE IMPLEMENTATION OF THE SARA MODEL

Introduction

Problem-solving policing is the name of the process used in problem-oriented policing. Problem-solving emphasizes decentralization with the support of cross -rather than vertical- communications across a department and with outside governmental agencies and the community (Eck and Spelman, 1987). However, there are differing perceptions with regard to community policing and problem-solving policing. While some authors distinguish between these two concepts, to some, they are overlapping and have their own distinctive drive (Moore, 1992). The most important similarity in these two concepts is that both emphasize giving more discretion to individual officers to analyze the underlying causes of a group of incidents and to develop strategies to overcome these problems. Problem-solving policing and community policing are both proposed as a means to prevent crime, reduce fear of crime, and protect and improve the quality of life in society (Trojanowicz and Bucqueroux, 1990).

Problem-solving policing is not new a concept for police organizations. In 1973, the San Diego Police Department implemented a problem-solving approach to identify problems and developed Citizen Action Requests to gather information from other city agencies (Boydston & Sherry, 1975, as cited in Kessler, 1999). However, the routine application of problem solving with the support of technology and administration is new

concept in policing (Peak and Glensor, 1999). A number of police departments have implemented a problem-solving approach. For instance, the Houston Police Department (HPD) implemented Innovative Neighborhood Oriented Policing (INOP), which lasted from 1988 to 1990. Officers who were assigned at the Westside Command Station in Houston, Texas, used a problem-solving process and developed a Patrol Management Plan (PMP) to guide this process allowing officers to document their plan, revisions of the plan, and its results (Oettmeier & Bieck, 1988, as cited in Kessler, 1999).

Although there is significant variation and a wide ranges of implementation, as a process, problem solving has been gauged in a number of ways. Proponents consider community policing and problem-solving policing as alternatives to “professional law enforcement” (Kelling, 1988). On the other hand, to some critics, “the ideas are nothing but empty slogans,” and, are “lacking in operational utility” (Klockarks, 1988, as cited in Moore, 1992). Despite these different perspectives, a number of police departments have implemented a problem-solving policing approach. In the next chapter, the concept of problem-solving policing will be examined through the application of the SARA model in the NNPD.

Defining Problem-Solving Policing

Essentially, problem-solving policing is an approach that aims to understand and analyze the underlying problems that cause incidents that police deal with (Goldstein, 1979). The main purpose of problem-solving policing is to analyze the problem and develop effective responses to resolve it. Problem-solving applications are not limited to traditional policing responses, such as investigation and patrol practices; it also

emphasizes non-traditional policing responses by motivating the public or other agencies to implement crime prevention strategies, such as crime prevention through environmental design and crime watch groups.

According to the National Institute of Justice, there are five principles in a problem-solving system:

- a) Police officers from all units in every level of rank should use the problem-solving system as part of routine activity.
- b) The system must support the use of different sources of information, including but not limited to police data.
- c) The system should support broad ranges of solutions, including but not limited to criminal justice procedures.
- d) The system should necessitate no extra resources and no special division.
- e) Any large police organization could apply it (Eck and Spelman, 1987).

Designing Problem-Oriented Policing

NNPD initiated problem-oriented policing in Newport News, Virginia in 1985, utilizing a problem-solving system. The problem-solving model that NNPD implemented under the SARA model involves scanning, analysis, response, and assessment. NNPD implemented this project under a grant from the National Institute of Justice, and it was evaluated by the Police Executive Research Forum. This chapter will include review and discussion of this report.

NNPD was chosen for this study for several reasons. First, with 280 personnel at the time the project began, it was a mid-sized department; it is easier to implement new

projects in such departments. Second, the city's population was only 155 thousand, which meant that it might have had some of the same amounts and types of crime that larger cities have. Further, Newport News is in Virginia and is close to Washington D.C.

In this study two questions were addressed. The first one was: "Can police agencies get their members to routinely identify, analyze, and solve problems without adding personnel or forming special units?" This question was intended to explain the function of the agency in terms of its capability to implement problem-oriented policing with its existing personnel and resources. The second question was: "Are these problem-solving efforts effective?" (Eck and Spelman, 1987, p.9).

