An Assessment of Law Enforcement Officers' Attitudes toward
Compstat Model of Police Management

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Public Administration

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University of Baltimore
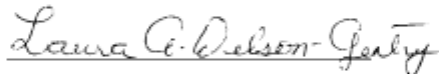Baltimore, Maryland

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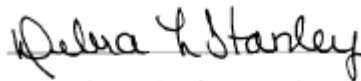
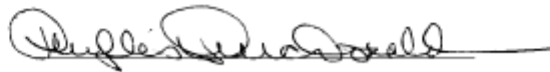Doctor of Public Administration

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ABSTRACT

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Over the last three decades, many innovations have been undertaken in American

policing to improve organizational performance and accountability structures, and effectively

and efficiently fulfill police missions and meet the needs of communities they serve. Compstat,

an organizational innovation, represents a high point in the evolution of policing. Compstat is not

only a crime control model but also a performance management system that focuses on changing

organizational structure and culture. Like other policies or innovations, law enforcement

agencies generally adopt a top-down approach to implementing Compstat. Nevertheless, as noted

by many scholars in the field of public administration and policing, agencies should gain the

support of organization members to effectively implement policies and organizational

innovations. However, research is limited on the attitudes of law enforcement officers toward

Compstat and the factors that affect their attitudes.

Therefore, this study aimed to understand law enforcement officers' attitudes toward

Compstat and to explore the factors affecting their attitudes. This study focused on discussions of

the role of human factors in the implementation phase and attempted to examine the influence of

police organizational culture on officers' attitudes toward Compstat. This research was

conducted in three law enforcement agencies in the United States. The study used a mixed-

methods approach, drawing on theories from organizational change and organizational culture.

Quantitative data was collected through a questionnaire administered to 702 law enforcement officers and achieved an 80% response rate. Qualitative data was collected through interviews with 17 officers and managers in various ranks.

After principal components analysis and internal consistency reliability analysis were conducted, frequency distributions of variables were presented. The results indicated that approximately half of the participants had negative attitudes toward Compstat; only one fifth of the participants support Compstat; and about one third of the participants had neither positive nor negative attitudes toward Compstat. The results of the regression analysis indicated that supervisory attitude, receptivity to change, agency readiness, perceived effectiveness, work experience, and departments significantly predict law enforcement officers' attitudes toward Compstat. The findings of the qualitative data showed that perceptions of officers toward Compstat varied significantly by person and department. The results also indicated that communication, flow of information, information technology, and pressure influenced officers' attitudes.

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CHAPTER 1

INTRODUCTION

For the last century, scholars and professionals have developed various initiatives to improve organizational performance. Reinventing government, a recent public sector reform movement, has its roots in the private sector. During the 1980s, private sector organizations successfully implemented new strategies and accomplished their goals. The successful implementation of reinventing strategies in the private sector led to organizational change in the public sector (Osborne and Gaebler 1992). During the 1990s, performance management movements were first introduced at the federal level and then spread to state and local public agencies (O'Connell and Straub 2007). The Government Performance and Results Act (GPRA), signed in 1993, initiated an era of performance-based management reforms which required agencies to develop strategic plans, annual performance plans, and performance reports for the previous fiscal year (Heinrich 2002). In addition to public policies and regulations, public organizations were expected to improve their organizational performance because of fiscal pressures, demanding customers, changing workforce, perceptions of waste and inefficiency, and new technologies (Popovich 1998).

As stated in the mandate of the Government Performance and Results Act (GPRA), the goal of performance measurement is to improve the confidence of citizens, and this goal is accomplished by holding agencies accountable for achieving program results (de Lancer Julnes and Holzer 2001). Hence, performance measurement has become more important than ever in public organizations. However, the success of public policies and programs also depends on an agencies commitment, the usage of performance measures, and the philosophy of constant improvement (de Lancer Julnes 2009). For reasons that will be explained in depth in the later

chapters of this dissertation, performance-based management (PBM) needs to be taken into consideration because PBM is strongly related to performance measurement and strategic planning (de Lancer Julnes 2009). Performance-based management is a concept that goes beyond performance measurement because it covers performance monitoring, performance measurement, strategic planning and total quality management (O'Connell and Straub 2007).

In the United States, MFR movements have not been implemented well because implementers have not followed the principles of their reforms (Moynihan 2008). Besides, organizations have implemented managing for results (MFR) strategies based on rational-technical perspective. Rational-technical approaches to organizational change take for granted that organization members are rational and technical in the workplace; therefore, emotional and unconscious aspects of employees are often ignored. Hence, these reforms might unintentionally raise the resistance of organization members to change (Anderson and White 2003).

As described by O'Connell and Straub (2007), this understanding was adopted by the New York City Police Department (NYPD) to develop a performance-based management system, known as Compstat. Nevertheless, Compstat is not a computer system; it is a police management system that concentrates on both measuring and managing outcomes (Smith and Bratton 2001).

In order to implement Compstat, police organizations needed to undertake some organizational changes including planning, empowering, reallocation of resources, and training of officers. According to Lurigio and Skogan (1994), it is important the organization members understand and accept the change initiative for a successful implementation. Therefore, the reasons behind the resistance to organizational change needs to be examined. As will be

discussed in this study, the literature suggests that organizational cultural factors can have an impact on the perceptions and attitudes of officers to planned change policies (Cochran et al. 2002). Therefore, the implementation process is influenced by cultural factors which in turn, impacted the success of the Compstat implementation process (Behn 2005). For that reason, employee attitudes towards Compstat and the influence of police culture on officers' views of Compstat should be evaluated by empirical research.

This study attempted to contribute to this knowledge base by examining employee attitudes toward Compstat and the influence of police cultural factors on attitudes toward the implementation of Compstat. The important questions for managers and researchers explored were "what are officers' and managers' attitudes toward Compstat?", and "what are the effects of demographic characteristics, police culture, and organizational/structural features on officers' attitudes toward Compstat?"

Statement of the Problem

Over the past three decades, police departments have implemented various strategies to reduce crime and improve the quality of life of their citizens. A number of innovative policing strategies have been sought by scholars and agencies including community policing, problem oriented policing, broken windows policing, Compstat, and hot-spot policing approaches (Weisburd and Braga 2006). In contrast to other police innovations, Compstat, which focuses on the police organization rather than police strategies, was adopted very quickly across the United States (Weisburd and Braga 2006; Willis et al. 2007). In response to rising crime rates and the failures of traditional policing approaches (Weisburd and Braga 2006), in 1994, the NYPD developed a police innovation, a crime control model known as Compstat (McDonald 2002).

Since then, their success in crime reduction has been publicized across the country (Willis et al. 2007). Walsh and Vito (2004, 57) define Compstat as a "goal-oriented strategic management process that uses information technology, operational strategy and managerial accountability to guide police operations." It drives operational decisions because operational managers are held accountable for controlling crime in their jurisdictions.

As a police innovation, Compstat has been disseminated rapidly to police departments across the nation since 1990. Approximately 60% of police departments with 500 or more sworn officers, 30% of departments with more than 100 sworn officers, and about 10% of small departments with 100 or less sworn officers in the U.S. had implemented Compstat by the year 2000 (Weisburd et al. 2008). Weisburd and colleagues (2008) reported that more police departments were planning to implement Compstat-like programs in the future. Although Compstat was not encouraged directly by governments (Weisburd and Braga 2006), the federal government, encouraged by former Vice President Al Gore, provided a significant amount of funding to law enforcement agencies for technological improvements and recruitment of civilian personnel during the mid-1990s (Boba 2009). Some of the grants were used to implement Geographic Information Systems (GIS) technology, which is an integral part of Compstat (Boba 2009). It is clear that government support for innovative strategies and technological improvements played an important role in the diffusion of Compstat-like approaches.

Proponents of Compstat argue that there seems to have been a sharp decline in crime rates in New York City since 1994 followed by the introduction of Compstat. According to Bratton and Knobler (1998), homicide rates declined 31 percent, robberies were down 21 percent, and overall crime rates were down about 18 percent in two years. When looking at the New York City crime rates, Henry (2005) points out that murder had declined 65 percent by the

year 2000 when baseline measures were made in 1993, and major crimes declined 57 percent. Proponents of Compstat give credit to Compstat in crime reduction; however, some scholars argue that variables such as demographics, the economy, gun control, drug control, and incarceration rates also played a role in crime reduction (Smith and Bratton 2001).

Compstat is defined as a performance measurement system by Moore and Braga (2003), and a performance-based management system by O'Connell and Straub (2007). Compstat, like other performance for results (PFR) movements, was adapted to improve the organization's goals; however, the implementation process was influenced by cultural factors. For that reason, more research about the effects of organizational culture on officers' receptivity to the implementation of Compstat is essential for advancing policing related studies.

Anderson and White (2003) argued that because of political, economic, sociocultural, and technological changes, organizations may face pressure to change in the way they do business. Therefore, they implement rational-technical reforms such as total quality management (TQM), strategic planning, performance management, bench marking, and business process reengineering (BPR) concepts. Through these reforms, organizations can improve their organizational performance by measuring outcomes, outputs, goals, strategies, resources, tasks and work processes. Anderson and White (2003) further argue that organizations are expected to become more effective and efficient by using these reforms, but organizations do not always pay attention to the psychology of employees. In the same way, police departments are consistently under pressure as a result of politics, media, and citizens and the need to manage and produce better results. Hence, police departments attempt to develop or adopt innovations and performance management systems that can help them to be more productive.

To date, the history of Compstat (Silverman 1999; O'Connell 2002; O'Connell and Straub 2007), the adoption and implementation of Compstat (Weisburd et al. 2003), the effects of Compstat on organizational change (Willis et al. 2004), and the impact of Compstat on crime (Kelling and Sousa 2001; Chilvers and Weatherburn 2004; Mazerolle et al. 2007, 2011; Jang et al. 2010) have been explored. Despite an increased interest in Compstat, very few studies have focused on attitudes of law enforcement officers toward Compstat. Also, the majority of these studies provided descriptive information about attitudinal dimensions (Willis et al. 2003; Vito et al. 2005; Dabney 2010). Therefore, the present study attempts to address these limitations by examining law enforcement officers' attitudes toward Compstat and the factors concerning their acceptance of Compstat in three law enforcement agencies in the United States.

The implementation of Compstat demanded major modifications in the policing approach, and the operational staff were most affected by these changes. Since Compstat represented a significant and purposeful change in policing, as with similar innovations it was likely to be met with officer cynicism and resistance as observed for community policing which was studied by Cochran et al. (2002). Therefore, a policing program's success may depend partly on "winning the hearts and minds of the officers" (Lurigio and Skogan 1994, 316). Employees' understanding and acceptance of the change may be especially critical for successful implementation (Cochran et al. 2002). However, the literature which examines officer attitudes toward Compstat is almost non-existent. This study examined the similarities and differences among officers' attitudes toward Compstat by testing three sets of variables/models (demographic features, police cultural dimensions, and structural/organizational features) which were developed by Cochran et al. (2002). In this research, the researcher used the organizational

culture theory to uncover the influence of organizational culture on officers' views of Compstat in law enforcement agencies.

Significance of the Study

Compstat is defined as "perhaps the single most important organizational/administrative innovation in policing during the latter half of the 20th century" (Kelling and Sousa 2001, 2). Compstat, developed by the NYPD in 1994, was adopted by two thirds of large police departments with 500 or more sworn officers and one third of police departments with 100 or more sworn officers in 2000. Also, 25% of large non-Compstat agencies reported that they were planning to adopt Compstat (Weisburd et al. 2008). Law enforcement agencies invest in cutting-edge crime analysis systems, geographic information systems, infrastructure, and people to be able to implement and maintain Compstat.

Compstat, like other performance-based management movements, aimed to create high-performance organizations (Popovich 1998). Popovich (1998) argued that support of political leaders, commitment of top leadership, willingness to change, coordination, communication, and training are critical for the change process. Besides, in order to create high-performance organizations, the employees and managers ought to get involved in the procedure and show dedication to principles of innovation (Popovich 1998). Campbell and Masser (1995) argue that employee support and commitment are necessities as well as managerial and technical adequacies. Similarly, Lurigio and Skogan (1994) emphasize the significance of gaining the support of officers for reform efforts in policing. Furthermore, police culture has a significant role to play in supporting or hampering any reform movement in policing (Dean 1995). However, the factors concerned with attitudinal dimensions toward Compstat have not been examined. This study is important because it aimed to fill the gap in the literature.

This study is the first in the context of law enforcement agencies (two police departments and one sheriff's office) to examine the factors related to officers' acceptance of Compstat and the effects of police culture on officers' views of Compstat. The implementation of Compstat led to organizational change (Silverman 1999), but this is a complex and continuing process similar to implementing any other performance measurement system (de Lancer Julnes 2009). As noted by Novak et al. (2003), implementing a program overnight is not practical because police departments try to preserve the status quo and resist change. First of all, since many officers have either been socialized in traditional policing and have witnessed community policing efforts or have been recruited and trained according to the community policing philosophy (Novak et al. 2003), they may resist organizational change due to the implementation of Compstat. Second, Compstat leads in shifting the decision making power and autonomy away from line officers to supervisors (Willis et al. 2003), especially to middle managers in contrast to community policing and holds managers accountable for achieving organizational goals (O'Connell and Straub 2007). Thus, line officers may resist Compstat because of the loss of power, while managers may resist it because of a feeling of too much pressure from the top management (Moore 2003). This is another important dimension of the study because it does not only examine factors that affect officers' perceptions but also middle and executive managers' perceptions.

A great number of organizational change movements, and 50% of quality improvement efforts, have resulted in failure (Maurer 1997). Maurer (1997), based on a survey of Fortune 500 executives, stated that employee resistance is the main reason for failure in organizational changes. This study contributes to the literature by developing an attitude model and by testing hypotheses about the factors that affect officers' view of Compstat. The assessment of officers' receptivity to Compstat can offer guidelines for the implementation of Compstat in law

enforcement agencies. Awareness of possible resistance and the reasons behind the resistance may assist police executives not only in planning and evaluating their processes but also in overcoming resistance required for successful implementation.

Purpose of the Study and Delimitations

The purpose of this study was to examine officers' attitudes toward Compstat and the factors concerning the officers' acceptance of Compstat by shedding light on the influence of organizational culture on officers' views of Compstat in law enforcement agencies. In the study, the survey instrument was administered to officers in three law enforcement agencies. The researcher measured the relationship between the independent variables (demographic characteristics, police cultural dimensions, and structural/organizational) and the dependent variable (support of Compstat).

The model, developed by Cochran and colleagues (2002), was tested to understand how well this model explained the officer's views of Compstat. Cochran et al. (2002) tested their model in only one sheriff's office by investigating attitudes towards implementation of community policing strategies. The present study uses Cochran's scale to assess resistance to another innovation (Compstat) by applying it in multiple agencies. The dependent variable, officers' attitudes about support of Compstat, is adapted from the studies of Lurigio and Skogan (1994); Wycoff and Skogan (1994); and Adams et al. (2002). This study focuses on confirming or disproving assumptions that organizational culture had a significant influence on officers' views of Compstat. In addition to its contribution to the literature, this research is helpful for police executives who wish to implement Compstat successfully and overcome resistance that might occur during the implementation process.

To make the study manageable, only some of the variables measuring police culture were included to explore the factors affecting law enforcement officers' attitudes. Organizational culture, leadership, and other organizational change factors were not included in this study.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to review the literature regarding organizational change, the implementation of Compstat, and attitudes. The first section of the literature review examines organizational change from the planned change model and organizational cultural theory perspectives. Since the implementation of Compstat represents an organizational change, the researcher also focuses on innovation and human behavior from adoption through implementation. Moreover, attitude, attitude change, and police culture are examined. Most importantly, the theoretical framework of the study is discussed and presented.

The second section focuses on the concept of Compstat. Since Compstat is defined as a performance management system, it first examines performance management systems in the public sector and in policing. Then, it defines Compstat and its principles, discusses its core components, and reviews empirical studies regarding the implementation and the impact of Compstat. It also examines the paradigm shift in policing and its impact on law enforcement organizations and organization members.

Organizational Change

In both the public and private sector, managers have showed increasing attention towards improving their organizational performance. They have been interested in improving their organizations through implementing organizational change (Cawsey and Deszca 2007). Organizational change efforts have their roots in organization development (French et al. 2000).

Beckhard defines organization development as "an effort, planned, organization wide, and managed from the top, to increase organization effectiveness and health through interventions in the organization's processes using behavioral-science knowledge" (1969, 9). According to Cummings and Worley, "organization development is a system wide application and transfer of behavioral science knowledge to the planned development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness" (2009, 1). French et al. define organization development as

> A long-range effort to improve an organization's problem-solving and renewal processes, particularly through a more effective and collaborative management of organization culture – with special emphasis on the culture of formal work teams – with the assistance of a change agent, or catalyst, and the use of theory and technology of applied behavioral science, including action research (2000, 14).

Kezar (2001) identifies six major organizational change theories: evolutionary, teleological, life cycle, dialectical, social cognition, and cultural. Each theory takes change into consideration from a different perspective and attempts to explain it with various assumptions. Evolutionary theory focuses on external circumstances and the environment (Morgan 1986); teleological theory, also called the planned change model, focuses on purposeful change efforts which aims to transform the whole organization or a subsystem (Carnall 1995); the life cycle model considers change is similar to child development (Levy and Merry 1986); the dialectical model considers change as a conflict of belief systems (Morgan 1986); social cognition studies view change in terms of learning and sense making (Morgan 1986); and cultural theory views focus on organizational life (Schein 2010). Likewise, Poole and Ven classify four main categories for explaining the theories of change and innovation: life cycle, teleological (intentional change), dialectical (conflictual change), and evolutionary models (2004). Reengineering and TQM implementation processes represent a teleological view (Kezar 2001),

which focuses on organization development "as a cycle of goal formulation, implementation, evaluation, and modification of actions or goals based on what was learned or intended by the entity" (Poole and Ven 2004, 378). Likewise, the study attempted to examine Compstat and officers' attitudes from a planned organizational change model and organizational cultural theory perspective.