The measures of effectiveness of the SARA model fell into four categories:

- a) Totally eliminating the incident can solve the problem.
- b) Decreasing the number of occasions can solve a problem.
- c) Decreasing the significance of the incidents can solve a problem.
- d) Proposing new methods to handle the incidents better can solve a problem

(Eck and Spelman, 1987).

These measures of effectiveness had different levels of satisfaction. The first consideration in evaluating problem-solving efforts is whether solution of a problem makes sense. The second is whether or not the solution worked.

Defining Problems

The first requisite of problem-solving policing is to define the problem.

According to Eck and Spelman, the concept of a problem has a number of characteristics. First, a "problem must involve a group of incidents" (1987, p.41). In other words,

problem-solving policing does not deal with individual incidents, and therefore police agencies should identify the underlying causes of incidents. Second, the incidents that create a problem must be similar in some way. Third, “the problem must be a direct concern to the public.” (1987, p. 42). Finally, the problem must be within the scope of the responsibility of the police agency. After defining a problem, the final step is to apply the process of the SARA model to the problem.

The Process of Developing SARA Model in the NNPD

The Task Force in this study was composed of eleven people, including investigation, crime scene search, patrol, crime prevention, and other rank officers. In order to develop a problem-solving process, they collected data from different police agencies and conducted a survey to gather information about previous problem-solving efforts. In addition, they examined several programs that had already been implemented by other departments. The programs that they examined included crime analysis, crime prevention, fear reduction initiatives, and neighborhood safety programs (Eck and Spelman, 1987). Experts on problem-solving policing were consulted by the Task Force to help develop the problem-solving process. As an example, Herman Goldstein gave two training sessions on the basics of problem solving.

A number of training activities were used by NNPD. Middle managers attended a three-day training sessions, all officers ranked sergeants and above were required to attend the course. Training had three goals. The first one was to explain to supervisors how to manage their subordinate's time so that they could concentrate on addressing problem-solving efforts without reducing the police's ability to handle calls. The second

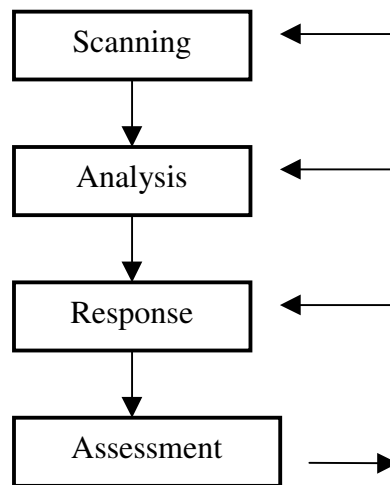
goal was to demonstrate how problems should be analyzed. The third goal was to make sure that all managers were aware of what was expected of themselves and their officers. Police operations, directed patrol, time management, crime analysis, the problem-solving process, and its guidelines were taught in these training sessions (Eck and Spelman, 1987). In addition to these training activities, middle managers and other officers in the NNPD took part in more detailed training sessions.

SARA Model

As illustrated in Figure 1, the Task Force developed a four-step problem solving process named SARA: Scanning, Analysis, Response, and Assessment. SARA model utilizes a crime analysis model (Eck and Spelman, 1987) (See Figure 2).

Figure 2

The Process of SARA Model



Source: From Problem-Solving: Problem-Oriented Policing in Newport News (p. 55), by J. E. Eck and W. Spelman, 1987, Washington, D.C.:U.S. Department of

Justice, National Institute of Justice. Copyright 1987 by the Police Executive Research Forum. Reprinted with permission.

Scanning

Scanning, as the first step, requires the identification of problems by gathering information from different sources. This information should include not only police data (such as crime statistics and offender records), but also public and private surveys. The community plays a key role in the information gathering process, and cooperation with multiple agencies and institutions ensures that police departments address neighborhood problems. Scanning also requires that police officers define identified problems in useful terms.