Organizational change is defined as "planned alteration of organizational components to improve the effectiveness of organizations" (Cawsey and Deszca 2007, 25). Cummings and Worley (2009, 41) characterized planned change as "involving a series of activities for carrying out effective organization development." Robertson et al. (1993) provided a framework for planned organizational changes. Robertson and colleagues argued that in order to implement organizational change, organizations should focus on behavioral change of organization members because work settings influence individual behavior and individual behavior influence organizational outcomes. Robertson et al. identified the characteristics of these work settings as follows:

- Organizing arrangements: Formal elements of organizations developed to provide the coordination and control necessary for organized activity (e.g. formal structures and reward systems).
- Social factors: Individual and group characteristics of the people in an organization, their patterns and process of interactions, and the organizational culture.
- Technology: Everything directly associated with the transformation of organizational inputs into outputs (e.g. work flow design and job design).
- Physical setting: Characteristics of physical space in which organizational activity occurred (1993, 620).

Scholars focus on different aspect of change in their attempts to identify differences on focus of change: structure, process, and attitude (Watson and Johnson 1972). These different aspects of change are interrelated. Organizational charts, policies, and reward systems are the focus of the structural perspective; process refers to the interaction of people in the organization; and people's feeling about the structure and the process are the interest of attitudinal perspective. Moreover, cultural change is associated with change in attitude (Watson and Johnson 1972; Kezar 2001).

To understand the change process, Kurt Lewin's theory is the most accepted approach in the literature. Lewin created a three-step change process: unfreezing, moving, and freezing (Lewin 1947; Mills et al. 2008). According to Lewin's theory, in order to unfreeze the behaviors, organizations should create an environment in which the status quo is disconfirmed; in the second stage organizations ask their members to change their behaviors; in the final stage organizations reinforce the desirable state (Mills et al. 2008). Mills et al. (2008, 49) state that "Lewin's model recognizes the need for openness to change before it occurs and support for change once it has occurred."

Innovation Implementation and Human Behavior

Innovation is defined as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers 1995, 11). Rogers (1995) argues that implementation of an innovation leads to change and describes changes in two stages: initiation and implementation. Rogers also emphasizes the differences between adoption and implementation. According to Rogers (1995), adoption is the decision to adopt an innovation; whereas, implementation is putting an innovation into practice, which requires change in behavior. As defined by Klein and Sorra (1996), "innovation implementation within an

organization is the process of gaining targeted employees' appropriate and committed use of an innovation." Klein and Sorra argue that innovations are adopted by senior level managers to improve organizational performance; however, organizations might not achieve the planned benefits due to implementation failures.

Furthermore, Campbell and Masser (1995), in their book entitled *GIS and Organizations,* analyzed the implementation process from three different perspectives: *Technological determinism* which focuses on technical issues for implementation; *managerial rationalism* which emphasizes rational management in addition to technical process; *social interactionism* which underlines the importance of gaining organizational and user acceptance. The authors state that the success of innovations relies on not only technological and managerial adequacy but also employee commitment. Campbell and Masser (1995) also point out the importance of gaining user's dedication and support along with achieving a technical operational system and managing this system for successful implementation. Likewise, according to Linstone and Mitroff (1994), technological, organizational, and personal perspectives should be taken into consideration for purposes of implementing a change program. Linstone and Mitroff (1994) further argue that dealing with the organization members is the most important and challenging part of the change process.

According to Spector (2007), introducing a quality improvement approach such as Total Quality Management (TQM), Business Process Reengineering (BPR), Six Sigma, and Business Model Reinvention (BMR) to organize and improve the business process represents an organizational change. Spector further argues that employee behavior modification is required for effective implementation of these changes because employee behavior is directly related to organizational performance. Likewise, Edosomwan (1996) highlighted the influence of the

involvement of the organizational members during the implementation process. According to Edosomwan (1996), organizational members are expected to offer personal commitment to change.

Holzer and Lee (2004) argue that commitment of top leadership is the first requirement for quality improvement initiatives. Holzer and Lee also underlined the importance of the role of employees during the implementation process. They state that effective leaders should increase the level of trust between managers and employees and encourage employees to express their ideas freely; if employees trust their organizations, they are willingly to take risks to support public sector innovations. Holzer and Lee supported their arguments with the successful implementation of the Balanced Scorecard, a management methodology, in the City of Charlotte where the role of top management leadership and the commitment of employees led to better outcomes.

Change in an organization is often implemented based on and Fishbein Ajzen's attitude and behavior model (Martin and Huq 2007). According to this model, attitudinal change is necessary to change the behavior; thus, attitudes lead to changes in behavior. If employees have positive attitudes toward change and show acceptance and commitment, a desired change will be much easier (Martin and Huq 2007). Attitude was originally defined by Fishbein and Ajzen (1975, 6) as a "learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object." Ajzen and Cote (2008) stated that attitude is a crucial concept for understanding and predicting behavior. The theory of planned behavior (TPB) of Ajzen (1985) is one of the most popular models explaining and predicting human behaviors (Ajzen and Cote 2008). The theory of planned behavior explains human behavior by using three major factors (Ajzen and Cote 2008, 301): "a favorable or unfavorable evaluation of the behavior

(attitude toward the behavior), perceived social pressure to perform or not perform the behavior (subjective norm), and perceived capability to perform the behavior (self-efficacy)."

During the change, if top management ignores organizational culture including beliefs, values, and attitudes, the desired change will delay or never happen (Doherty and Horne 2001). Doherty and Horne (2001) further argued that successful implementation of a change requires anticipating and managing resistance. Eby et al. (2000) highlighted the importance of employees' perceptions for a successful change process.

Commissioner Bratton, in an interview, stated that "we reengineered the NYPD into an organization capable of supporting our goals" (Silverman 1999, 15). Bratton's team conducted a survey with nearly 8,000 officers in the NYPD and received 600 recommendations. Afterward, Bratton appointed twelve committees for reengineering teams which would develop a plan. Each team, provided a copy of Hammer and Champy's *Reengineering the Corporation*, expected to identify the problems and solutions (Silverman 1999). In their book Hammer and Champy (2003, 35) defined reengineering as a "fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed." In this way, during the reengineering process, the NYPD members got involved in diagnosing the problems and suggesting solutions; reengineering teams worked on planning and then implementation took place (Silverman 1999). On the other hand, other police departments have adopted the Compstat approach and have made organizational changes in order to implement it successfully in their own cultural environment.

Many researchers have argued that reengineering involves organizational change which results in anxiety and uncertainty (Edosomwan 1996). Edosomwan (1996) argued that employees who will be affected more, namely, those who lose control, power, and autonomy, might resist

change. Second, employees might resist change because it brings uncertainty. People feel uncomfortable when facing unknown situations. Third, people might resist change because they will face sudden changes, and the degree of resistance increases if they do not participate in the process. Fourth, people will resist change because it often causes people to question the way they do business. People do not like feeling embarrassed because of change, so they will defend their old ways. If change requires more time and energy, people might resist it. Moreover, organizational members who have had past negative experiences with changes are likely to resist (Edosomwan 1996). Furthermore, de Lancer Julnes (2009) pointed out that a culture that inspires change, positive attitudes toward change, and the need for buy-in, is essential for successful implementation.

However, in organizations, culture change is often a difficult and slow process that usually takes several years to achieve (Trice and Beyer 2005). Nevertheless, in some cases, for instance, in the NYC Transit Police Department, Compstat caused changes within six months because officers were eager to be led to produce and experience success and were most eager to follow Bratton's leadership (McDonald 2002). Trice and Beyer identified three types of culture change: "(1) revolutionary and comprehensive efforts to change the cultures of entire organizations, (2) changing specific subcultures or subunits within organizations, and (3) gradual and incremental, but a comprehensive reshaping of entire organization's culture" (2005, 384). According to Trice and Beyer, the moments when there is a problem, opportunity or change in conditions are best time to start cultural change. Leadership plays a significant role in persuading organizational members because change should be justified (Trice and Beyer 2005).

In addition, Behn (2007) argued that during the implementation of Compstat, top management may face some resistance that come from some passive pessimists or active

malcontents. Passive pessimists do their jobs according to the new model but they do not show extra effort. They think that the new model will not work and the management will return to the old system. However, active malcontents do not want to lose their position or comfort, so they try to undermine the program. They say "it will not work, we do not have the resources to do that, or this new guy does not know how our organization works" (Behn 2007, 12).

According to Daft (2007), implementation is the most important and difficult piece of the change process. Daft argues that leaders play a significant role for overcoming resistance and successful implementation. Daft suggests some strategies to overcome the resistance:

- Alignment with needs and goals of users: Managers should make sure that change is not for the sake of change and it is useful for the organization.

- Communication and training: Top management should explain the reason and consequences of a proposed change. Also, training should be provided to employees to help them understand their role and get the abilities for executing change.

- An environment that affords psychological safety: Managers should create a climate of trust and mutual respect, and employees should not be embarrassed or rejected by the organization.

- Participation and involvement: Through participation, employees understand the change process and offer commitment to successful implementation.

- Forcing and coercion: For the last option, resistance is overcome by the use of management power. Managers may fire or transfer their subordinates to overcome resistance. Though, this option is not advisable, it might be used when speed is vital (2007, 428).

Organizational Culture

Organizational culture theory is one of the major perspectives of organization theory (Shafritz et al. 2005). The question, "Could police executives who have implemented Compstat achieve the desired buy-in from middle managers and line officers?" has not been answered based on empirical research. Does police culture have any impact on employees' attitudes toward Compstat ? All these questions are related to organizational culture and cultural change. It is important to understand the effects of culture because culture has significant effects on organizations and their members (Rad 2006). Research suggests that culture affects the implementation of Total Quality Management (Rad 2006; Yong and Pheng 2008), organizational change process (Rashid et al.2004), and officers' receptivity to community policing (Paoline et al. 2000; Cochran et al. 2002; Moon 2006). Therefore, it is crucial to understand the relationship between organizational culture and officers' attitudes toward Compstat implementation.

Like other organizational change efforts, TQM has a natural relationship with organizational culture because while TQM involves change in the organizational culture, culture plays a critical role to achieve successful implementation (Rad 2006; Yong and Pheng 2008). In order to examine the effect of organizational culture on the success of TQM implementation, Rad (2006) conducted a cross-sectional study at University Hospitals in Iran. Rad collected data by distributing organizational culture and TQM implementation questionnaires (five-point Likert scales) to hospital employees. Rad found that organizational culture had a major impact on TQM success. Rad further suggests that for successful implementation, management should create an open, collaborative, and cooperative culture by training, organizational learning and adapting a participative management style. Like Rad, Yong and Pheng (2008) who conducted a survey

research in construction firms in Singapore, found that organizational culture had a significant impact on TQM implementation.

Although, the literature discusses the importance of organizational culture, there is no consensus on a single definition of organizational culture. In his classic book *Organizational Culture and Leadership,* Edgar Schein defines culture as

> A pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (2010, 18).

Louis (1985, 74) described culture as "a set of understandings or meanings shared by a group of people. The meanings are largely tacit among members, are clearly relevant to the particular group, and are distinctive to the group. Meanings are passed to new group members." According to Schein (2010) "culture and leadership are two sides of the same coin"; first leaders create cultures and later the culture of an organization determines the criteria for leadership. However, leaders are responsible for managing cultural change if it becomes dysfunctional. Therefore, leaders should be aware of the dynamics of culture (Schein 2010).

Schein (2010) analyzed culture in three levels: artifacts, espoused beliefs and values, and basic underlying assumptions.

1. Artifacts: "This is the most visible and tangible level of the culture and includes the visible product of a group, such as the architecture of its physical environment; its language; its technology and products; its artistic creations; its style, as embodied in clothing, manners of address, and emotional displays; its myths and stories told about the organization; its published list of values; its observable rituals and ceremonies" (Schein

2010, 23). Artifacts also include "climate" of the group, organizational process and structural elements (Schein 2010).

2. Espoused beliefs and values: According to Schein (2010), when a group is created some people can influence the group to adopt a certain approach to a problem. If the solution works and if the group has a shared perception of that success, then the perceived value is transformed first into a shared value or belief and then a shared assumption. These are "ideals, goals, values, aspirations, ideologies, and rationalizations" (Schein 2010, 24).

3. Basic underlying assumptions: This is the unconscious level of culture which includes "taken-for-granted beliefs and values" (Schein 2010, 24). Schein states that "basic assumptions are nonconfrontable and nondebatable, and therefore they are difficult to change. Culture as a set of basic assumptions defines what to pay attention to, what things mean, how to react emotionally to what is going on, and what actions to take in various kinds of situations. Any challenge or questioning of a basic assumption will release anxiety and defensiveness; therefore, the shared basic assumptions are thought as psychological cognitive defense mechanism" (Schein 2010, 28-29).

In addition to planning and analysis, Johnson (1988) argues that to avoid resistance to strategic change, organizations should take "social, cultural, political, cognitive, and symbolic devices of the organization" (1988, 90) into consideration. Johnson developed a model of culture, 'cultural web of an organization', and placed the paradigm into center of his cultural web in order to define culture. Capra (1997), through analyzing Kuhn's definition of scientific paradigm as a social concept, defines the paradigm in social arena as "a constellation of concepts, values, perceptions, and practices shared by a community, which forms a particular vision of reality that is the basis of the way the community organizes itself" (1997, 6). In

addition to the paradigm, Johnson's cultural web includes control systems, organizational structures, power structures, symbols, rituals, and stories (1988). These elements are explained by Johnson as follows:

> The rituals prescribe 'the way we do things around here'; control systems and rewards describe the important areas of activity focus; the stories embed the present in organizational history, the type of language and expressions used commonly; symbols are logos, offices, cars, and titles which represent the nature of the organization; organizational structure includes the ways that organization members behave towards each other; power structure describes the organization members who have influence, autonomy, and power for decision making (1992, 30).

Furthermore, de Lancer Julnes (2009) highlighted the importance of studying organizational culture because it shapes the way organizations react to innovation and change. de Lancer Julnes further argued that managers play an important role in managing and changing culture. Existing practices and attitudes in an organization usually lead to denial, disbelief, and resistance; therefore, in order to create structure and values, supporting change is essential through managing culture. de Lancer Julnes (2009) conducted a survey to understand the factors that influence the utilization of performance based management systems by analyzing the adoption and implementation process and found that adoption is mainly explained by rational/technocratic factors while implementation is influenced by political-cultural factors.

Campbel (2004) argued that to improve the organizational performance, the organizational culture of each agency and employee should be taken into consideration. The change of culture and structure requires effective leadership. Therefore, the office of the chief of police is the site where the top-down leadership creates an environment that leads to institutionalization (Campbel 2004). Behn (2005) pointed out that within most government agencies, managers consider themselves successful if they stay out of trouble rather than

contributing to the organization because there are few rewards for success but serious penalties for errors. For that reason, leaders face serious challenges when trying to change the old rule-based culture into a performance-based culture.

Behn (2005) further argued that to implement a performance strategy, organizations should create positive consequences for good performance and penalties for poor performance. Lastly, organizations should create rituals to support the strategy. The rituals in Compstat are weekly meetings where executive managers show that performance is one of their top priorities. It is here that they try to change traditional culture into a performance-based culture by creating negative consequences for failure and positive consequences for successful activities (Behn 2005).

Moreover, some occupations which require an intense period of education, training, and coaching have occupational cultures. Occupational cultures, like organizational cultures, develop through training, socialization, shared attitudes, and norms of members of the occupation. It is also maintained and reinforced through professional meetings, continuing education sessions, and the practice of the occupation (Schein 2010). Occupational culture is defined by Manning as

> A reduced, selective and task-based version of culture that is shaped by and shapes the socially relevant worlds of the occupation. Embedded in traditions and a history, occupational cultures contain accepted practices, rules, and principles of conduct that are situationally applied, and generalized rationales and beliefs (1995, 472).

Hence, doctors, engineers, lawyers, and police have different beliefs and values because of the identity they gain through training and practicing their occupation (Schein 2010). Schein, moreover, argues for another kind of subculture which occurs based on hierarchy: the subculture of first-line supervision, middle management and higher level management.

Police Culture

Police culture has attracted attention recently because it is seen as one of the main obstacles for adopting and implementing police reforms (Chan 1996). Therefore, police managers as well as scholars have become more interested in police culture in order to understand and manage it with the goal of improvement of organizational performance (Sparrow et al. 1990; Chan 1996). Skogan and Frydl define police culture as "a set of widely shared outlooks that are formed as adaptations to a working environment characterized by uncertainty, danger, and coercive authority and that serves to manage the strains that originate in this work environment" (2004, 131).

Police culture has been a popular topic of organizational behavior since the 1970s with the seminal work of William Westley (Paoline 2001). Early studies described a single police culture, referred to as monolithic occupational culture, which shares similar attitudes, values, and norms that were developed by the nature of police work and the disciplinary practices of management by all officers (Paoline 2001, 2003, 2004). This traditional police culture consists of attitudes and norms including suspiciousness of citizens, an orientation towards police work, adoption of a police role, police attitude toward citizens, and loyalty to officers (Paoline et al. 2000; Paoline 2004).

William Westley's classic book *Violence and the Police* is one of the first empirical studies which examined culture at a police agency. Westley (1970) found that police thought that the majority of people hated the police and were hostile to the police because of their work; therefore, the police isolated themselves from society. This isolation caused the police to compose a social group that developed relationships based on the "we vs. they" attitude toward

citizens, the rule of silence, and legitimization of violence which was justified by the officers' belief that most of the time they use violence to maintain respect for the police. Likewise, Skolnick (1994) examined the "working personality" of the police officers as an occupational culture by focusing on danger, authority, and efficiency. According to Skolnick (1994), because of their social situation, the police develop a distinct way of looking at situations and events. Skolnick argues that the paramilitary characteristics of police agencies and the element of danger cause feelings of suspiciousness and isolation among police officers that reinforces police solidarity.

In the mid-1960s, James Wilson examined the departmental differences of organizational culture in eight communities (Paoline 2003). Wilson's book, titled *Varieties of Police Behavior* (1968), focused on describing the behavior of patrolmen in terms of law-enforcement and order maintenance by examining their occupational environments and communities' needs, and their effects on police organizations. Wilson found three types of police styles: the watchman, the legalistic, and the service style. According to Wilson, under the watchman style, police departments focus on order maintenance because major crimes do not occur frequently in those communities. The legalistic style departments focus on enforcing law rather than maintaining order. The service style focuses on all types of calls for service for both law enforcement and order maintenance. These types of departments take order maintenance more seriously than a watchman style, but emphasize crime fighting less than legalistic style. Wilson also found that top management had an important role in developing organizational culture.

Police culture was examined in terms of ranks among officers by Elizabeth Reuss-Ianni (1983) in the New York City Police Department. Reuss-Ianni found that in addition to the occupational culture, two cultures of policing exist: street cop and management cop culture.

Reuss-Ianni found that the isolation of precinct level cops and headquarters level cops contributes to growing departmental level problems. Hence, the resistance of street cops becomes an obstacle to organizational change attempts by headquarters managers. Based on her research, Reuss-Ianni acknowledged that management cop culture commonly attempts to introduce organizational changes to respond to community demands, improve working conditions, and reach the departmental goals; however, the street cop culture believes that these attempts are trivial and fail to improve achievement.

Reuss-Ianni argues that even though both cultures share the goals of reducing crime and providing a safe and secure environment, officers' and managers' choice of the means to accomplish these goals are different. The street cop culture emphasizes immediate local police response rather than preplanned solutions and job experience to make decisions, while the management cop culture focuses on citywide rather than local problems and focuses on planning, designing, and efficiently implementing programs. According to Reuss-Ianni, the management cop culture derives "benefits of efficient organization, rational decision making, cost-effective procedures, and objective accountability at all levels of policing" (1983, 6).

However, over the course of time, three schools of thought have developed on police culture: organizational, occupational, and subcultural. Paoline (2001) argues that workplace culture consists of occupational and organizational culture. Occupational analysts examine police culture as occupational culture which does not focus on the differences across agencies. On the contrary, organizational analysts, who examine culture in a specific department, explain police culture as organizational culture. Even though most studies focus on the traditional police culture among police officers, some typologies draw attention to variation (Paoline 2003). Typology studies acknowledge the existence of more than one culture among police officers (Paoline

2001). According to typology studies, all officers do not see the world from the same point of view and subcultures exist among the occupational culture. These typologies, which are referred to as police subcultures (Paoline 2001, 2003, 2004), were used to categorize types of police officers by Coates (1972), White (1972), O'Neil (1974), Muir (1977), Broderick (1977), Brown (1988) (Paoline 2001; Hassell 2006; Skogan and Frydl 2004).

One of the first typology researchers was Coates (1972), who identified three types of officers based on their policing styles: the legalistic abuser, the task officer, and the community-service officer. Likewise, White (1972) identified four distinct policing styles: Tough cops, rule appliers, crime fighters, and problem solvers. Based on his research, O'Neil (1974) classified police officers into four groups which include law enforcers, watchman, social agents, and crime fighters. Moreover, police officers were classified by Muir (1977) as professionals and nonprofessionals. Professionals are perceived as good officers who have passion and perspective. On the other hand, reciprocators, enforcers, and avoiders are classified as nonprofessionals. Broderick (1977) also developed his typology based on the perception of officers on due process and social order as idealists, realists, enforcers, and optimists (Hassell 2006). Besides, in his research in three police departments in Southern California, Brown (1988) identified four types of policing: Old style crime fighters, clean beat crime fighters, professional style, and service style based on their aggressiveness and selectivity in enforcing the law.

Moreover, Paoline (2001) and Cochran and Bromley (2003) are among the most contemporary police scholars who have empirically tested the existence of police subculture. Based on his research in the Indianapolis Police Department and the St. Petersburg Police Department, Paoline (2001) developed his own typology by examining attitudes of officers on citizenry, supervision, legal restrictions, role orientation, and policing tactics. Paoline identified

seven types of police officers. Five of them are similar to the typologies in the literature such as "Traditionalists" who are equivalent to tough cops; "Law Enforcers" who are similar to Clean-Beat-Crime Fighters; "Old-pros" who are much like Professionals; "Peacekeepers" who are similar to Problem Solvers; "Lay-Lows" who are akin to Avoiders. Moreover, the two types that were not in the literature are "Anti-Organizational Street-Cops" who hold a balanced attitude toward aggressive patrol and optimistic beliefs toward police-citizen cooperation; and "Dirty Harry Enforcers" who show mixed attitudes because while they hold positive beliefs toward aggressive patrol tactics, they also worry about violations of citizen rights. The importance of Paoline's research is to confirm the existence of both police occupational culture and subcultural fragmentation.

Alternatively, Cochran and Bromley (2003) classified police officers as the "COP cops" who support community-oriented policing; "the Sub-cultural adherents" who consider themselves as crime fighting street professionals; and "Normals" who belong to neither of these groups. The primary assumption of this study is the existence of occupational culture as well as subcultural groupings. However, the researcher did not classify the policing styles; instead, the researcher examined the effects of these cultural dimensions on attitudes toward a planned change in law enforcement agencies.

Furthermore, Paoline (2004) expected to see changes in police culture because policing has changed in terms of philosophy and diversity of police officers over the last three decades. The implementation of community policing has changed the occupational and organizational environments. Moreover, the community policing approach has changed the functions of policing which requires the police to improve relations and coordination with citizens. In addition to introducing police innovations, there has been a change in the demographic

composition of officers and educational standards in policing which might have had an effect on the beliefs and attitudes of officers (Paoline et al. 2000; Paoline 2001). Another important factor that might affect police culture is the change in the public's perception of the police. The police are more willing to cooperate with the community and they have developed strategies to increase their effectiveness and accountability. In exchange for their efforts, the trust of the citizens is increasing and they are more willing to help the police (Sparrow et al. 1990).

Since police work is dangerous, being suspicious and maintaining the edge has become a common factor among police officers (Cochran and Bromley 2003; Paoline et al. 2000). According to Paoline and colleagues (2000, 578), the police organizational environment is shaped by a "lay low" and a "crime fighter or law enforcement' attitude." Paoline and colleagues further argue that police officers believe that the "real police work" or the aggressive law enforcement model is a better model than order maintenance or service role models. Cochran and Bromley (2003) pointed out the same norm and stated that order maintenance or service roles are perceived as "baby sitting" or "social work" by officers. However, the crime fighting role and negative attitudes toward due process can lead to some problems, such as abuses of authority (Cochran and Bromley 2003). The police culture is transmitted among officers through a socialization process. An experienced officer or field training specialist guides a new officer to learn the system, including acceptable behaviors, values of the culture, and the methods of policing (Reuss-Ianni 1983).

According to Paoline and colleagues (2000), the working environment of police officers produces other police cultural norms such as social isolation and group loyalty. Sparrow et al. (1990) state that the professionalization era of policing, which was aimed to centralize and depoliticize the police departments, reinforced the isolation of policing from the rest of the

society. According to Cochran and Bromley (2003), the norm of loyalty also leads to a "code of silence" which prevents investigation efforts against corruption and other misconduct. This norm also shows that police officers do not trust citizens or the upper management. Lurigio and Skogan (1994) argue that because of these norms police officers might confront and resist any reform efforts in policing. Cochran and Bromley summarize the police culture as follows:

- Negative attitudes toward the various legal restrictions placed upon their efforts to effectively fight crime – "handcuffing the police;"

- Negative, skeptical attitudes toward legal institutions and other elements of the criminal justice system – "the courts are too lenient;"

- Negative and suspicious attitudes toward police administration and the police bureaucracy – "the departmental policies and procedures are too burdensome and ineffective" and

- Negative, cynical attitudes toward citizenry – "they are all a bunch of liars and crooks" (2003, 89).

The theoretical framework of the present study, developed based on the studies of Cochran et al. (2002), Cochran and Bromley (2003), Lurigio and Skogan (1994), Wycoff and Skogan (1994) Adams et al. (2002), Ajzen (1985), and Shane (2010) is presented in Figure 1.
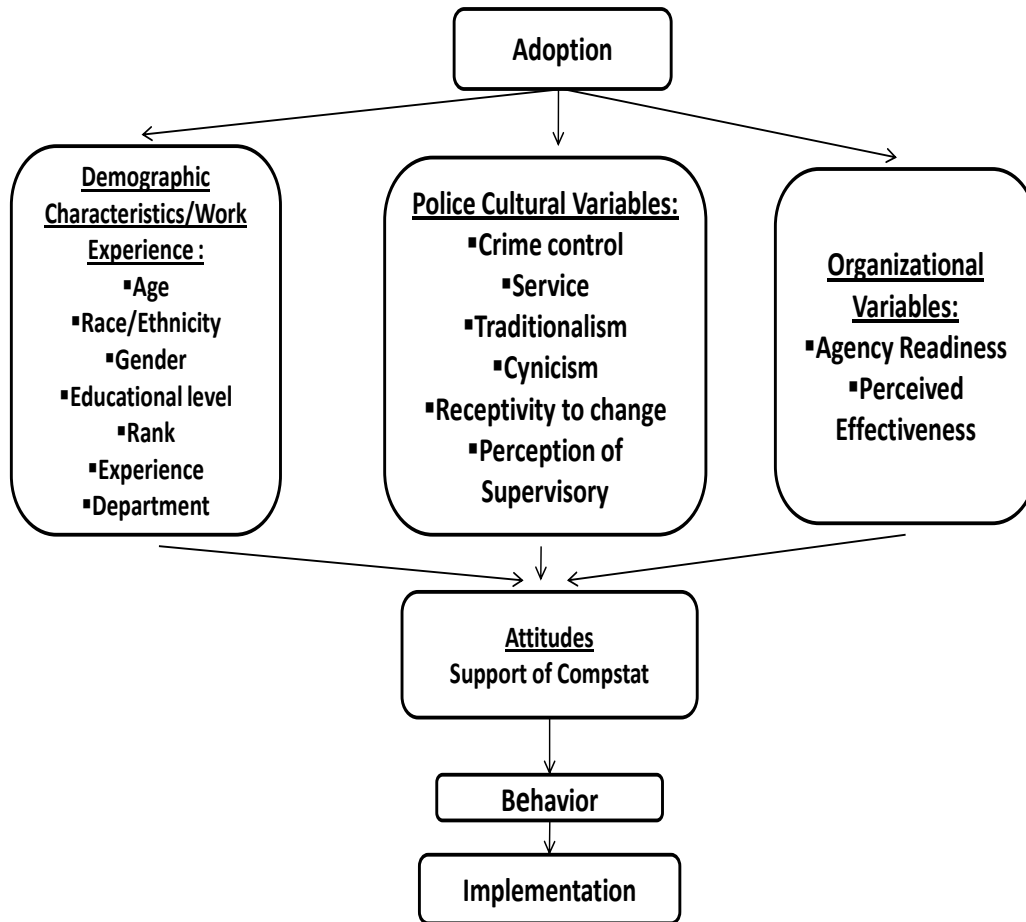
Figure 1: The Theoretical Framework of the Study:

Law Enforcement Officers' Attitudes toward Compstat

Since Compstat is defined as a performance management system, the implementation of performance management systems in public sector organizations and in law enforcement agencies are reviewed in the following section. Moreover, the concept of Compstat is explained in greater detail in this section.

Performance Management in Public Organizations

As Callahan (2007) pointed out, the press, citizens, and politicians urge government to be accountable for results. What do they really mean by accountability? In the *Public Administration Dictionary*, Fox and Meyer define accountability:

> 1. The responsibility of government and its agents towards the public to realise previously set objectives and to account for them in public; 2. Commitment required from a public official to accept public responsibility for his actions or inaction; and 3. The obligation that a subordinate has to keep his or her superior informed of the execution of the responsibility (1995, 2).

In *The Dictionary of Public Policy and Administration,* Shafritz (2004, 1-2) defines accountability: "1. The extent to which one must answer to higher authority-legal or organizational-for one's actions in society at large or within one's particular organizational position…" and "2. An obligation for keeping accurate records of property, documents, and funds."

Robert Behn of Harvard University argues that the accountability environment is complex because it is used for either accountability for finances, accountability for fairness, or accountability for performance (2001). This study focuses on accountability for performance which centers on whether public agencies accomplish their objectives and goals and respond to expectations of citizens. In addition, New Public Management, a new paradigm in public administration which emphasizes performance, has been the major theme since the 1980s (Behn 2001).

In the United States, performance measurement and accountability reforms go back to the writings of Woodrow Wilson in the 19th century (de Lancer Julnes 2006). Performance measurement movements were discussed in depth by de Lancer Julnes (2006; 2009). In order to

avoid patronage and corruption, Wilson suggested holding workers accountable for their

activities through professionalism. The "progressive movement" led to the understanding of

efficiency which was defined as the comparison of inputs and outputs. Managerial efficiency was

mainly understood as financial accountability and performance measurement was used to address

accountability. Although several reforms were put into effect, the public agencies could not

successfully respond to citizens' needs (de Lancer Julnes 2006). Performance management

reforms during the 20th century have not been implemented successfully (Kautz et al. 1997).

Meanwhile, in the 1980s, the business community was seeking a better way to manage

organizations and numerous authors suggested a variety of ways for change in business

management philosophy, such as Total Quality Management (TQM) and strategic management

(Qiao and Thai 2002).

The improvement in the private sector caused scholars to think of developing similar

reforms for the public sector (Qiao and Thai 2002). During this time period, Osborne and

Gaebler (1992), in their bestseller book "*Reinventing Government*", argued how government can

adopt a business service model. According to Osborne and Gaebler (1992), government should

be competitive, results-oriented, customer-driven, market-oriented, and decentralized. Callahan

(2007) argues that Osborne and Gaebler underlined the benefits of good management that

focuses on alternative and innovative managerial methods for better results and they supported

their opinions by presenting successful projects. After the publication of Osborne and Gaebler's

book, "managing for results, outcomes-based government, citizen-driven government,

entrepreneurial management, and customer" became popular terms (Callahan 2007, 11). Public

agencies then adopted business management strategies and reinventing government became a hot

topic in the 1990s. However, prior to the National Performance Review, ten performance

improvement attempts, illustrated below, had been made in the federal government in the 20th century:

- 1905 Commission on Department Methods (Keep Commission)

- 1910 President's Commission on Economy and Efficiency (Taft Commission)

- 1921 Joint Committee on Reorganization

- 1936 President's Committee on Administrative Management (Brownlow Committee)

- 1947 Fist Hoover Commission

- 1960 Task Force on Government Reorganization

- 1969 Advisory Council on Executive Organization (Ash Council)

- 1977 Carter Reorganization Effort

- 1982 President's Private Sector Survey on Cost Control (Grace Commission)

- 1987 National Commission on the Public Service (Volcker Commission) (Qiao and Thai 2002, 91).

In 1993, in response to the growing citizen demand and dissatisfaction with the government (Kamensky 1996), the Clinton Administration created the National Performance and Review (NPR) which lead to the Government Performance and Results Act (GPRA) (Kautz et al. 1997; Qiao and Thai 2002). The GPRA "requires agencies to develop strategic plans with long-term, outcome-oriented goals and objectives, annual goals linked to achieving the long term goals, and annual reports on the results achieved" (United States General Accounting Office 2004, 3). The goal of the GPRA is to improve the performance of government and citizen satisfaction by holding agencies accountable for their performance measures (de Lancer Julnes 2006).

In addition to federal reforms, the American Public Administration has gone through reforms in state and local governments. The Governmental Accounting Standards Board (GASB) encouraged state and local governments to report service efforts and accomplishments (SEA) based on outcomes of program activities in the 1990s (de Lancer Julnes 2006). Besides, the state and local governments began to adopt MFR reforms by the influence of the National Performance Review (Moynihan 2007). Moynihan states that MFR success stories played an important role for diffusion of MFR reforms across the country. Nevertheless, reform movements were not limited to the United States, different countries went through similar processes, for instance, in the United Kingdom, radical changes were introduced in the public sector by the Margaret Thatcher Administration during the 1980s (Fryer et al. 2009).

As noted by Fryer and colleagues (2009), performance measurement is an important element of performance management systems. Harry Hatry, a leading expert on peformance measurement, defines performance measurement as "measurement on a regular basis of the results (outcomes) and efficiency of services or programs" (1999, 3). Hatry (1999) argues that performance measurement systems should include inputs, process, outputs, outcomes, efficiency and productivity, demographic and other workload characteristics, explanatory information, and impacts. The goal of performance measurement is to improve quality of life by providing better services.

Osborne and Gaebler suggested the following underlying principles for measuring performance:

- If you do not measure results, you cannot tell success from failure.
- If you cannot see success, you cannot reward it.

- If you cannot reward success, you are probably rewarding failure.

- If you cannot see success, you cannot learn from it.

- If you cannot recognize failure, you cannot correct it.

- If you can demonstrate results, you can win public support (1992, 147-154).

However, Callahan (2007) pointed out that measurement is not an adequate tool alone because some government agencies could not improve their results although they measured their performance. Callahan also argued that performance data, consistent with the management process, should be used to make better decisions, develop policies, improve programs, and restructure procedures.

Qiao and Thai (2002) argued that implementation of performance reforms leads to cultural change in government agencies and makes them more result-based and customer oriented. According to Sanger (2008, 78), "results-oriented leadership seeks to shape the culture of governments or organizations to focus on results and value, mobilize initiative, encourage learning, and promote experimentation to achieve performance." Thus, changing the organizational culture toward a performance-based and customer-oriented approach was one of the main goals of the GPRA (Kamensky 1996).

MFR movements aim to create high performance organizations (Popovich 1998). High-performance organizations were defined by Popovich as "groups of employees who produce desired goods or services at higher quality with the same or fewer resources. Their productivity and quality improve continuously, from day to day, week to week, and year to year, leading to the achievement of their mission" (1998, 11). Popovich also stated that organizations should focus on people because the technologies, techniques, and processes are tools to help

organizations perform better but people are the ones who will use them. Popovich described characteristics of high-performance organizations as follows:

- High-performance organizations are clear about their mission.