Analysis

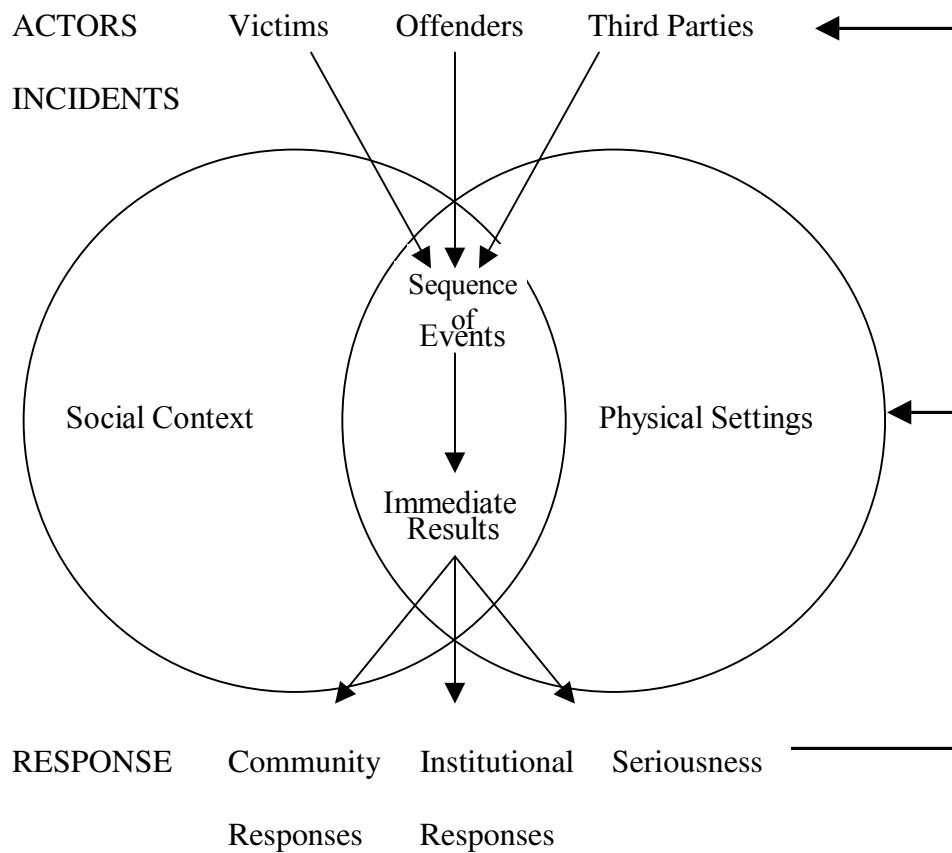
The second step of the problem-solving process is to determine the nature and extent of the problem. The basic purpose of this step is to evaluate problems in order to identify their causes. A complete analysis involves determining the importance of a problem, and identifying offenders, physical and social surroundings, and victims (Peak and Glensor, 1998). After exploring problems and a number of their aspects, police officers should be able to define a number of optional solutions to these problems.

There are two objectives to be accomplished in this stage. First, a comprehensive understanding of a problem must be developed. Second, a set of responses must be developed that are related to the information gathered. In 1986, NNPD established a Problem Analysis Advisory Committee and developed a guideline titled Analysis Model. The guideline has three categories of problem characteristics: actors (victims, offenders,

and third parties); incidents (physical setting, social context, sequence of events, and immediate results of the events); and responses (by the community and its institutions) (Eck and Spelman, 1987) (See Figure 3).

Figure 3

Problem-Analysis Guideline



Source: From Problem-Solving: Problem-Oriented Policing in Newport News (p. 55), by J. E. Eck and W. Spelman, 1987, Washington, D.C.:U.S. Department of Justice, National Institute of Justice. Copyright 1987 by the Police Executive Research Forum. Reprinted with permission.

Response

In the response step, police officers concentrate on developing and implementing problem solutions. It is vital that responses are based on the findings that result from the two previous steps. While solutions may include reactive responses, police departments should collaborate with the community in this step as well as in previous steps. Possible solutions to problems are often classified into 5 groups: totally removing the problem, reducing the events emanating from a problem, eliminating the importance of resulting harm, coping with a problem in a better way, and producing solutions by police officers to solve the problem (Peak and Glensor, 1998). During the response process, police officers have two objectives: choose the solution and implement it. The critical point in this stage is that solutions should involve not only the police agency but also other public organizations; solutions may not just rely on the patrol and investigation response. Therefore, solutions should include broader applications.

Assessment

The final step involves an evaluation of the solutions in terms of their effectiveness and impact. Assessment is critically important because of its ability to identify further options. Depending on the effectiveness of their solutions, police agencies may need to reevaluate their problem solutions. If the solution is effective, police agencies should determine the level of its effectiveness from the perspective of organizational objectives and public expectations.