- High-performance organizations define outcomes and focus on results.

- High-performance organizations empower their employees.

- High-performance organizations institute new processes to motivate and inspire people to succeed.

- High-performance organizations are flexible, adaptable, and quick to adjust when conditions change.

- High-performance organizations are competitive in terms of performance.

- High-performance organizations restructure their work processes to meet customer needs.

- High-performance organizations maintain open and productive communications among stakeholders (1998, 16).

In order to move from administrative culture of conformity, error avoidance, and assumed inefficiency to high-performance organizations, organizations need to create performance measurement systems (Popovich 1998; Moynihan 2008). Moynihan (2008) emphasized the fact that strategic planning should be linked to a performance measurement system. In addition, the managerial authority should be expanded to encourage the use of performance measurement systems. The main idea behind this claim is that managers have little authority to make positive decisions; therefore, managers should be given more authority and held accountable for their activities (Moynihan 2008).

To create high-performance organizations, various labels have been applied to changes and tools (Popovich 1998), which are related to performance management, such as results-driven management, performance-based management, governing for results, performance-based budgeting, outcome-oriented management, reinventing government, the new public management, the new managerialism, and marketization (Behn 2002; Moynihan 2008). First of all, managers need adequate information to implement performance management systems (de Lancer Julnes 2009). Public agencies can accomplish their goals by getting adequate and timely information. Through adequate attention to service quality and program outcomes, the government does not waste resources and uses them effectively to respond to citizens' demands. Thus, managers can use performance data to improve organizational performance, develop partnerships with stakeholders, gain the trust of citizens and gain the resources to maintain the program actions (Wholey and Hatry 1992). de Lancer Julnes proposed several principles to implement performance-based management in an organization:

1) There is agreement on what the goals and objectives of the programs are (Cited in Wholey 1999).

2) There is agreement on the strategies for achieving goals.

3) The appropriate indicators of performance-what and how we are doing- have been developed.

4) The mission, goals, objectives, and measures or indicators are aligned.

5) A quality measurement system is in place.

6) Organizational learning will lead to the refinement of strategies, goals, and objectives.

7) The organization is willing to take risks (2009, 5).

According to de Lancer Julnes (2009), performance-based management (PBM) has two components: (1) performance measurement and (2) strategic planning. While performance measurement is used to monitor the implementation process, activities and outcomes of the program; strategic planning focuses on systematic management process. Thus, performance measurement and strategic planning complement one another and underlie performance-based management. A performance-based management system is a tool for holding employees, managers, and organizations accountable. Artley and colleagues (2001, 3) defined performance-based management as "a systematic approach to performance improvement through an ongoing process of establishing strategic performance objectives; measuring performance; collecting, analyzing, reviewing, and reporting performance data; and using that data to drive performance improvement." In a similar way, Moynihan (2008, 5) defined a performance management system as "a system that generates performance information through strategic planning and performance measurement routines and that connects this information to decision venues, where, ideally, the information influence a range of possible decisions."

Also, Moynihan (2005) argued that the key assumption behind performance management reforms is learning theory; based on performance information, decision makers will learn to make better informed decisions and improve organizational performance. However, de Lancer Julnes stated that organizations may learn but this might not contribute to a visible action. From Robert Behn's perspective (2003) the managers' main reason for using a performance management system is to improve performance, but managers need to apply other forms and instruments to achieve the final purpose. Behn suggested that performance measurement can be used for the following reasons:

- Evaluating: How well is my public agency performing?

- Controlling: How can I ensure that my subordinates are doing the right thing?

- Budgeting: On what programs, people, or projects should my agency spend the public's money?

- Motivating: How can I motivate line staff, middle managers, nonprofit and for-profit collaborators, stakeholders, and citizens, to the things necessary to improve performance?

- Promoting: How can I convince political superiors, legislators, stakeholders, journalists, and citizens that my agency is doing a good job?

- Celebrating: What accomplishments are worthy of the important organizational ritual of celebrating success?

- Learning: Why is what working or not working?

- Improving: What exactly should we do differently to improve performance? (2003, 588).

To implement a performance measurement system, public agencies require the commitment of top management, reasonable program stability, sufficient capacity, and the support of the front-line employees (Callahan 2007). However, upon introducing any reform movements, organizations might confront obstacles and resistance during the adoption or the implementation process (de Lancer Julnes 2009). Ammons identified possible obstacles to productivity improvement in the public sector:

- Environmental barriers: These factors differentiate the public sector from the private sector environment and have negative impacts on productivity initiatives, such as political factors that influence decision making, lack of enthusiasm for gradual gains, productivity's lack of political appeal, dominant preference for the status quo, legal restrictions and court rulings.

- Organizational barriers: These are the common characteristics of public organizations, including bureaucratic socialization processes, lack of accountability, focus on outputs rather than outcomes, perverse reward systems, ambiguous objectives, insufficient analytic skills or analytic staff, union resistance, inadequate performance evaluations, and perceived threat to job security.

- Personal barriers: These factors include individual attitudes, traits and behaviors, such as risk avoidance, inadequate control of time/workday, managerial alibis, and conceptual confusion (2004, 140-141).

Furthermore, Kautz and colleagues (1997, 367) argue that the GPRA might face three challenges including "bureaucratic resistance to change, congressional and executive territoriality, and political currents." As explained by Kautz et al. (1997) the GPRA requires change; therefore, government agencies might show resistance and undermine or manipulate the situation if agencies perceive this change as a threat to their existence. Also, Newcomer (2007) emphasizes that the cultural receptivity to change to performance management systems is a challenge because negative experiences with past management reforms have caused skepticism among middle and upper level managers.

<center>**Performance Management in Policing**</center>

The reform movements regarding quality improvement initiatives have influenced the evolution of policing. Police departments have developed strategic plans and performance measurement systems (Coleman 2008). A 1967 report, *The Challenge of Crime in a Free Society*, is considered the first major one in performance measurement movements in policing (Langworthy 1999). This report provided recommendations for preventing and fighting crime.

Later, in 1980, the American Justice Institute's and University of North Carolina's efforts were the most remarkable of those that focused on developing comprehensive performance system. Although these efforts provided comprehensive performance measures, they were not feasible because they were too complex and costly for police agencies (Langworthy 1999).

However, in the 1990s, it was understood that police departments had to change their traditional measures of performance in line with the new understanding of community and problem-oriented policing (Langworthy 1999) because traditional performance systems based on clearance rates, response times and number of arrests were inadequate for holding police officers, managers and departments externally or internally accountable (Moore and Braga 2003). In 1992, in his article *Measuring What Matters*, George Kelling argued that police departments should change the traditional performance measurement system to meet the demands of community policing (Langworthy 1999). Whereupon, the National Institute of Justice and the Office of Community Oriented Policing Services together developed a policing research institute which focused on moving policing toward more relevant performance criteria. Moore and Braga (2003) stated that although a variety of performance measurement systems have been developed by police departments, the New York Police Department's (NYPD) Compstat model, that uses performance data for managerial purposes, has become more attractive and successful to many police departments across the nation.

Police play an important role in criminal justice systems by initiating legal proceedings against suspects through an arrest or charging the suspect (Moore and Poething 1999). Moore and Poething argue that the understanding of modern policing is to reduce crime by enforcing criminal law. In order to deter crime and create a threat to criminals, police (1) patrol public spaces, (2) respond to calls from citizens, and (3) investigate crimes. Also, professionals evaluate

police programs by focusing on the level of reported crime, numbers of arrests, clearance rates, response times and numbers of sworn officers. However, they do not pay enough attention to police problem solving efforts which contributes to crime prevention, reduced fear, and improved quality of life. In order to do their work, police are provided resources by the government and law. These resources are (1) tax money which is used to pay salaries, the purchase of technological devices and other supplies and (2) the legal authority which gives police the authority to use force to protect constitutional rights and to provide security and order in a community (Moore and Poething 1999). In return for these resources, police are expected to contribute to society by providing a safe and secure environment for citizens so they can function more efficiently and effectively (Moore and Poething 1999).

GPRA and other reforms require police departments to demonstrate the consequences of their actions. More and Braga (2003) argued that performance measures can be used to evaluate organizational outcomes; however, in the field of policing it is difficult to measure outcomes (O'Connel and Straub 2007). More and Braga (2004) stated that private agencies focus on a financial "bottom line" to hold themselves accountable and satisfy their customers. Although the bottom line for policing is crime reduction for many people, More and Braga developed the following set of measurement for police departments as a bottom line:

1) Reduce criminal victimization: Crimes reported to police; crimes not reported to police; and violent crimes (reported or not).

2) Call offenders to account: Solve crimes; and arrest offenders.

3) Reduce fear and enhance personal security: Subjective experience of fear; and level and kind of self-defense.

4) Guarentee safety in public spaces: Protect safety and utilization of public infrastructure (traffic safety, parking enforcement, park safety, school safety, and public transit safety); maintain space for political activity (fair response to applications for parades and demonstrations, and effective response to civil disturbances).

5) Use financial resources fairly, efficiently, and effectively: Financial integrity; financial accountability; productivity gains/innovation; equal employment opportunity; and fair contracting).

6) Use force and authority fairly, efficiently, and effectively: Fair distribution of police services and protection; fair, unbiased operational policies; controlling corruption; reducing the use of force and authority (minimizing excess force and authority, reducing rotine use of force and authority); perceived legitimacy.

7) Satisfy customer demands/achieve legitimacy with those policed: Individuals who call the police; organized petitioners; and obligation encounters (2003, 444-445; 2004, 10-14).

Moore and Braga (2003) also argued why police executives should measure organizational performance. According to them, (1) the public demands accountability in terms of what police have done with public resources, (2) it is ethically and morally the right thing to do in order to satisfy citizens, and (3) to drive organizational performance, police chiefs should use performance management systems. Likewise, the FBI directors, William L. Colwell and Joseph W. Koletar, suggested law enforcement agencies develop performance measurement systems for the following reasons:

- Performance measurement is one of the primary vehicles by which organizational effectiveness is measured.

- There is always a healthy level of concern as to whether it is being accomplished in the most efficient and effective manner possible.

- It serves as an effective mechanism of feedback on various organizational systems, subsystems, and strategies.

- In periods of resource scarcity, it provides the basis for resource allocation decisions, both internal and external.

- Performance measurement information can serve as an early warning indicator of significant changes in the internal and external environment (1984, 208).

As discussed earlier, in order to perform more effectively and efficiently, police departments adopt performance management systems. The use of performance appraisals is the common approach used to evaluate the performance of subordinates at the individual level (Selden 2007). Performance appraisal is one of the key components of performance management systems (United States Office of Personnel Management 2001). Selden (2007, 42), states that "a performance management system requires that employees and managers jointly prioritize and determine goals, and objectives, establishes how employees or teams contribute to the organization's goals, identifies weaknesses of an individual's performance and recognizes and rewards high performance." Thus, both agency and employees benefit from this performance-driven culture because employees improve their performance and in return for this they are rewarded based on their performance (Selden 2007). Police performance management requires a logic model that connects inputs to outputs, and to outcomes. Shane (2010) developed a performance measurement framework for police departments as follows:

- Define mission and desired outcomes

- Set performance standards

- Identify and collect performance indicators

- Link performance to budget

- Affix accountability

- Report performance

Former NYPD Police Commissioner Bratton developed a performance management system to acquire accountability by gaining the support of organization members and community. In this way, the NYPD embraced internal and external accountability through a performance measurement system (Moore and Braga 2003). Morley et al. (2001) highlight the importance of comparative performance measurement (CPM). Morley and colleagues state that performance data should be used to compare the performance of different geographic units of the organization. As in the case of CPM, through Compstat, police executives measure and compare performance over time within an operational unit and across units to provide information to the public and hold departments accountable (Moore and Braga 2003). For that reason, O'Connell and Straub (2007) defined Compstat as a performance-based management system. Furthermore, Shane (2010) considers Compstat as the leading performance management process in American policing. According to Moore (2003), Compstat is not only a technological, but also a managerial innovation, which seeks to build up internal accountability in law enforcement agencies.

Compstat: An Organizational Innovation

Compstat was developed as the New York Police Department's (NYPD) crime control model in 1994 to manage police operations (McDonald 2002). During the 1980s and early 1990s, criminal activities increased in large American cities. For those who lived in New York City,

crime and disorder were significant problems; however, the NYPD had difficulty dealing with this escalating problem (Henry 2005). As noted by Silverman (1999) and O'Connell (2002), through employing modern management techniques, Bratton and his team re-engineered the NYPD's business process and organizational structure. According to Bratton (2002), former NYPD commissioner and creator of Compstat, avoiding risk and failure had become one of the characteristics of the department and personnel. The department needed key changes in management style to become efficient in providing safety to citizens. Decentralization by providing autonomy to middle level managers and holding them accountable, using technology and problem solving techniques played an important role in developing Compstat. Compstat has become an effective management model in achieving an organization's goals (Henry 2005).

Public managers seek to improve organizational performance by motivating employees; however, there are a number of different views on motivation. Theory X and Theory Y were developed by Douglas McGregor for explaining human motivation within organizations. The assumptions of these two theories describe different beliefs and attitudes toward management for motivation (Spector 2007). Theory X focuses on reaching organizational objectives through directing employees, controlling their efforts, and modifying their behavior based on the needs of the organization. In this theory, employees must be persuaded, rewarded, or punished because management assumes that people are passive, self-centered, dislike responsibility, and are resistant to change (McGregor 2005).

On the contrary, Theory Y suggests that people are not passive or resistant to organizational needs by nature and people can exercise self-control. The task of management is to organize the management process (McGregor 2005). Compstat, which is a strategic management system and focuses on top-down control by holding managers accountable to

improve internal operations, was developed based on key elements of Theory X (Willis et al. 2010). However, as Hultman (1998) points out, in order to implement organizational innovations, in particular, Compstat, police executives should try to understand police officers and managers affected by them.

The Institutionalization of Compstat

According to Weisburd and Braga (2006), police departments in the United States have tried new innovations to improve their performance over the last three decades. Community policing, broken windows policing, problem-oriented policing, hot spot policing, intelligence-led policing have been implemented by police departments. Each of these innovations has been disseminated around the country. However, none of them has ever been adopted as quickly by police departments as Compstat. Failures of traditional policing and rising crime rates particularly in large cities, led to the emergence of a new crime control model, Compstat.

During the 1990s, it was understood that traditional policing had no impact on controlling crime (Weisburd and Braga 2006). Also, official crime statistics showed that police were ineffective and violent crime rates were rising. The ineffectiveness of police strategies caused police to lose not only community support, but also their trust. In addition to police ineffectiveness during the 1980s, some external factors, such as pressure from private security, pressure from the public and innovations in technology put police under pressure to fulfill their tasks more efficiently (Mazerolle et al. 2006).

McDonald (2002) who witnessed the implementation of Compstat states that her book *Managing Police Operations: Implementing the New York Crime Control Model-Compstat* is a cookbook for other agencies who want to implement Compstat. McDonald argues that during the

late 1980s, like other police departments, the NYC Transit Police department was not only having crime problems, but also budget problems.

In 1990, the agency hired a chief of police from outside the department, breaking a 53-year tradition. Leading scholars in the field of policing, George Kelling and Bob Wasserman, who had been hired to work on the transition of the NYC Transit Police Department into the NYPD, played a critical role in William Bratton's recruitment. Also, Phyllis McDonald, an academic as well as deputy chief in Dayton, Ohio had been hired as the Director of Management and Information Systems by the NYC Transit Police Department. During this period, Bratton often met with McDonald, Wasserman, Kelling and some other key members of the organization to develop strategies. Bratton and his team analyzed the department for several months, visited the subways often, talked to police officers, identified the department's strengths and weaknesses, and developed a value statement. Bratton tried to motivate the rank and file, and develop trust and confidence in the organization (Bratton and Knobler 1998; McDonald 2002).

Bratton's team identified the most important problems facing the agency and established three objectives: reduce robberies, disorder and fare evasion. Robbery was the most serious problem; therefore, people did not prefer to ride the subway; the disorderly behaviors of some people, particularly the homeless, caused fear. Additionally, people were thinking that there was no control on the subway because of fare evasion (McDonald 2002). Based on the Bratton model, district commanders became important players because they were responsible for their jurisdictions; therefore, district commanders were judged based on their performance in accomplishing organizational goals. Thus, their efforts contributed to crime reduction in the subways in 1991. In addition to his experience with the NYC Transit Police Department and the

Boston Police Department, Bratton institutionalized Compstat in the NYPD based on problem solving and strategic leadership (Smith and Bratton 2001; Weisburd 2004).

In 1993, the public's concern about crime and safety played a significant role in Rudolph Giuliani's winning the New York City mayoral election. Giuliani appointed William Bratton as police commissioner of the NYPD because Bratton had succeeded in reducing crime in the subways (Smith and Bratton 2001). In order to reduce crime in New York City, Bratton put his own management model, Compstat, into effect. According to Smith and Bratton (2001), Compstat has its own philosophy, structure and management process. Therefore, it is different than both traditional policing and community policing.

According to Moore and Braga (2003), in order to improve accountability and performance, public organizations should focus on outcome measures rather than outputs, because the outcomes are direct measures of the value that the police look for to produce. If stakeholders want to be sure that police efforts are worthwhile, they need to see the value. In this regard, outcomes are nearer to a true "bottom line" for policing. Additionally, the measurement of outcomes also allows practitioners and researchers to check present operational theories to discover "what works" in policing. With outcome measures, it is easier to guide police departments toward trustworthy creation of public value (Moore and Braga 2003). Based on this belief, Chief Bratton and the Deputy Chief Maple created the Compstat model to change the NYPD into a high-performance organization. Bratton used the performance-based management (PBM) system in New York City by connecting the outcomes to organizational goals and holding employees accountable (O'Connell and Straub 2007).

Additionally, Bratton criticizes former police commissioners' implementation of community policing (Bratton and Knobler 1998). Bratton believed in community policing in theory but acknowledges that it helps develop and maintain good relationship with the community; however, it was not a good idea for preventing and fighting crime. However, for others (McDonald 2002), through community policing, community could assist in crime control. Bratton further argued that the relations between putting more officers on the street and crime reduction are implicit. Also, Bratton believed that providing authority to line officers, most of whom are young, unprepared and inexperienced, was not the proper solution to the crime problem; instead, authority and responsibility should have been provided to middle managers (Bratton and Knobler 1998).

According to Bratton, first of all, police should believe that they can prevent crime (Bratton and Kelling 1998; Shane, 2004). Although there are some other factors such as economics, social injustice, unemployment, and poor conditions that affect crime, "Bratton believes that police do matter when it comes to preventing crime and keeping communities safe" (Shane 2004, 12). Kelling and Sousa (2001) state that Bratton's "police-do-matter" strategies contributed to crime reduction in New York City. Walsh and Vito (2004, 19) state that "the underlying concept of Compstat is that police officers and police agencies can have a substantial positive impact on crime and on quality-of-life problems facing the community they serve, if they are managed strategically." Also, police managers who have faith in their organization can improve morale and capacity of the agency (Henry 2005).

Smith and Bratton (2001) argued that this approach involved an important conceptual change that many of his colleagues and academics did not believe in at first. Bratton set a target to reduce crime by 10 % the first year; the actual crime reduction was 12 %. George Kelling, the

co-author of *Broken Windows: the Police and Neighborhood Safety*, helped Chief Bratton to implement the broken windows theory in 1993. Bratton used the "broken windows" theory, which emphasizes taking into consideration less serious crimes, to develop the Compstat approach in the NYPD (Kelling and Sousa 2001). Moreover, Bratton set a target to fight the less serious and most serious crime at the same time and win back the city "block by block" (Smith and Bratton 2001).

Principles of Compstat

The main principles of Compstat were developed based on the concepts of crime reduction and quality of life improvement. These principles are: 1) timely and accurate intelligence; 2) effective strategies and tactics; 3) rapid deployment of personnel and resources; and 4) relentless follow-up and assessment (Bratton and Knobler 1998; Maple and Mitchell 1999; McDonald 2002; O'Connell 2002; Shane 2004; Henry 2005).

Timely and accurate intelligence: In order to respond to crime, police should have accurate information about criminal activities (Maple and Mitchell 1999; Walsh 2001). One step further, Bratton and Maple believe that "officers at all levels need to have accurate knowledge of particular types of crime occurring, how and where the crimes are being committed, and who the criminals are" (Bratton and Knobler 1998, 224). When the key features of Compstat are reviewed, one realizes that technology plays an important role. Data are gathered and distributed in a timely way throughout the department, and need to be delivered in an accessible format for users. Problems are identified based on crime analyses and then appropriate effective counter responses are developed. After that, data are collected to assess the responses and adjust strategies as necessary (McDonald 2004).

Compstat helps agencies develop strategic decisions, evaluate the decisions and hold police managers accountable (McDonald 2002). Bratton refers to the crime mapping component of Compstat as an early warning system (McDonald 2002). This information processing system makes the department a learning agency because data is gathered, distributed, managed, and assessed according to current situations (Walsh 2001). Therefore, Compstat requires good communication between precincts and units in the department (McDonald 2002).

Effective strategies and tactics: Once hot spots and crime patterns are identified by crime analysts, operational commanders need to develop strategies and tactics to respond to crime and quality of life problems. Middle level managers are supposed to be innovative and creative in decision making; however, all members are encouraged to suggest solutions (McDonald 2002). District commanders have to explain their plans, tactics and results at the meeting. Also, at Compstat meetings, managers share information, successes, and failures, so, successful strategies are adopted by other managers (Walsh 2001).

Rapid deployment of personnel and resources: The executive management provides middle managers within the authority and resources to achieve organizational objectives (Walsh 2001). Middle level managers get timely and accurate crime information, use their experience and develop problem solving tactics to reduce crime in their jurisdictions (Henry 2005). After effective strategies and tactics are developed, the district commanders deploy resources where and when they are needed. According to McDonald (2002), rapid responses are also necessary for proactive policing because if the managers deploy resources quickly, they can prevent some crimes before they occur. Managers have the authority to change work schedules and patrol routes. At the meetings, command managers can ask for additional resources to accomplish their goals (Walsh 2001).

Relentless follow-up and assessment: Executive managers and district commanders gather twice a week during three-hour meetings held at One Police Plaza (police headquarters), at seven o'clock in the morning (Bratton and Knobler 1998). These meetings enable executive managers and district commanders to have an opportunity to discuss the prevailing crime problems and strategies face-to-face (O'Connell 2002). Because commanders are supposed to implement strategies and explain the progress at the next meeting, notes are recorded and follow-up is required for that particular problem. At the next meeting, the commander describes the application of the new strategies and the results of this. If this did not result in success, the same process is continued (McDonald 2002). Therefore, relentless follow-up and assessment is critical to receive desired results (Bratton and Knobler 1998). It helps managers learn what works and what fails, so they can implement useful strategies for future problems. Also, executive and command managers should relentlessly evaluate their personnel's work and performance. This process enhances managerial accountability and develops high standards of organizational performance (Walsh 2001).

Each week, every precinct delivers the current week's data to the Compstat unit at headquarters where all data is gathered and a report is printed and delivered to the commanders prior to meetings. Commanders gather for the Compstat meetings weekly, where they draw attention to emerging crime and quality of life problems and explain what strategies and tactics they are pursuing to address them. After the commanders' briefing, executive managers begin questioning them. They have to answer questions about statistical increases in any crime category. Through Compstat, police agencies monitor and evaluate both organizational performance and the performance of individual commanders (Henry 2005; Smith and Bratton

2001). On the other hand, in some departments, rather than questioning middle managers, executive and middle managers focus on developing strategies at Compstat meetings.

However, accountability and performance measurements need to be defined in order to clarify the use of these terms in the context of the implementation of Compstat. According to Artley, "accountability refers to the obligation a person, group, or organization assumes for the execution of authority and/or the fulfillment of responsibility" (2001, 1). Performance measurement is defined as "measurement on a regular basis of the results (outcomes) and efficiency of services or programs" (Hatry 1999, 3). Hatry highlighted the importance of regular measurement for any managing for results movements because this enables establishing accountability within the organization. Accordingly, citizens and executive officers evaluate the services and programs. On the other hand, a performance appraisal, also called employee evaluation, performance review, performance evaluation, and results appraisal (Mathis and Jackson 2010), is used to evaluate the performance of subordinates at the individual level (Selden 2007) and "provides a platform for feedback about past, current, and future performance expectations" (Mathis and Jackson 2010, 329). In Compstat, performance measurement is used for measuring programs or services rather than performance appraisals. It is used to measure the success of strategies and operations to determine if the strategy needs to be modified, improve or discarded.

Elements of Compstat Implementation

Weisburd, Greenspan, Mastrofski, and Willis (2008), with support from the National Institute of Justice, U.S Department of Justice, conducted a nationwide survey in 1999-2000 to assess the diffusion and implementation of Compstat in police departments. Weisburd and colleagues (2008) identified six key elements to implement Compstat within an agency: mission

clarification, internal accountability, geographic organization of command, organizational flexibility, data driven problem identification and assessment, and innovative problem solving.

Mission Clarification: One assumption underlying Compstat is that in order to provide effective services, police departments must have a clear organizational mission. Executive managers are responsible for developing organizational missions that also serve to highlight priorities. Mission clarification also demonstrates the commitment of the top brass (Weisburd et al. 2003). While community policing often confuses organization members due to its various goals, Compstat aims to narrow organizational mission by concentrating on crime control, setting benchmarks for success, and developing commitment among organization members.

Internal accountability: The internal accountability approach must be established in the department in helping the organizational mission to be effective. Personnel must be accountable for their activities, not only what they do but also what they do not do (Bratton and Knobler 1998; McDonald 2002). Compstat meetings put pressure on middle managers who are accountable to executive staff for crime in their jurisdictions. Through these meetings, managers are held accountable and asked what they have done and are planning to do about crime problems in their districts (Weisburd et al. 2008). Managers are held accountable according to their performance and crime statistics. Executive managers also measure organizational performance through crime statistics, and therefore, departments can improve their performance (More and Braga 2003). According to Bratton, unsuccessful district commanders lose their commands while successful commanders keep their positions and get promoted (Walsh and Vito 2004). On the other hand, some agencies use the meetings to assess strategies being used or develop new ones. These agencies are more interested in having district commanders work with

other specialized units to develop and implement strategies rather than beating up the commanders over crime problems in their precincts.

Geographic organization of command: Once middle level managers became responsible, they were given authority to perform their duties based on geographic units. Under Compstat, operational authority shifted from executive managers to commanders of geographic units. Also, special units that used to be under central management were now placed under the control of precinct commanders. Therefore, commanders can implement specific tactics and strategies (Weisburd et al. 2008). Because middle level managers are in the field, familiar with problems in their precincts, and know the capacities of their personnel, they should be the decision makers involved in their operational activities rather than high level executives. Middle level managers can obtain timely accurate pieces of crime information and can use their experience to develop problem solving tactics to reduce crime in their jurisdictions. Autonomy must be given to middle level managers because they are responsible and accountable to the chief (Henry 2005).

Organizational flexibility: Before Compstat, all resources could only be obtained with the authorization of executive managers. In addition to providing authority, Compstat provides middle level managers control over more resources for their strategic applications. Thus, in order to develop organizational capacity, middle managers can allocate resources strategically based on timely and accurate data (Weisburd et al. 2008).

Data driven problem identification and assessment: The underlying assumption for any data driven approach is that the police should focus on the causes of crime rather than arresting individual criminals (Willis 2007). Proactive policing and data-driven approaches require data analysis; however, before Compstat, it was difficult to access crime data for managers, and they

could hardly rely on receiving the report analyses several months after crimes (Henry 2005).

Bratton (1996, 12) stated that "in 1994, the NYPD were not using the crime statistics to manage

the routine assignment of resources. At first, they told us that we could not get crime stats on a

daily or weekly basis" (Cited in O'Connell 2002, 123). O'Connell further explained the situation

by stating that when Deputy Chief Maple asked for the current crime statistics for executive staff

meeting, Maple was told that "such up-to-date information was unavailable" (2002, 122). On the

other hand, in the Transit Police Department even prior to Bratton, commanders received

analyzed crime data on daily basis (McDonald 2002). At that time, the NYPD not only began to

use a program to gather daily crime data but also to use crime mapping software to identify and

analyze the problems across New York City (McDonald 2002; O'Connell 2002). Therefore, hot

spots and police response could easily be seen by mapping and crime maps that were quickly

distributed to executive managers and precinct commanders (McDonald 2002). Through

Compstat, police managers could identify crime trends and patterns, respond to rapidly changing

conditions, and deploy their resources more effectively (Henry, 2005).

Innovative problem solving: Middle managers should think strategically and be creative in

problem solving. Decisions should be based on how efficiently they can use their skills,

knowledge, experience, and resources (Walsh and Vito 2004). Once crime analysts identify a

crime pattern by using computerized crime mapping, the relevant commander should be

immediately informed. Then, commanders are expected to choose the best option by considering

their own experiences, best practices in their or other departments, innovations in theory and

research (Willis 2007); eventually, develop strategies and deploy resources to the places where

the criminals are likely to be, in order to end crimes (Paulsen and Robinson 2009).

Dissemination of Compstat Nationally

The success of Compstat in crime reduction has been publicized and recognized as a significant innovation in policing. The program won awards from the John F. Kennedy School of Government at Harvard University and former Vice President Al Gore (Henry 2005; Weisburd et al. 2008). Weisburd and his colleagues, in their research, discovered how Compstat was diffused and elements related to its implementation in 2000. They found about 10% of small departments with 100 or less sworn officers, 30% of departments with more than 100 sworn officers, and 60% of police departments with 500 or more sworn officers were implementing Compstat. However, the relationship between agency size and implementation was not significant (Weisburd et al. 2008).

According to their findings, there was a significant relationship between region and implementation. In the Northeast, 26% of the police departments with over 100 sworn officers implemented Compstat while the figure was over 40% in the South. The reason for the rapid diffusion was that Compstat really proved to be effective in fighting crime and some of the principles of Compstat were already being used by other police departments. Diffusion of Compstat followed the "S Curve" when Weisburd and colleagues plotted the years of implementation (2008). Their figures showed that there was a clear indication showing the increasing number of agencies that adopted Compstat over the years.

After a national assessment, Willis and colleagues (2007) conducted qualitative research to examine the reason behind the implementation of Compstat in three police departments, Newark, New Jersey, Minneapolis, Minnesota, and Lowell, Massachusetts. Willis et al. (2007) used technical/rational and institutional theories to understand which of these theories better

explain adoption and implementation. Willis and colleagues argued that development and implementation of Compstat at the NYPD could be explained by applying a technical/rational perspective. However, when it came to adoption of Compstat by other agencies, they found both technical/rational and institutional approaches had an impact on police departments; however, adoption of Compstat was better explained by the institutional approach because pressure from the organization's environment such as appearing successful and progressive played a significant role (Willis et al. 2007).

Furthermore, Compstat has been adopted by police departments throughout the world. The NYPD has hosted police representatives from the UK, Canada, and Australia. These representatives took the idea of Compstat to their countries and began to implement some version of Compstat (Mazerolle et al. 2006).

The Effects of Compstat on Police Departments

According to O'Connell and Straub, the successful implementation of Compstat had a positive impact on the NYPD as regards "(1) the flow of information within the department, (2) the department's decision-making processes, and (3) the department's organizational culture" (2007, 88). Silverman (1999) argues that before Compstat, information sharing between headquarters, precincts and other units were very limited because they could not communicate informally; instead, they had to use official channels. Bratton and Jack Maple believed in transparency; therefore they opened the communication channels and broke down the barriers that prevented good communication between the units. Specialized units in the department, which always had a great deal of information, were used to share the information on a "need to know basis" (Silverman 1999, 184). During the meetings precinct commanders, executive managers, and heads of specialized units could talk face-to-face, discuss problems, and share

information in an open environment. Thus, the good communication increased the level of coordination among the units and precincts (O'Connell and Straub 2007).

In addition to the principles of Compstat, Bratton paid attention to organizational culture in order to reengineer the NYPD (Henry 2005). According to Henry, the executive managers should know how to manage the organizational culture. Occupational culture is very important for agencies, particularly for police departments. In most police departments, distinction between "street-cop culture" and "management-cop culture" causes internal clashes when it is not managed properly (Reuss-Ianni 1983; Henry 2005). Compstat diminishes the differences between cultures and values street officers who are fighting crime on the street (Henry 2005). By doing that, Bratton encouraged district commanders and showed tolerance of failures but asked them to learn from their failures. When a tactic or strategy fails, they should clarify the reasons for failure and develop better ones; in the same way, a successful tactic should be adopted by other commanders (Henry 2005). Through Compstat meetings, departments become learning organizations because commanders share their methods and tactics at the meetings (Smith and Bratton 2001).

Furthermore, Bratton tried to change the organizational culture by holding managers accountable and motivating them. Prior to 1994, the understanding of policing for commanders was to maintain the status quo, because they were afraid of doing something wrong. However, Bratton wanted to change the philosophy of the department from just responding to 9-1-1 calls to preventing and controlling crime (Bratton and Knobler 1998). Bratton stated that "police could be counted upon to have a significant effect on crime. With effective leadership and management we could control behavior in the street, and by controlling behavior we could change behavior. If we could change behavior we could control crime" (Bratton and Knobler 1998, XI). In his first

visit to a police station in New York City, Bratton told officers that "I want my cops to be cops. I want them to be assertive. I don't want them walking by or looking the other way when they see something. No matter what the old rules were, I expect you to see something and take proper police action" (Bratton and Knobler 1998, XVII). On the other hand, he warned them not to be brutal or corrupt.

The Outcomes of Compstat

As explained earlier in detail, because the existing bureaucratic structure and old systems do not work efficiently, agencies in general and police organizations in particular are looking for new ways to improve their organizational performance. According to Walsh (2001), policing is going through a paradigm shift. In order to understand the paradigm shifts in policing, the history and evolution of professional policing should be examined (Walsh 2001).

In the United States, after the 1930s, and in response to a call to reduce the political influence on police and police corruption, the Rational-Legal-Bureaucratic Model, also known as the Professional Model, was designed based on a hierarchical system of authority, centralization of command, professionalism, lack of community input, and crime control strategies (Gaines and Miller 2009). During this era, police isolated themselves from society which created communication problems with communities they served and established a police attitude of "us versus them." The understanding of this era was that traditional crime control is the best way to address crime problems, police knew best and the police did not need community involvement (Community Policing Consortium 1994). Furthermore, during the 1960s and 1970s, American society experienced the civil rights movement and the anti-Vietnam War movement that damaged the relationship between the police and society (Gaines and Miller 2009). Thus, police scholars and police executives began to question the rational-legal-bureaucratic model of

policing and aimed to develop various strategies to provide security to the communities they served (Walsh and Vito 2004). During this era, the recommendations of three Presidential Commissions, training, conferences, and research by agencies of the Department of Justice played a significant role in changes of police philosophy and practices that led to community policing (Community Policing Consortium 1994).

Walsh and Vito (2004) argued that the 1980s witnessed the community policing paradigm that aimed to improve the quality of life through efforts of community and police. Walsh and Vito (2004) underlined the fact that community policing empowers police officers to get to know their community's problem and they can then offer responses to solve those problems. According to the Community Policing Consortium (1994), community policing requires patrol officers to contact and interact with community members, in order to develop and maintain mutual trust, to understand the problems of the community first hand, and to sustain community involvement in crime problems. Furthermore, community meetings enable community members to address the significant issues and provide an atmosphere where police can present what they are doing to address those problems (Community Policing Consortium 1994). According to Gaines and Miller (2009), the characteristics of the community policing model are to improve the quality of life rather than to increase crime control, through decentralization, foot patrol, problem solving, and public relations.