The Effectiveness of Problem-Solving

NNPD identified eighteen problems to analyze and develop solutions. In the next section, two of them will be examined, burglaries in the New Briarfield apartment complex and theft from vehicle in the Shipyard Parking Lots. Eck and Spelman (1987) identified similarities in these problems. Each problem was restricted to a small area, and that each problem involved serious crime. Both problems serve as useful examples for how NNPD implemented the four-stage SARA model, and will therefore be analyzed.

Burglaries in the New Briarfield Apartment Complex

The New Briarfield Apartments were located in the southern half of Newport News. The complex was composed of over 400 wooden units arranged in linear groups of 4 to 16 apartments. In 1981, the complex was considered the worst housing unit in Newport News with a burglary rate of almost twenty percent. By 1984, the rate of calls for service from the New Briarfield Apartments was more than any other apartment complex in Newport News. Due to these factors, NNPD selected this complex to implement the new problem-solving approach. The four-stage SARA model was applied as follows:

Application of the SARA Model to the New Briarfield Apartment Complex

Initially, information about the area was gathered from a variety of sources, such as crime data, incident reports, victimization surveys, and interviews with other officials. Analysis of the crime data showed that in 1984 there were 74 burglaries in the area. In addition to burglary, drug addicts, alcoholics, and school-aged youth made frequent use of the complex's vacant houses. The Task Force also conducted a survey in order to

determine resident demographics and perceptions of problems. According to the survey, most residents were low-income families, and the unemployment rate was high. The survey indicated that residents were most concerned about burglary, followed by the condition of the complex. The survey helped the Task Force in two ways: they gained deeper understanding of resident conditions, and they were able to understand that residents felt that there were other very serious problems, not just burglary.

Several actions were proposed to resolve the problems that had been identified. Some of the solutions were immediate, short-term solutions, aimed to quickly improve the situation, while others were long-term solutions designed to eliminate the problem permanently. The critical points in this process were that the solutions were the direct result of the department's analysis, and that other agencies were involved, such as housing, social services, planning, and the fire department. A meeting was held by representatives of each of these departments in order to develop strategies to improve the complex's conditions. It was concluded that the cost of solving infrastructure problems in the complex would be more than the cost the complex itself. It was therefore decided to raze the complex and find alternative homes for the residents. Because of the legal issues involved and the opposition of the US Department of Housing and Urban Development (HUD) to the decision, this solution could not be used. Consequently, NNPD decided to establish a crime prevention unit in the area. Crime Watch groups were organized by police officers. In addition, because of pressure from tenants, the court, and the city, HUD continued to develop the internal and external conditions of the complex. In the end, the maintenance issue became more important than the crime issue.

The evaluation of the effectiveness of this project was made by assessing crime rates. In addition, the results of the Forum staff interviews were considered as data to evaluate the effectiveness. It was found that the burglary rate in the New Briarfield apartment complex decreased nearly 35 percent following the intervention (Eck and Spelman, 1987). However, the burglary rate remained higher in the New Briarfield apartment complex when compare to other apartment complexes. An important result of the problem-solving activities was that cooperation and coordination between residents and patrol officers increased significantly, according to interviews of both residents and patrol officers.

Thefts From Vehicles in the Shipyard Parking Lots

With some 30,000 workers, Newport News Shipbuilding was the largest employer in state of Virginia (Eck and Spelman, 1987). The company was experiencing a number of thefts from vehicles that were parked in shipyard parking lots. In 1983, over 700 thefts from vehicles were reported. NNPD attempted to implement a number of strategies to deal with this problem, including the Navy and NNPD jointly establishing a Special Patrol to Aid Navy (SPAN) to patrol the area. Although SPAN increased police presence in the area, it did not decrease the theft rate. The Task Force selected the area to apply the SARA model to, and Officer Paul Swartz was assigned to handle the analysis.

Application of SARA Model in the Shipyard Parking Lots

After identifying the scope of the problem, the analysis stage involved an examination of police records to determine when and where the thefts were being committed. Information about the offenders was then gathered. The analysis stage

identified a number of short-term responses for NNPD. The long-term response involved contacting the shipyard security, the neighborhood, and other people who were affected by incidents. Crime analysis was used to determine when the thefts were committed, who committed them and, where they were committed in the time period of January 1982 to March 1985.