During the 1990s, in response to the deficiency of the rational-legal-bureaucratic model and community policing, a new police-management paradigm, Compstat, was developed based on the concept of crime control and quality of life improvement (Walsh 2001; McDonald 2002; Walsh and Vito 2004). Compstat focuses on crime control, quality of life, empowering operational commanders, accountability, strategic management and information technology

(Wash and Vito 2004). From Weisburd and colleagues' perspective (2003) Compstat reinforces the rational-legal-bureaucratic model, on the other hand, Wash and Vito (2004) argue that Compstat is a synthesis of the rational-legal-bureaucratic model and community policing along with strategic management principles.

From Willis and colleagues' perspective (2010), one of the differences between Compstat and community policing is community policing is implemented based on Theory Y, while Compstat focuses on Theory X. From the researcher's perspective, in some agencies Compstat is implemented based on Theory X but in other agencies, where they depend on professional discussion and development of creative strategies, it is more akin to Theory Y. Willis and colleagues (2010) conducted a nationwide survey to assess the implementation of community policing and Compstat in large police departments. They then visited seven police agencies to assess the level of integration of the two police innovations.

Police departments implement innovations such as community policing and Compstat simultaneously but independently (Willis et al. 2010). They report that the top three reasons why agencies implement community policing and Compstat vary. Agencies implement community policing to increase the community satisfaction with the police, to respond to the priorities of individual neighborhoods, and respond to community requests while they implement Compstat to reduce crime, to be responsive to the priorities of individual neighborhoods, and to increase efficiency of service. Based on their findings, it is clear that Compstat is mostly adopted for crime reduction, while community policing is adopted to respond to community needs. Crime reduction is found as the fifth reason for adopting community policing strategies among agencies. They also reported that 97% of police departments were implementing community policing and 60% of them were implementing Compstat. The figure for Co-implementation was

59%. Willis and colleagues found no integration between the two innovations regarding mission clarification, internal accountability, data-driven problem identification and assessment, innovative problem solving tactics, and external accountability, but found low integration regarding organizational flexibility and decentralization of decision making (Willis et al. 2010).

The paradigm shift has led to some organizational changes and affected roles of organization members. One of the important components of Compstat is holding regular meetings. Moore (2003) argues that prior to Compstat, police executives talked to precinct commanders directly and privately, or in staff meetings. However, in Compstat meetings, held by participation of many organizational members and community members, commanders are questioned by the command staff (Weisburd et al. 2008). However, in some agencies, at the meetings, commanders are not questioned but, instead, they make presentations and discuss the problems. According to Moore (2003), these meetings increase pressure on precinct managers. On the other hand, in addition to increasing the pressure of performance measurement system, these meetings are aimed at providing an atmosphere where individual commanders can learn from the experience of others and increase the coordination among organizational members. Moore (2003) points out that the pressure is desirable if the organization has motivation and accountability problems; however, putting too much pressure on the performance measurement system might cause manipulation of the measurements and demoralization among organizational members.

After the implementation of Compstat, 76 % of the NYPD district commanders who did not support Compstat were replaced with managers who were devoted to aggressive policing during the first year of Compstat (Silverman 1999). Compstat caused shifting of the allocation of authority among organizational members. In contrast to middle managers, who became primarily

responsible for crime control, patrol officers' decision-making authority was restricted to some degree. Willis et al (2003) argue that while community policing gives more decision-making authority to line officers, Compstat gives authority to middle-managers. Rank and file officers are expected to act based on the chain of command. On the other hand, top management began to concentrate on strategic decision making and coordination, rather than crime control activities. According to Silverman (1999), Bratton used media as a communication channel via press conferences and repeated his message often "taking back the city, street by street, block by block" (1999, 91) to reinforce the aggressive policing.

According to Willis and colleagues (2003), Bratton bolstered measuring crime rates in districts and rewarded officers for crime reduction. In their research in Newark, Lowell, and Minneapolis, Willis et al. (2003) observed that top-managements' commitment to reduce crime rates caused confusion and cynicism among some officers. Willis and colleagues (2003) further argued that some officers disliked Compstat because Compstat was related to aggressive crime fighting in these departments. Willis and colleagues also found that because line officers did not attend meetings regularly, it was perceived as harsh and punitive rather than information sharing and problem solving. Although, line officers do not face punitive behavior for their poor performance, a district commander in Minneapolis stated that "district commanders were getting better at pushing the responsibility downwards" (Willis et al. 2003, 26). Part of their evaluation study, Willis et al. (2003) conducted a survey to police officers in Newark, Lowell, and Minneapolis police departments. They found that 80% of the patrol officers believed that "Compstat had made supervisors place too much emphasis on statistics, and 70% thought that "Compstat had done very little to increase teamwork within the department (Willis et al. 2003, 41).

Another attitudinal study associated with Compstat was conducted by Vito et al. (2005). For their qualitative study, Vito and colleagues collected data from the students attending the Administrative Officers Course at the Southern Police institute at the University of Louisville. Students completed a take-home examination after reading several books on Compstat. By a content analysis of the student's papers, Vito et al. (2005) identified the best and worst elements of Compstat. Their findings showed that police managers supported pattern identification modules (a multi-unit team composed of representatives of the housing, transit, patrol, detectives, organized crime control bureaus, and the robbery squad) and establishing accountability (Vito et al. 2005, 190). The findings indicate that police managers do not find some elements of Compstat functional, such as strategic and tactical command (geographic organization of command), and motivation of officers based on the number of arrests. Vito and colleagues also found that although majority of managers support civil enforcement units (department's legal unit to enforce law in order to combat quality-of-life and broken-windows offenses), one fourth of the participants thought it difficult to implement this approach because laws vary across police agencies (Vito et al. 2005).

Dabney (2010) also conducted an ethnographic study to examine the operation of Compstat and perception of officers in a single precinct of a metropolitan police department in the southeastern region of the United States. Dabney's research included interviews, ride alongs with patrol officers and supervisors, and observations of activities related to Compstat implementation. Dabney investigated the understanding of participants concerning the principles of Compstat and found that officers misunderstood the Compstat model and its principles. Based on the findings, Dabney stated that officers perceived crime statistics and analysis activities for auditing purposes rather than identifying crime patters; officers did not believe that timely

strategies and tactics are developed based on timely data; officers appreciated the proactive policing, rapid deployment of personnel and resources. Dabney also found that competition among precincts and other operational units decreased the level of information sharing and cooperation. Based on the findings, the least appreciated principle was the principle of relentless follow-up. The relentless follow-up was not seen as a means to fight crime but was perceived as an end result to please the brass. Furthermore, Dabney found that introduction of Compstat required role changes of middle and lower level managers; the autonomy and responsibility of lieutenants increased while sergeants experienced loss of decision making which decreased the performance of first-line supervisors (Dabney 2010).

Although, research is limited concerning the attitudinal aspects of Compstat, researchers examined officers' attitudes toward community policing and factors associated with officers' acceptance to change (Greene 1989; Sadd and Grinc 1994; Weisel and Eck 1994; Lurigio and Skogan 1994; Wycoff and Skogan 1994; Wilson and Bennet 1994; Lurigio and Rosenbaum 1994; Yates and Pillai1996; Lewis et al. 1999; Paoline et al. 2000; Cochran et al. 2002; Adams et al. 2002). Lurigio and Skogan (1994), in their research on community policing in Chicago, found that officers have neutral attitudes toward community policing in general; line officers were uncertain about the usefulness of the program, while managers and officers with more experience of service were optimistic and had positive attitudes toward community policing. Furthermore, Paoline et al. (2000) found that non-white officers held much more favorable attitudes toward community policing and less favorable attitudes toward aggressive policing than white officers. The findings of Paoline et al. indicate that college-educated officers have more positive attitudes toward community policing and less favorable attitudes toward aggressive policing; more

experienced officers have more favorable attitudes toward community policing and less

favorable attitudes toward aggressive patrol (2000).

On the other hand, Cochran et al. (2002) found that demographic characteristics were not

associated with sheriff deputies' acceptance of implementation of community policing; however,

police subcultural-crime control, service, cynicism, traditionalism-variables were found to be

significantly associated with receptivity to community policing. Durmaz (2007) also examined

the attitudes of officers toward change in the Turkish National Police and found that receptivity

to change, readiness for change, trust in management, communication of change, and training for

change were significant factors explaining officers' attitudes.

CHAPTER 3

METHODOLOGY

Research Design

The purpose of this study was to determine what factors explain officers' and managers' attitudes toward Compstat in Law Enforcement Agencies. The model, developed by Cochran and colleagues (2002) was tested to understand how well demographic characteristics, police culture and organizational (agency readiness) variables explain officer attitudes. According to Qiao and Thai (2002), the implementation of performance reforms leads to both organizational change and cultural change in government agencies. As an administrative innovation (Moore 2003), Compstat has been adopted by many police departments across the country to improve organizational performance since 1990 (Weisburd et al. 2003). Compstat, which is referred to as a new police management paradigm (McDonald 2002; Walsh 2001), "is an attempt to a synthesize rational-legal bureaucratic and community policing models with strategic management concepts" (Walsh and Vito 2004, 66).

In order to implement Compstat successfully, police departments need to make some significant reorganization movements such as using GIS and information technologies, implementing innovative tactics and strategies, empowering middle managers and holding them accountable for accomplishing organizational goals. Nevertheless, changes often cause cynicism and resistance among employees (Cochran et al. 2002). However, to be successful, a policing program or policy must be understood and accepted by employees (Lurigia and Skogan 1994). According to Lurigio and Skogan (1994), police officers can resist changing because they think

that most reforms are adopted without their opinions being asked, and officers who have seen various initiatives feel that they do not lead to success.

Despite an increased interest in Compstat, the literature which examines attitudes of law enforcement officers toward Compstat is almost non-existent. Thus, this study attempts to contribute to the literature by examining employees' views of Compstat within law enforcement agencies. Through analyzing demographic characteristics, police cultural dimensions, and organizational features, the researcher aimed to discover attitudinal similarities and differences between and among officers in three law enforcement agencies (Cochran et al. 2002).

This study used a mixed method approach, defined as "the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts, or language into a single study" (Johnson and Onwuegbuzie 2004, 17). In order to reduce the weaknesses of quantitative and qualitative research and utilize the strengths of these, the researcher adopted a mixed method strategy. However, like other research strategies, mixed method strategies have both weaknesses and strengths (Johnson and Onwuegbuzie 2004). Johnson and Onwuegbuzie (2004, 21) identified the weaknesses of mixed methods as follows: (1) It can be difficult for a single researcher to carry out both qualitative and quantitative research; (2) researcher have to learn about multiple methods and approaches and understand how to mix them appropriately; (3) more expensive, time consuming. The authors also identified the strengths of mixed methods as follows:

- Words, pictures, and narrative can be used to add meaning to numbers.
- Numbers can be used to add precision to words, pictures, and narratives.
- Can provide quantitative and qualitative research strengths.

- The researcher can generate and test a grounded theory.

- Can answer a broader and more complete range of research questions because the researcher is not confined to a single method or approach.

- A researcher can use the strengths of an additional method to overcome the weakness in another method by using both in a research study.

- Can provide stronger evidence for a conclusion through convergent and corroborated findings.

- Can add insights and understanding that might be missed when only a single method is used,

- Can be used to increase the generalizability of the results.

- Qualitative and quantitative research used together produces more complete knowledge necessary to inform theory and practice. (2004, 21)

Creswell (2009), in his book entitled *Research Design,* identifies several mixed methods models. Among them, the researcher uses one of the traditional mixed methods (concurrent triangulation strategy) in this study. The concurrent triangulation model uses both quantitative and qualitative methods to collect data and compares and combines the findings in a discussion section (Creswell 2009).

Therefore, this study was conducted in two phases. For the first phase of the research, quantitative approach, a survey instrument was used to collect data because this method allows collecting data from a large population. A questionnaire was administered to collect data on police subculture, demographic characteristics, structural/organizational features, and participants' attitudes toward Compstat. According to Maxfield and Babbie (2008), a survey design is the most appropriate method if the unit of analysis of research is individual people.

Maxfield and Babbie also state that surveys are often used to examine perceptions and attitudes within the population. Since the researcher examines law enforcement officers' attitudes toward Compstat, a survey is the best suited method for collecting quantitative data.

In addition to conducting the survey, structured interviews with police chiefs, or a person who represents the chief's views, were conducted in order to obtain information about the agencies' implementation processes, such as its infrastructure and managerial style. Furthermore, the researcher interviewed someone familiar with the technical aspects of the departments to examine the level of technical capacities. The researcher used questions developed by Weisburd et al. (2008) and Willis et al. (2010) to conduct the structured interview. According to Bryman (1989), the difference between surveys and structured interviews is that the former is administered by respondents, while the structured interview is administered face-to-face by the researcher. Thus, the researcher met and interviewed police chiefs and technical personnel in their offices.

For the second phase of the study, qualitative data were gathered through semi-structured interviews. By using some of Weisburd et al.'s (2008) questions, the researcher interviewed several rank and file officers and managers at each agency.

Research Questions and Hypotheses

This research was designed to answer the following major questions:

1) What are officers' and managers' attitudes toward the Compstat model of policing?
2) Does law enforcement officers' support of Compstat differ by demographic variables (gender, race, rank, work experience, education, age groups, and departments)?

3) How well do demographic characteristics, police subculture, and organizational/structural features explain officers' attitudes toward Compstat?

Based on the research questions, the following hypotheses were developed and tested:

- Hypothesis Ho1: There are no statistically significant differences for demographic variables (a) age, (b) gender, (c) race, (d) rank, (e) work experience, (f) education, and (g) department on officers' attitudes toward Compstat.

- Hypothesis Ho2: There is no statistically significant difference on officers' attitudes toward Compstat in terms of understandability.

- Hypothesis Ho3: There are no statistically significant relationships between police cultural variables (a) crime fighting, (b) legal restrictions, (c) community cooperation, (d) community policing, (e) distrust of citizens, (f) optimism about police/community relations, (g) receptivity to change, (h) supervisory attitude and officers' attitudes toward Compstat.

- Hypothesis Ho4: There are no statistically significant relationships between organizational/structural variables (a) perception of agency readiness, (b) perceived effectiveness, (c) understandability and officers' attitudes toward Compstat.

- Hypothesis Ho5: There is no significant contribution of demographic variables [(a) age, (b) gender, (c) race, (d) rank, (e) work experience, (f) education, and (g) department], police cultural variables [(h) crime fighting, (i) legal restrictions, (j) community cooperation, (k) community policing, (l) distrust of citizens, (m) optimism about community relations, (n) receptivity to change, (o) supervisory attitude], and organizational/structural variables [(p) perception of agency readiness, (r) perceived

effectiveness, (s) understandability] to the prediction of officers' attitudes toward Compstat.

Population, Sample, and Participants

The population for this study consists of sworn officers of selected law enforcement agencies that implement Compstat: one county police department, one county sheriff's department, and one transit police department. These law enforcement agencies were selected because they offered a mix of both urban and rural areas, represented a variety of population sizes, and had been implementing Compstat at least one year prior to the research. Compstat had been implemented for over than 10 years in the county police department, 4 years in the sheriff's department, and more than 1 year in transit police department. Also, the size of agencies varied: the county police department was a large agency with over 500 sworn officers, while the sheriffs' department and transit department were mid-size agencies with 100-500 sworn officers. However, since agencies were not chosen randomly, the result of this study do not represent all law enforcement agencies in the United States.

This study utilized a non-random purposive sampling technique (convenience sampling). Each sworn officer was the unit of analysis for this study. Questionnaires were distributed to volunteer sworn officers including police officers, sergeants, lieutenants, and captains present at roll calls at each precinct within each agency from June to October, 2012. Collecting data from each work shift at each precinct minimized any potential sampling bias. The head of each agency and one officer from the crime analysis unit were selected purposefully to gain managerial and technical knowledge in addition to understanding their attitudes toward Compstat. Furthermore, several rank and file officers and managers were interviewed on a voluntary basis.

Data Collection

The universe of this study includes sworn staff members of three law enforcement agencies. A cross-sectional survey was performed via a self-administered questionnaire to volunteer rank and file officers and managers in precincts of each law enforcement agency. The researcher visited each precinct, including every shift, and after introducing himself and providing brief information about the survey, the questionnaire was distributed to officers who wanted to participate in the study voluntarily and was collected by the researcher during the roll calls. The questionnaire was hand delivered to individual officers and managers who did not present at roll calls regularly. Furthermore, a number of questionnaires with a stamped envelope were left to administrative officers for those who were not present at roll calls due to illness, day-off, court or personal leave. Precincts were chosen to conduct the survey because the officers at precincts are the most affected organizational members due to organizational change. Moreover, the researcher aimed to reach patrol officers, most of whom work at precincts in law enforcement agencies, because rank and file officers implement organizational policies at the street level. As noted by Lurigio and Skogan (1994), gaining police officers' support and dedication is crucial for a successful implementation of a policing program.

In policing, scholars have used survey instruments successfully to measure attitudinal factors. For instance, Greene (1989), Lurigia and Skogan (1994), Wycoff and Skogan (1994), Wilson and Bennett (1994), Lewis et al. (1999), Paoline et al. (2000), Adams et al. (2002), Cochran et al. (2002), Novak et al. (2003), and Moon et al. (2005) examined attitudes of officers toward community policing through survey instruments. In order to increase reliability of the study, the survey questions were drawn from various surveys developed by Lurigio and Skogan (1994), Wycoff and Skogan (1994), Adams et al. (2002), Cochran et al. (2002), and Cochran and

Bromley (2003). In addition, some statements used for the dependent variable scales were modified and items for the "officers' perceptions of agency preparedness/readiness" scale were created in a manner similar to the scale used for measuring community policing by Cochran and colleagues (2002). The same method was also followed for the "support of Compstat" scale using Adams et al.'s (2002) survey questions. In addition, one reverse coded item "Compstat was one more fad in policing and will soon be replaced by another fad" was adopted from Adams et al.'s survey questions and added to this scale to reduce response bias.

Although using a survey to collect data has many advantages, it has also several limitations (de Lancer Julnes 2009). Schein explains several problems that might occur in the use of surveys for cultural studies as follows:

(1) Not knowing what to ask.

(2) Employees may not be motivated to be honest.

(3) Employees may not understand the questions or interpret them differently.

(4) What is measured may be accurate but superficial.

(5) The sample of employees surveyed may not be representative of key culture carriers.

(6) The profile of dimensions does not reveal their interaction or patterning into a total system.

(7) The impact of taking the survey will have unknown consequences some of which may be undesirable or destructive (2010, 159-160).

In order to address these shortcomings, follow-up interviews were conducted to gain greater depth of officer attitudes. Although a great number of police scholars used questionnaire in their attitudinal studies, in this study, the researcher used a mixed method approach. Structured interviews were conducted with the head of each department and with technical

officers from crime analysis units. In addition, semi-structured interviews were conducted with several officers and managers who participated in the survey earlier.

In order to examine police culture, several measures have been developed. For example, Paoline (2001) created an instrument to measure the dimensions of police culture including citizen cooperation, citizen distrust, sergeants, district management, procedural guidelines, law enforcement, order maintenance, community policing, aggressive patrol, and selective enforcement. Cochran et al. (2002) developed and used an instrument measuring five dimensions of police culture including crime control, service, cynicism, traditionalism, and receptivity to change. In this study, in order to measure police culture, Cochran and colleagues' instrument were used. In addition, the scale measuring perception of upper level management was borrowed from Paoline (2001). Also, questions related to demographic characteristics, and attitudinal dimensions were posed.

Measurement of Variables

Dependent Variable

The dependent variable for this study was law enforcement officers' and managers' attitudes toward Compstat. Attitude was defined by Fishbein and Ajzen (1975, 6) as a "learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object." According to Eagly and Chaiken, attitude is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (1993, 1). In this study, attitude is defined as the extent to which a participant expresses a favorable or unfavorable perception toward Compstat. Likert-type items were used in the survey to assess officers' attitudes toward Compstat. In order to measure whether participants supported

Compstat, a support of Compstat scale was created similar to the support of community policing scale developed and used by Wycoff and Skogan (1994), Adams et al. (2002).

Support of Compstat: The scale was designed to measure whether officers are supporting Compstat. Five point Likert-type statements ranging from 1 (strongly disagree) to 5 (strongly agree) were used as response options. Principal components analysis and reliability analysis of the five Likert-type items indicated four items represent support of Compstat. The items were summed and coded so that a higher score indicated greater support of the law enforcement agency in implementing Compstat.

Independent variables

In this study, the researcher uses a model developed by Cochran and colleagues (2002) to understand officers' attitudes toward Compstat implementation. The independent variables were classified by three groups: socio-demographic and work experiences, police subculture, and perception of agency preparedness/readiness.

(1) *The measure of socio-demographic characteristics and work experiences* has been named *the life experiences/life chances model*. This model examined the effects of officers' attributes such as race, age, years of service, gender, education, department, and rank on officers' attitudes toward Compstat. It was believed the officers' background characteristics and different departmental policies might impact the officers' views of organizational change initiatives (Cochran et al. 2002; Paoline 2001).

(2) *The measure of officers' work orientations*, which was termed as an officer/organizational *subculture model*, examined the effects of crime control, service work

orientations, cynicism, traditionalism, receptivity to change (Cochran et al. 2002), and perception of upper level management (Paoline 2001).

The dimension of *crime control* measured "the importance officers place on the law enforcement and crime control functions of their jobs" (Cochran et al. 2002, 515). Police culture research suggests that officers perceive crime fighting activities as real police work (Sparrow et al. 1990; Paoline 2004). During the reform era, crime control orientation was reinforced and arrests became the most important tool of policing (Sparrow et al. 1990). As noted by Sparrow and colleagues (1990, 42) "arrest remains unquestionably popular. Putting bad guys in jail seems to the police and the public alike a just and plausibly effective response to crime." This scale also measures officers' views of legal restrictions on police behavior. Police officers' views of crime control was measured by Likert-type statements with response options ranging from 1 (strongly disagree) to 5 (strongly agree). Through performing principal components analysis and Cronbach's alpha test of reliability, two components found to represent crime control were: crime fighting and legal restrictions.

The dimension of *service work orientation* measures the extent to which officers place importance on community-oriented policing (Cochran et al. 2002). Contrary to traditional top-down management, community policing is a bottom-up strategy which highlights the importance of the empowerment of police officers and community involvement in problem solving (Walsh 2001). Police culture research suggest that police officers do not think that community policing works; instead, they perceive it as "baby sitting", "social work" or "not real police work" (Lurigio and Skogan 1998; Cochran and Bromley 2003). Principal components analysis and reliability analysis of the 14 Likert-type items indicated that community cooperation and community policing components represent a service work orientation.

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The dimension of *cynicism* measures the extent to which officers trust in people regarding various aspects of police/community relations. According to the literature on police culture, police have negative attitudes toward citizens and do not trust them due to "us vs. them" attitude (Westley 1970; Paoline 2001). Principal components analysis and reliability analysis of the nine Likert-type items showed that two components represent the dimension of cynicism: distrust of citizens and optimism about police/community relations.

The dimension of *traditionalism* measures the extent to which officers place importance on traditional management structure of law enforcement agencies. Between the 1930s and 1970s, the bureaucratic management control system was dominated in law enforcement agencies by the reformers. The top-down model centralized the management of police operations and reduced officers' discretion (Sparrow et al. 1990; Walsh 2001). Participants' attitudes toward traditionalism were measured in terms of six Likert-type questionnaire items (Cochran et al. 2002). These items were used to measure participants' perceptions whether they support the traditionalist/authoritarian management style or the participatory style of management. However, although principal components analysis produced one factor, it was found that the items assigned to the factor did not form a reliable scale (α=.58).

The dimension of *receptivity to change* measures officers' receptivity/openness to organizational change. Oxford Dictionaries (2011) defines receptivity as "willing to consider or accept new suggestions and ideas." Principal components analysis and reliability analysis of the four Likert-type items supported a single factor solution. These items were then summed and coded so that a higher value indicated that officer has high level of openness to change.

The *perception of supervisory* measures "the degree to which officers hold favorable perceptions of top management" (Paoline 2001, 72). Based on the literature concerning police culture, the researcher expected to find that police officers have unfavorable attitudes toward upper level management (Paoline 2001). Police officers' views of top management were measured in terms of three Likert-type questionnaire items with response options ranging from 1 (very unlikely) to 4 (very likely). These items, after principal components analysis and reliability test, were summed and coded so that a high score indicated that officers held positive attitudes toward upper management.

(3) The measure of officers' perceptions of agency preparedness/readiness for Compstat was also termed as an *organizational/structural model*. The third model examined the officers' perception about how well the organization was prepared for the implementation of Compstat and the availability of resources for implementation. However, because of limited knowledge of patrol officers about resources dedicated to the implementation of Compstat, availability of resource scale was excluded from this study. Instead, the perceived effectiveness of Compstat scale was added to the model.

Perceived effectiveness of Compstat: In this study, using the Theory of Planned Behavior (Ajzen 1985) and the Technology Acceptance Model (Davis 1989), perceived effectiveness was defined as the degree to which the participants believed that implementing Compstat improves organizational performance. In the technology acceptance model, the perceived usefulness is the most significant contributor to predict users' attitudes and acceptance of technology (Davis 1989). Likewise, the researcher assumed that the perception of the effectiveness of implementing Compstat would very likely have a positive effect on determining officers' attitudes. The scale was adopted from Adams et al. (2002). The perceived effectiveness was measured using six

items on a 3-point Likert scale with 1 meaning "less likely", 2 as "no change", and 3 as "more likely". It was coded so that a higher score indicated participants' positive views about the effectiveness of Compstat.

The dimension of *agency readiness* measured the extent to which officers "placed importance on the planning, training and resource deployment that the agency has invested toward its Compstat initiative" (Cochran et al. 2002, 517). This scale measured how well their agency was prepared for Compstat through asking questions regarding communication of Compstat policies, training, management commitment, and resource distribution. Participants' views of agency readiness were measured in terms of six Likert-type questionnaire items (ranging from 1 = strongly disagree, to 5 = strongly agree). A single factor model was found to represent the dimension of agency readiness by performing principal components analysis and reliability analysis. These items were also factor analyzed, summed and coded so that a high score demonstrates a positive view of agency preparedness/readiness for the transition toward Compstat (Cochran et al. 2002). Furthermore, knowledge of participants about Compstat was measured in terms of a single Likert-type item.

Data Analysis

After the primary data was collected through self-administered surveys, the data was entered into SPSS (Statistical Package for the Social Sciences) to perform statistical analysis including principal components analysis, reliability analysis, descriptive statistics, independent samples t-test, one-way ANOVA test, Pearson correlation coefficients, and multiple regression analysis. In this study, data analysis was performed in seven stages. The confidence interval was set at 95% (corresponding to a significance level of 0.05).

First of all, sample and data analysis procedures were described. The characteristics of participants were presented by descriptive statistics. The demographic characteristics of law enforcement officers, including race, gender, age, years of service, education, rank, and department were described.

In the second stage of the study, principal components analysis and reliability analyses were conducted. Since Likert-type questions were used to collect data, indices were created by using a Likert-type scaling (summated rating scale) technique. However, before creating indices, principal components analyses were conducted to reduce the number of variables and to determine whether the items in the scale measured the same construct (Hair et al. 2006). Principal Components Analysis was used to conduct factor analyses on each construct to explain the information provided by many variables (Julnes 2007).

After principal components analysis, reliability analyses were conducted to measure whether components form reliable scales. Reliability is defined as "a matter of whether a particular measurement technique, applied repeatedly to the same thing, will yield the same result each time" (Maxfield and Babie 2008, 130). There are four methods for assessing reliability analysis: test-retest, internal consistency, split half, and inter rater reliability. In this study, the widely used reliability method, Cronbach's coefficient alpha, was used to determine internal consistency of items in each survey instrument. "Internal consistency reliability means that multiple items, designed to measure the same construct, are intercorrelated with one another" (Spector 1992, 6). The value of alpha coefficient ranges from 0.00 to 1.00 and the higher score indicates a more reliable scale. Most researchers accept 0.7 as an acceptable value for the reliability coefficient (Spector 1992), but some authors accept 0.6 for reliability (Currie

and Dollery 2006). Also, missing data was screened, and it was handled by choosing a pairwise deletion method.

The summated rating scale was developed by Rensis Likert (1932) to assess attitudes, but it is also used to measure opinions, personalities, and description of people (Spector 1992). Although there has been debate for over fifty years, whether Likert-type measurement scales can be used as interval level data, it is a common methodology in all fields of research (Spector 1992; Carifio and Perla 2007, 2008). Carifio and Perla (2008) state that

> It is perfectly appropriate to summarize the ratings generated from Likert scales using means and standard deviations, and it is perfectly appropriate to calculate Pearson correlation coefficients using the summative ratings from Likert scales and use these correlations as the basis for various multivariate analytical techniques, such as multiple regressions…(1151).

Spector (1992, 1) summarizes characteristics of a summated ratings scale as follows: "(1) it must contain multiple items, because multiple items will be combined or summed; (2) each individual item must measure something that has an underlying, quantitative measurement continuum; (3) each item has no 'right' answer; and (4) it cannot be used to test for knowledge or ability."

Hilkin (1995) analyzed questionnaire items and variables of 75 published articles from 1989 to 1994 in leading academic journals, including *Journal of Applied Psychology, Organizational Behavior and Human Decision Process, Human Relations, Journal of Management, Academy of Journal of Management,* and *Personnel Psychology*. Hilkin found that except for two of the studies, all researchers used Likert-type scales, and scale construction varied from single item to 46 items. Furthermore, Likert-type scales have been used to form indices in the field of policing by Paoline (2001), Lurigio and Skogan (1994, 1998), Greene (1989), Moon (2006), Moon et al. (2005), Cochran et al. (1999), Adams et al. (2002), and Durmaz (2007).

Likert-type questions generally measure the degree of agreement, evaluation, or frequency (Spector 1992). Spector stated that scholars generally use four to seven response levels in their studies. According to Spector, many scale developers use a neutral response category in their instruments. Spector further stated that "agreement response choices are usually bipolar and symmetrical around a neutral point" (1992, 19), and "attitudes are often bipolar, because one can have positive, neutral, or negative attitudes (1992, 22). Furthermore, Allen and Seaman (2007) stated that scales which are shortened to four response categories by removing the neutral response choice are "forced choice" survey scales. According to Schuman and Presser (1981, 161-178), "participants who see themselves as being neutral, may skew the results if you force them to choose between opposites. In most cases, 10% to 20% of the participants who do not have strong feelings on an issue will choose an explicit middle, neutral alternative" (Cited in Schutt 2012, 238). Scholars such as Lewis et al. (1999), Lurigio and Skogan (1994), Cochran and Bromley (2003), Cochran et al. (1999, 2002) are among police scholars who used a neutral response category in their research.

Furthermore, survey instruments such as overall job satisfaction (Cammann et al. 1983), job satisfaction index (Tsui et al. 1992), organizational commitment questionnaire (Porter et al. 1974), and perceived organizational support (Eisenberger et al. 1986) have been developed and are available to public administration scholars with 5 or 7 point response choices including a neutral response in the middle for years. Since the researcher chose to use five-point Likert scales including a neutral response category in the middle in order to collect data, indices were computed for both dependent variable and independent variables using all response categories. Likert-type scales have been used with or without a middle point; however, the discussion above

indicates that it is unreasonable to remove the neutral response category after data collection is completed.

According to Spector, if a five-point scale ranging from 1 to 5 is used; a neutral response would be assigned a "3". Since, the questions are developed in order to measure the degree of agreement, this study used a five-point response choice coded as follows: 1=strongly disagree, 2=disagree, 3=neutral, 4= agree, 5= strongly agree (Spector 1992; Sims 1999; Allen and Seaman 2007). Also, as it was suggested by Spector, the researcher used both positively and negatively worded items in the questionnaire to minimize response bias. Therefore, negatively worded items were reverse coded as 5=1, 4=2, 3=3, 2=4, and 1=5 (Spector 1992; Sims 1999). Moreover, dummy variables were created from non-metric independent variables such as gender (0=female, 1=male), race/ethnicity (0=non-white, 1=white), and rank (0=police officer/sheriff's deputy, 1=manager).

In order to create indices, items that measure the same construct and form a reliable scale were summed and coded so that higher scores indicated stronger agreement (Spector 1992; Hair et al. 2006). For instance, to measure officers' perception about the impact of Compstat on crime, six items were summed, so that a higher score suggested officers' optimism about the effectiveness of Compstat.

In the third stage, descriptive statistics, including percentage, mean, and standard deviation for dependent and independent variables were introduced. Frequency distributions were used to examine the attitudes of participants for each question. In order to answer the first research question, "What are officers' attitudes toward Compstat model of policing?" frequency distributions were presented.

In the fourth stage of the study, independent samples t-test and one-way analysis of variance (ANOVA) were conducted to examine whether law enforcement officers' attitudes toward Compstat differ by demographic variables (gender, race, rank, work experience, education, age groups, and departments). The independent samples t-test is used to compare two means, while one-way ANOVA allows comparing more than two means (Sirkin 2006; Brace et al. 2003). When ANOVA found significant differences, Scheffe post hoc analysis was conducted to examine the differences between each group. Level of significance was set at $p<0.05$ for all statistical tests.

In the fifth stage of the study, the Pearson product moment correlation coefficient was computed to present the correlations among dependent and independent variables. A correlation coefficient is used to compute the strength of the association between variables. The value of coefficient ranges from -1 to +1. A coefficient of -1 indicates a perfect negative relationship, 0 indicates no relationship, and +1 indicates a perfect positive relationship (Hair et al. 2006).

In the sixth stage, a standard multiple regression using ordinary least square (OLS), the primary method of analysis in this study, was conducted to answer the third research question, "How well do demographic characteristics and work experiences, police subculture, and organizational/structural features explain officers' attitudes toward Compstat?" In the regression model, police subcultural variables (crime control, service, cynicism, traditionalism, receptivity to change, perception of supervisors, and perception of upper level management), organizational/structural variables (agency readiness, and perceived effectiveness, and understandability), and demographics (race, age, gender, years of service, education, rank, and department) were used as independent variables to test how well they explain the dependent variable (support of Compstat).

Before applying regression analysis, data was screened for potential outliers and if they exist, they were eliminated. Also, data was tested for multicollinearity problems with the independent variables. If there is high correlation among independent variables, multicollinearity becomes a problem. In order to identify the degree of multicollinearity, tolerance statistics and (VIF) variance inflation factor were reviewed. Researchers generally accept existence of multicollinearity problems with the tolerance value of less than 0.10 and VIF value of more than 10 (Hair et al. 2006). In case of multicollinearity problems, the researcher drops one of the variables and "uses the model with the highly correlated independent variables" (Hair et al. 2006, 233).

The final stage of data analysis involved data gathered through structured and semi-structured interviews. Structured interview data were used for descriptive information about the program, top management's views about Compstat, and technical issues. Therefore, this data helped analyze the survey data and compare similarities and differences between agencies. The semi-structured interviews were used to collect qualitative data. For the qualitative data analysis, the researcher followed the process identified by Creswell (2009):

1. The data was organized and prepared for analysis.

2. All data were read to gain a full understanding of the information.

3. A detailed analysis was conducted with a coding process.

4. A description of the setting or people or themes was generated for analysis.

5. Narrative passages were used to express the findings of the analysis.

6. An interpretation was made about the findings (185-189).

Ethical Issues

The research was reviewed and approved by the Institutional Review Board (IRB) at the University of Baltimore. Then, official permissions were obtained from law enforcement agencies to conduct the research. The population for questionnaires included police officers and managers in precincts. In order not to harm participants, the research does not reveal their identities. Also, participants were chosen among volunteers and all collected data has not and will not be used for anything other than academic purposes (Maxfield and Babbie 2008). The identity of participants was kept confidential; no one knew who participated in the research and who did not, no one at their agency was able to see their questionnaires; names were not used in reports of the research and all information was kept under secure conditions. The researcher will destroy all surveys and interviews at the end of the research.