Swartz concluded that most of the offenses were committed on weekdays at night during the work shift. He also identified seven lots where majority of the crimes were committed. In addition, he examined a number of offense characteristics in order to identify what kinds of goods were stolen, and the methods that the offenders used. He was also able to develop a daily tracking method.

In addition to a time and area analysis, Officer Swartz analyzed the offenders. By combining information from the interview of one offender, with the results of his other analysis, Swartz was able to determine that most of the thefts were for money, rather than for drugs. Swartz prepared a list of offenders that was given as an analysis bulletin to patrol officers. Furthermore the help of the Navy and SPAN was enlisted to increase patrol activities. As a result of these activities theft offenses began to decrease (Eck and Spelman, 1987).

As a part of the long-term solution, police became involved in the city center development plan in order to affect crime prevention through environmental design. Additionally, crime watch groups were organized in the parking area's neighborhood. The main purpose of the crime watch groups was to increase proactive crime prevention applications. Finally, in order to increase the deterrent effect of punishment, Swartz

prepared a legislative amendment, which would consider theft from an auto as burglary, rather than a petty crime.

In assessing the project, it was determined that NNPD's responses to the theft incidents involved traditional tactics, such as plainclothes stakeouts, and patrol activities. The difference was that these activities were managed in a non-traditional way. Statistically, the activities were successful. A thirty-nine month time-series analysis of theft incidents demonstrated that since April 1985, there had been a fifty-five percent reduction in thefts from vehicles in the parking area (Eck and Spelman, 1987).

Conclusion and Analysis of the Applications of SARA Model

Moore, Trojanowicz, and Kelling(1998) provide an interesting and critical analysis of the implementation of the SARA model that the NNPD implemented. They argue that although it was claimed that implementing solely problem-solving strategies solved cases in Newport News, in the reality, the methods that NNPD used were traditional policing methods, such as increasing the level of patrol and arresting criminals. Therefore they argue that problem solving can improve the crime control abilities of professional crime fighting cannot be proven in Newport News. There are also other considerations with respect to the effectiveness of the application of problem-solving policing.

To begin with, the implementation of problem-solving policing is not an easy task for police departments. Those who consider the problem-solving process as a new approach in their police department should take into account the planned change process and fulfill the requirements of an implementation process, including training personnel,

supplying necessary resources, and revising the recruitment process. This process requires patience as well as enough monetary resources to cover the expenses.

To complicate matters, evaluation of the problem solving process is problematic. According to Moore, evidence of the success of the problem-solving policing relies on anecdotes, and this introduces three risks in the evaluation process. Anecdotes may not be exact descriptions of what occurred, nor may they be “significant enough to count for much, even if they are accurate”(1992, p. 351). Furthermore, problems are often not really resolved; instead, they may be displaced to a new place. Moreover, the resolution of one or two small problems can hardly substantiate the operations of an entire department. Finally, the success of one or two operations may be insufficient to show that the police department as a whole can consistently use the problem solving approach across the series of problems that the police confront Moore, 1992).

As so we return to Eck and Spelman’s two questions. The first, “Can police agencies get their members to routinely identify, analyze, and solve problems without adding personnel or forming special units?” was answered” yes” by Eck and Spelman (1987). However, they also criticized the way that problem-solving policing was implemented: Eck and Spelman (1987) claimed that managers rather than officers identified most of the problems. Therefore, they argue it is difficult to state that members of the agency as a whole implemented problem-solving policing as a daily routine. The second question was: “Are these problem-solving efforts effective?” According to the project’s evaluation, the burglary rate in the Briarfield apartment complex and theft from vehicles in the shipyard parking lots both decreased. Eck and Spelman, however, note

that there were indications that the theft rate in the shipyard parking lots actually increased again in July 1986. This evidence shows that short-term responses have short-term effects and that police agencies, therefore, should develop long-term solutions.

Reliability and validity are crucial points of any academic study. While application of the SARA model was perhaps successful in the two NNPD examples, it does not mean that this model will be successful in other environments with different incidents. Finally, there is not enough evidence to support the idea that the problem-solving process was used by an entire police department as a means to deal with problem.

Another problem that exists in the evaluation process involves the premises of problem-solving policing. Problem-solving policing is proposed as means to prevent crime, to reduce fear of crime, and to protect and improve the quality of life in society (Trojanowicz and Bucqueroux, 1990). Unfortunately, fear of crime and quality of life are not objectively measurable concepts. Therefore, traditional measures will be used to evaluate the effectiveness of problem-solving policing. While statistics showed that the application of the SARA model in Newport News was successful in terms of reducing the crime rate, there are some critical points that need be explored. First, the two initiatives demonstrated that problem-solving policing involves not only police action, but also non-criminal justice applications. Second, problem-solving policing requires long-term solutions rather than short-term solutions. In the Briarfield Apartment complex and the shipyard parking lots, it was realized that unless long-term solutions are proposed, application of the SARA model has limited and short-term effects. Therefore, police agencies should develop relationships with the public and with other departments that are

related to a problem's solution. Finally, while the most important claim is that problem-solving policing represents an important alteration in the general strategy of policing, there is insufficient existing evidence to evaluate this claim (Moore, 1992). Further studies must be conducted in order to determine the actual results of problem solving activities.

CHAPTER 5

CONCLUSION

Summary Discussion

As a problem-oriented policing approach, problem-solving policing aims to identify the underlying causes of incidents and to create solutions to solve the problems. In the process of the SARA model, officers identify and analyze the scope of the problem, identify appropriate responses and effectively analyze the results to determine whether the response eliminates the problem. The SARA model claims that every individual officer can perform the requirements of the process of scanning, analysis, response, and assessment. The SARA model requires officers who have the ability to facilitate coordination and cooperation with citizens, outside agencies or institution. In conflict with these premises, in the NNPD, managers were more involved in the analysis and identification of solutions than individual officers were. Problem-solving efforts in Newport News were effective in reducing crime rate. After implementation of problem-solving policing, the crime rate in Shipyard parking lots increased again. This finding proves that short-term solutions have short-term effects, and to be effective police agencies should create long-term solutions. To do so, police agencies should coordinate with other departmental agencies, local institutions, and business groups.

In problem-oriented policing, analysis techniques have unique importance in terms of the analysis of the scope of the problem and the identification of responses. Analysis applications, particularly, crime analysis techniques, are useful and effective

tools for police agencies in the process of identifying crime patterns, locations, demographic characteristics of a neighborhood, offenders and victims. The analysis provides invaluable data about the crime and underlying causes of the problem, in addition to giving clues as to the appropriate response to the problem. The use of analysis techniques is a crucial part of proactive problem solving policing. In addition to proactive policing, reactive policing activities represent another part of the policing response. No matter what level of response constitutes reactive policing, police agencies should use analysis applications to increase the effectiveness of their responses to incidents. For instance, computer-aided analysis applications are useful and effective systems that allow police agencies to identify possible suspects and apprehend them quickly. Some analysis applications, however, such as profiling are problematic. There are questionable issues revolving around profiling applications. In particular, discrimination is critical contention point in profiling. Since the reliability of profiling cannot be proven, the process of profiling has been considered an art rather than science.

Recommendations

Despite these problems and limitations, problem-oriented policing, offers a genuine approach to solving the crime problem with alternative strategies and programs. Those who attempt to implement problem-oriented policing should be aware of the fact that the implementation process requires tremendous effort. On the other hand, they should also consider the benefits that problem-oriented policing offers; in fact, not only does society and other institutions, but also police agencies, will benefit from the implementation of problem-oriented policing. It is clear that when the crime rate is low or

there is an absence of crime, society as a whole will be safe. From the policing standpoint, the implementation process will provide additional funds and personnel. Additionally, since community policing and problem-oriented policing require higher education standards and the ability to facilitate coordination with society and other institutions, training and recruitment issues will become vital issues for any agency. Consequently, in order to meet problem-oriented policing's new requirements; police agencies should change by updating their policies regarding training and recruitment. As a result, while society is served with quality service, police agencies will have more quality personnel in terms of their level of education and their functional capability. Citizens' satisfaction with police service varies for every individual. Studies show that community policing and problem-oriented policing approach increase citizen satisfaction with police even though the crime rate remains sometimes at the same level. This indicates that community policing might be an effective strategy for police agencies to use to increase police-community relationships.

To be successful in implementing community policing and problem-oriented policing, police agencies should attempt to successfully implement the change process. Police agencies should analyze the concept of community policing and problem-oriented policing, and decide to implement real change in their organizational structure and philosophy of policing at every level of the organization. Not one special unit, but instead an entire police agency should be involved in these efforts.

In order to be successful in their change efforts, one of the most essential points is that police administrators should be aware of the characteristics of change process.

Otherwise, failure will be the highly likely end to such an attempt. Police administrators should always keep in mind that, despite their willingness or desire to get an immediate result, change happens slowly. Patience is a key term in the change process. Additionally, there are several other obstacles to this process. Most importantly, police administrators should identify the problems of their organization, and they should take into consideration every alternative solution. Administrators should think from a perspective outside the organizational climate, which will help them to see the problems from a different and beneficial perspective. Even though administrators in police agencies are often aware of these issues, other problems might exist. Implementation of community policing requires sufficient resources to meet the expenses of the additional efforts required by the change process. This situation requires police administrators to foster good relationships with related governmental agencies.

The role of administrators in the change process is of vital importance. Police agencies should attempt to develop strategies to improve the effectiveness of the problem-solving approach. Police officers should be encouraged to use more proactive strategies in the process of solving crimes. It is recommended that police officers should be motivated to use analysis methods, and rather than solving individual incidents they should be directed to create solutions to develop strategies to solve the underlying causes of problems.

Mid-level managers, sergeants, lieutenants, and captains are key personnel to perform the change process in police agencies; therefore, administrators should focus on the development of these personnel in terms of their leadership ability and ability to use

the analytical approach in policing. The executives of police agencies should be abiding, and have a vigorous commitment to the values of a crime prevention-focused police organization. In addition, they must advocate specific values and programs by motivating and even influencing personnel in the organization into approving those values.

Furthermore, once a new program is established, conscious efforts must be made to protect the integrity of the program. Innovation is not likely without community support. Leaders should develop methods to gain public support in their effort to implement the new program and to be successful that implementation. Finally, administrative leaders in police agencies should develop alternative strategies to utilize if the outcome is different from that which was expected. In order to be successful, one should always generate alternative solutions to a specific problem, which can obviously be supplied from the continuing evaluation of the change process. Being aware of a problem is always the first step in solving it and to moving to the next stage.

Proactive policing should be the ultimate strategy that police agencies implement. However, reactive policing applications are functions that police cannot get rid of. A critical point is not to underestimate the importance of reactive policing functions. On the contrary, police should develop strategies that combine the functional reactive policing with analysis techniques to increase the effectiveness of reactive policing functions and to help proactive policing strategies by providing data about incidents.

Further studies need to be done in order to determine the effectiveness of analysis applications. Analysis techniques are powerful and useful applications; however, law enforcement agencies should develop standard guidelines for those who work in the area

of profiling. In addition, establishing nationwide coordination and collaboration among law enforcement agencies should enhance the computerized database programs already in use, which are the ultimate data sources for analysis.

Violent crime offenses may have a tremendous impact on the society in terms of creating damage in the sense of security of neighborhoods. Crimes, such as homicide, serial rape, or serial murder have particularly strong impact. If police identify and apprehend the offenders of these crimes quickly, society as a whole will feel themselves more secure.

The swiftness of police response may have two important impacts. On the one hand, citizens will be comfortable with the police and trust them. Consequently, they will be willing to coordinate with the police agency. On the other hand, it may have a deterrent effect in the eyes of potential offenders.

Therefore, law enforcement agencies should develop and coordinate such analysis in order to increase the effectiveness and efficiency of analysis techniques. In addition, law enforcement agencies should enlarge the scope of criminal investigation analysis. For instance, the use of VICAP should be enlarged in terms of eligible users and the area that it provides service to. In addition to VICAP, IAFIS, and CODIS, analysis applications in other areas of criminal investigation should be developed and nationwide systems should be established. In addition to allowing standardization among a number of law enforcement agencies, nationwide systems may increase the effectiveness and usefulness of these systems. Furthermore, they allow law enforcement agencies to track more offenders than their local systems did since offenders have the ability to transition from

one area to another. Investigative analysis applications might be useful tools for police agencies if they are used appropriately. This new area of policing needs further research in order to evaluate the effectiveness of the applications. In addition, police agencies and other law enforcement agencies should establish standard procedures and guidelines in order to collaborate effectively and efficiently. Established guidelines and procedures might increase the validity of the applications of criminal investigation analysis. Finally, studies should focus on the effectiveness of analysis applications in order to analyze and revise them if necessary.

For not only American policing, but also for the Turkish National Police (TNP), community policing and problem-oriented policing provide opportunities to rearrange the structure of the organization and implement more flexible, information-based, and proactive policing. When considered as an alternative policing approach, community policing and problem-oriented policing could be powerful strategies for the TNP in their attempts to solve problems in society as well as problems between the police and society.

The TNP has been highly centralized because of the general centralized administration system in Turkey. At the governmental level, the police are under the authority of the Interior Minister. In Turkey, all of the police forces are under the supervision of the General Directorate of the TNP. Everything regarding policing is under the responsibility of the General Directorate of TNP. Under this centralized organization, there are 3 administrative subdivisions: the principals, assistant and advisory departments. First, the principal departments are responsible for the major policing issues, such as public order and crime deterrence. For instance, anti-terrorism,

the security department, and traffic departments are principals departments. Second, assistant departments that involve personnel affairs, training, and health departments have tasks to support the principals department for efficient policing service. Third, advisory departments are directly under the control of General Director of Turkish police, and they advise or give information about certain issues. The Police Inspection Board and Legal Advice are two of the advisor departments. Also, there are police units in the cities. Districts and small towns are sub-units of cities. Local police stations are the smallest national police units (Aydin, 1997).

Particular tasks, such as criminal investigation, traffic control, and combating terrorism are assigned to special units in the large police organizations. In the Turkish police, specialization is a common reality because of the social and economic situation of the country. In order to deal with certain crimes, such as terrorism and public disturbance new and special units are established. For instance, in order to combat terrorism, the Special Operation Team (Ozel Harekat Timi) was established. Also, the Rapid Action Team was established to respond to the public order. Special units are essential to deal with these incidents. The Special Operation Team is successful in combating terrorist groups.

On the other hand, the TNP also has a number of problems in combating crime, such as terrorism, organized crime, robbery, and homicide. The homicide rate is not as high as in the U.S.; however, the TNP has problems regarding the police misconduct in the process of gathering evidence in some incidents. Although these kinds of problems are on an individual basis, it may result in negative public perception about the police. At

this point, community policing can be a useful strategy to enhance the public support in combating crime. Also, by implementing community policing philosophy and organizational structure, the TNP can develop internal communication and relationships between the personnel and different units. From the criminal investigation standpoint, public support can provide invaluable information regarding any criminal activity and criminals. If the public feel themselves comfortable with the TNP, they will be more willing to provide information. Otherwise, they may not give the information if there is a weak relationship between the public and the TNP.

Problem-oriented policing and, specifically, the use of analysis applications in criminal investigation will also be powerful tools for the TNP. Since Turkey has had a terrorism problem for several years, criminal investigation analysis techniques can enhance the effectiveness and efficiency of the TNP in combating terrorism. For instance, a computerized software program, including geographical profiling and specifically VICAP can be used in order to analyze the data regarding one terrorist group and its patterns of terrorist activities in terms of targets, the way they facilitate terrorist actions, their ideologies, and fiscal and human resources. This information can help the TNP to analyze action patterns of one specific terrorist group and make predictions about the future activities. Not only for terrorism but also for organized crime, geographical profiling and VICAP can be effective tools in order to identify the possible organized criminal groups. The analysis process can provide invaluable information regarding the activities and the areas of these activities of the organized criminal groups.

Crime reconstruction and other profiling applications can also allow the TNP to reach conclusion about the possible suspect or suspects in any crime. It is essential to consider the reality that these applications are not the ultimate tools in the process of apprehending criminals. However, these applications can be powerful assistant devices for the TNP.

Criminal investigation analysis can help the TNP not only in the apprehension of criminals, but also it can eliminate the accusation of the TNP about possible police misconduct in the interrogation of the suspect. By using the criminal investigation analysis, police can reach a conclusion from the evidence gathered from the crime scene, the victims and the witnesses rather than suspects of the crime.

The phenomenon of crime cannot be entirely grasped without a proactive, information-based problem-solving policing perspective. For that reason, the TNP should integrate the philosophy of problem-oriented policing and allow it to permeate the entire organization through quality management

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