Furthermore, in this study, the guidelines recommended by Locke et al. (2007) were followed. Participants of the study were (1) "informed of the general nature of the investigation, and within reasonable limits, of their role in terms of time and effort", (2) "informed of procedures used to protect their anonymity", (3) provided with a copy of consent form, (4) informed discomforts or risk and benefits of their participation in research, (5) "instructed that they are free to withdraw their consent and to discontinue participation in the study at any time", (6) "provided with the name of the person responsible for the study", and (7) "offered the opportunity to receive feedback about the results of the study" (31-32).

CHAPTER 4

DATA ANALYSIS

In this chapter, results of the data analyses are reported. The research questions are answered using quantitative and qualitative data. The analysis and findings of research are presented in two sections: quantitative and qualitative data analysis. First, the quantitative data is presented; the research questions and hypotheses are answered by using quantitative data. Then, the results of qualitative data are presented in a narrative format to explore upper level managers', crime analysts, and sworn officers' perspectives in detail toward Compstat. Finally, the findings of these two methods are discussed.

Results of Quantitative Data

The process and the results of the survey questionnaire findings, primary method of data collection, are presented in the quantitative section of this study. First, the data collection process is discussed. The descriptive statistics are presented to describe the characteristics of law enforcement officers who participated in this research. Then, principal components analysis was performed to test the constructs between items. The reliability and validity of the indices was assessed. The independent and dependent variables and related items in the survey were reported through univariate descriptive statistics. Independent samples t-test and one-way analysis of variance (ANOVA) were performed to determine if attitudes vary by demographic variables. Furthermore, multiple regression models were used to test the influence of police culture, organizational variables, and demographic variables on attitudes of officers toward Compstat.

Sample

The population of this study is law enforcement officers employed at a sheriff's department and two police departments. Three law enforcement agencies, one county sheriff's office, one county police department, and one transit police department, were chosen because they represent various law enforcement agencies, and had implemented Compstat at least one year prior to the study. Since the head of one of the agencies initially chosen for this study did not give permission for research, another agency was included as a substitute. These law enforcement agencies are located in the South Atlantic region of the United States. Quantitative data was collected by a self-administered survey among the organizational members of each agency with particular ranks (sheriff's deputy/police officer, corporal, sergeant, lieutenant, and captain).

Following the approval of the IRB at the University of Baltimore, the questionnaire was pilot tested with 40 police officers at criminal investigation units of the county police department for clarity and understandability. Participants in the pilot study were excluded from the main study. After getting permission from the top command of each department, a survey questionnaire was distributed and completed during roll-call for each of the three shifts of all precincts/districts of each agency from June to October, 2012. In only one of the precincts, because officers were too busy to complete it during roll-call, the questionnaire was distributed and participants left their questionnaires in a sealed envelope in a closed locked box. Also, in order to be completed and mailed to the researcher, questionnaires and stamped envelopes were left for those who were unavailable for survey because of illness, court, day-off, or other personal leave.

Among 538 questionnaires distributed to participants at three agencies, 530 questionnaires were collected; only eight officers declined to participate in the research. However, only 47 of a possible 164 questionnaires were returned to the researcher from those who were expected to mail their questionnaire. Nevertheless, 14 questionnaires were discarded due to numerous missing data. Therefore, a total of 563 completed surveys which provided an 80% response rate were used in this study. The number of eligible surveys from each department was as follows: county police department, 397 of a possible 488 (81%); county sheriff's department, 76 of a possible 97 (78%); and transit police department, 90 of a possible 117 (77%). Several participants chose not to answer all questions, especially the socio-demographic questions.

Characteristics of Participants

The majority of the participants who participated in the survey were police officers or sheriff's deputies (See Table 1). Of 551 who completed survey, 429, or 76.2%, were in this group. The second highest category was first-line supervisors; corporal at 3.7%, and sergeant at 9.4% of participants. About 6% of the participants were lieutenants. Precinct commander level, captain, was the lowest level of the category, with 2.3% of participants. The rank distribution represents the population. Since police departments have hierarchal administrative structures, officers and first line supervisors (corporals and sergeants) fill the bottom of the pyramid, and as the rank level increases the number of high ranking officers decreases.

Out of 533 who answered, 63, or 11.2% were females, and the majority of participants were males (490, or 87%). The distribution of gender and race (Table 1) indicated that majority of the participants were white males.

Of 563 who completed the survey, 427, or 75.8%, were in the category of white (See Table 1). The second highest category was African Americans with 81, or 14.4% of participants. There were 16 participants in Hispanic or Latino category (2.8%), 11 participants were Asian (2.0%), 1.4% were representing other minorities, and some participants (3.6%) declined to answer this question.

The age of the participants ranged from 21 to 59 years. The average reported age for the law enforcement officers in the sample was 36.5 years with a standard deviation of 9.0 years. Four groups (20-29, 30-39, 40-49, and 50 and above) were created. Almost one quarter (24.3%) of the participants were between 20 and 29 years old; 31.4% were between 30 and 39; 24.3% of them were between 40 and 49; and 9.1% of participants were in their 50s (See Table 1).

Of 548 who answered, about one-third of the participants reported having a high school diploma or GED (36.8%), 28.2% having an associate's degree, and 29.1% having a bachelor's degree. The least number of participants for education level were those with graduate degrees (3.2%). The educational level of participants is displayed in Table 1.

The participants were categorized into four groups based on their work experience with their current agencies. Of the sample, 13.5% of them reported having less than 3 years experience, 40% having 3 to 10 years experience, 29.8% having 11 to 20 years experience, and 14.4% having more than 20 years of experience (See Table 1). This result shows that most of the officers are in the category of having 3 to 20 years of experience. The category with the most years of service is the lowest percentage of participants because most of the officers in this category either do administrative jobs or have transferred to criminal investigation units.

Table 1: Demographic Characteristics of Participants

Item	Contents	Number of Samples	Percent	Total
Ranking	Police officer/Sheriff's deputy	429	76.2	551
	Corporal	21	3.7	
	Sergeant	53	9.4	
	Lieutenant	35	6.2	
	Captain	13	2.3	
Gender	Female	63	11.2	553
	Male	490	87.0	
Race	White	427	75.8	543
	African-American	81	14.4	
	Hispanic or Latino	16	2.8	
	Asian	11	2.0	
	Other	8	1.4	
Age	20-29	137	24.3	502
	30-39	177	31.4	
	40-49	137	24.3	
	50 and above	51	9.1	
Education	High School Diploma/GED	207	36.8	548
	Associates Degree	159	28.2	
	Bachelor's Degree	164	29.1	
	Graduate Degree	18	3.2	
Work Experience	Fewer than 3 years	76	13.5	550
	3-10 years	225	40.0	
	11-20 years	168	29.8	
	21 years and more	81	14.4	

n=563

Principal Components Analysis and Scale Reliability Testing

Because the researcher used Likert-type items in the questionnaire, principal components analysis was used to extract the factors, to reduce the number of items measuring the same construct, and to reduce the dimensionality of the data (Julnes 2007; de Lancer Julnes 2009;

Wyatt-Nichol 2005). Principal components analysis was conducted on each of the following scales: Crime control, service work orientation, cynicism, traditionalism, receptivity to change, perception of supervisors, officers' perceptions of agency preparedness/readiness for Compstat, perceived effectiveness of Compstat, and support of Compstat.

First of all, the researcher had to consider certain requirements in order to conduct principal components analysis. One of these requirements is sample size. Hair et al. (2006) state that acceptable sample size should be at least 100; the minimum sample size should be five times more than the number of variables. According to Comrey and Lee (1992), 300 is good and 500 is a very good sample size for factor analysis. For this study, 563 law enforcement officers participated in the survey meeting the sample size requirement. Secondly, the researcher should examine the correlations of the data and determine if "some of the correlations are quite large (0.3 is considered to be the lower cut-off), indicating that the variables have factorability" (Brace et al. 2003, 294).

Furthermore, the data should be analyzed to determine whether "it has sufficient correlations to justify the application of factor analysis" (Hair et al. 2006, 114). The researcher applies several methods for this requirement: the Bartlett test of sphericity and the Kaiser-Meyer-Olkin (KMO). The Bartlett test of sphericity ($p<0.05$) "provides the statistical significance that the correlation matrix has significant correlations among at least some of the variables" (Hair et al. 2006, 114-115). The KMO measures "the amount of variance within the data that could be explained by factors" (Brace et al. 2003, 294). According to Brace et al. (2003), a KMO value of 0.60 is acceptable. If the data does not meet these statistical requirements, the researcher should examine the communalities which show "how much variance in each variable is explained by the analysis" (Brace et al. 2003, 296). Researchers mostly find the communalities between 0.40 to

0.70 (Costello and Osborne 2005). Costello and Osborne suggest that communalities of less than 0.40 indicate that the item has low loadings and therefore should be removed from the scale.

When the data meets the requirements, the researcher should decide to conduct either a common factor analysis or a components analysis. In this study, the researcher used components analysis, also known as principal components analysis, which "is used when the objective is to summarize most of the variance in a minimum number of factors for prediction purposes" (Hair et al. 2006, 118). Likewise, Julnes (2007, 527) identified the reason for using principal components analysis as "to identify dimensions that capture the information contained in variables." In order to determine the number of factors to extract, this study used the latent root criterion and the scree test criterion. Based on the latent root criterion, "only the factors having eigenvalues greater than 1 are considered significant" (Hair et al. 2006, 120). On the other hand, the scree test plots the latent roots and creates a curve in order to decide the cutoff point (Hair et al. 2006). However, as noted by Julnes (2007), it is difficult to determine the number of components to extract based on the scree test because it is an unclear method. Therefore, although the decisions to extract components were checked through the evaluations of the scree test, the latent root (eigenvalue) criterion was used as the primary method in this study. Hair et al. explain how to decide the number of factors to extract by examining the scree test as follows:

> Starting with the first factor, the plot slopes steeply downward initially and then slowly becomes an approximately horizontal line. The point at which the curve first begins to straighten out is considered to indicate the maximum number of factors to extract (2006, 120).

Moreover, one of the rotation methods should be chosen because unrotated factor solutions are not adequate to interpret the factor structure (Hair et al. 2006). An oblique rotation method, Oblimin with Kaiser Normalization was used to rotate the factors in this study because

in the oblique rotation, "the factors are allowed to correlate" (Field 2009, 642). According to

Hair et al. (2006), if an oblimin rotation is used, the pattern matrix should be used to interpret the

analysis. The value of factor loadings should also be evaluated to decide whether they are

significant enough for interpretation. Hair et al. (2006) suggest that a factor loading of 0.30 to

0.40 can be considered acceptable. Nevertheless, Hatcher (1994) considers a value of 0.40 as

meaningful. According to Straub et al., when principal components analysis is performed, for

construct validity (both discriminant and convergent), the latent root criterion (eigenvalue)

should be equal or above 1; loading of items should be at least 0.40; and no cross loading of

items should be above 0.40" (2004, 410). Therefore, to establish construct validity, Hatcher's

(1994) and Straub et al.'s (2004) criterion were considered appropriate for this study.

Finally, after determining the number of factors to extract through principal components

analysis, items in these new scales must be examined for reliability (de Lancer Julnes 2009). The

study utilized Cronbach's alpha for the measure of the internal consistency which is one of the

methods commonly used to measure reliability (Spector 1992). Spector states that "it is a direct

function of both the number of items and their magnitude of intercorrelation" (1992, 31).

However, there are different views on the rule of thumb for coefficient values. To Nunnally

(1978) and Hatcher (1994), a value of 0.70 is acceptable. On the other hand, DeVellis (1991, 85)

provides the following guidelines for coefficient alpha: "below 0.60-unacceptable, between 0.60

and 0.65-undesirable, between 0.65 and 0.70-minimally acceptable, between 0.70 and 0.80-

respectable, between 0.80 and 0.90-very good." In this paper, the researcher followed DeVellis's

guideline which suggests a more liberal interpretation of materials. In addition to value of

Cronbach's alpha, item-total correlations should be checked for reliability. To Sadler-Smith

(2006) and Field (2009), the item-total correlations should be greater than 0.30. The factor loadings and reliability of these scales were presented in Appendix G.

Variables and Corresponding Factors

Crime Control

The thirteen items measuring crime control were analyzed by means of a principal components analysis, with Oblimin rotation. Prior to conducting the principal components analysis, the researcher examined the data to determine the appropriateness of factor analysis. There were some coefficients greater than 0.30; and items 1 and 10, which had communalities lower than 0.40, were excluded from the analysis due to low communalities. The Bartlett test of sphericity was significant (p=0.000) and the Kaiser-Meyer-Olkin value was 0.71 which is greater than 0.60. This analysis produced four components with an eigenvalue of greater than 1.0, accounting for 61% of the total variance. Appendix G illustrates the factor loadings of 11 items measuring crime control attitude. The components can be thought of as representing different aspects of crime control: component 1- crime fighting (items 9, 8, and 2); 2- legal restrictions (items 12, 13, and 11); 3- problem solving (items 5, 6, and 3); 4- enforcing law (items 4 and 7).

Furthermore, the items were analyzed to determine the reliability of factors by using Cronbach's coefficient alpha. The Cronbach's coefficient alpha for factor 1 was 0.65, for factor 2 was 0.78, for factor 3 was 0.44, and for factor 4 was 0.45. Although factors 3 and 4 had eigenvalues greater than 1.0, the items in these factors failed to form a reliable scale; therefore, only factors 1 and 2 were considered reliable for further analysis. All of the items in factors 1 and 2 had item-total correlations greater than 0.30 which is higher than recommended (Field 2009). High values on factor 1 indicate that officers have negative attitudes toward handling non-

crime issues because they have a perception that these activities detract from their ability to fight crime. High values on factor 2 indicate that officers have positive attitudes toward ignoring legal restrictions. Participants who have high scores on factor 2 have the perception that if there were less restriction and fewer court regulations, they would be more effective in reducing crime.

Service Orientation

The 12 items measuring service orientation produced three factors with eigenvalues greater than 1.0 accounting for 54.8% of the total variance. Items 19 and 25 were excluded from the analysis due to low communalities. The Bartlett test of sphericity was significant (p=0.000) and the Kaiser-Meyer-Olkin value was 0.84 which is greater than 0.60. Significant item loadings ranged from 0.42 to 0.77 and the communalities were greater than 0.45. The components can be thought of as representing different aspects of community policing: component 1- community cooperation (items 16, 15, 14, 22, 21, and 20); 2- community policing (items 27, 26, 18, and 17); 3- order maintenance (items 23 and 24). Reliability analyses of these factors were performed through using Cronbach's alpha. The items in factor 1 and 2 formed internally consistent scales, Cronbach's alpha, for each of the scales was 0.78 and 0.68, respectively; however, items in factor 3 failed to form a reliable scale (Cronbach's α= 0.55).

High values on factor 1 indicate that officers among participants have positive attitudes toward cooperation with the community they serve. Those officers think that working with community members, making informal contacts with them, lowering citizens' fear of crime and assisting community is as important as enforcing the law. Likewise, high values on factor 2 indicate that officers have positive attitudes toward community policing. Participants who have

high scores on factor 2 have a perception that officers should learn the needs of the community they serve and assist them with their non-crime problems.

Cynicism

The items measuring cynicism resulted in 2 factors with eigenvalues greater than 1.0 accounting for 60.3% of the total variance. Principal components analysis was considered to be appropriate because the KMO value was 0.813 and the calculated p value was 0.000. Item 29 was excluded from the analysis due to low communalities. Item 32, which was problematic because it had high loadings on both of the factors, was excluded from the analysis due to cross-loading (Hair et al. 2009; Straub et al. 2004). All the other items loaded above 0.40 and no cross loading items were found above 0.40 (Straub et al. 2004).

The components can be thought of as representing different aspects of cynicism. Component 1 (items 28, 31, 30, and 33) was labeled as distrust of citizens and component 2 was labeled as optimism about community relations (items 36, 34, and 35). Both of the scales had a Cronbach's coefficient alpha of >0.65 (α=0.73 and 0.70, respectively); therefore, both factors formed reliable scales.

High values on factor 1 indicate that officers among participants have negative attitudes toward the citizens they serve. Those officers think that citizens are not trustworthy and honest; citizens would lie to manipulate officers; citizens would steal if they had chance; and citizens do not show respect to law enforcement officers. Likewise, high values on factor 2 indicate that officers have negative attitudes toward improving relationships with the community. Participants who have a high score on factor 2 have a perception that law enforcement officers and citizens do not trust one another enough to work together effectively.

Traditionalism

The factor loadings for traditionalism scale indicated that five items loaded on two factors with eigenvalues greater than 1.0 accounting for 65.7% of the total variance. Three of the items (37, 39, and 41) loaded on the first factor; two of the items (40 and 42) loaded on the second factor, and only one item loaded on the third factor. Although the KMO value was considered high over 0.6 for other scales, here, it is 0.58 which is acceptable when it is over 0.5 according to Hair et al. (2009); and the Bartlett's test of sphericity is significant. However, the items in factors 1 and 2 did not meet the minimum acceptable level of reliability and form reliable scales (α= 0.58 and 0.3, respectively). According to Costello and Osborne, "a factor with fewer than three items is generally weak and unstable" (2005, 5). This result supports the previous findings. For this scale, Cochran et al. (2002) and Cochran and Bromley (2003) reported finding one factor with an Cronbach's alpha of 0.54 through using principal components analysis and examining the scree test. Although they used the factor in regression and cluster analysis, the researcher did not use the factor for further analysis because the Cronbach's alpha of this construct did not exceed the cut-off point (0.65) for this research.

Receptivity to Change

The four items measuring participants' receptivity to change resulted in one factor that accounted for 68.5% of the total variance. Item 44 was excluded from the analysis due to low communalities and low loadings. The item loadings ranged from 0.63 to 0.91 and the items in the factor formed a scale with a reliability of 0.75. Because only one factor was extracted with a reliable scale, this factor represents the underlying constructs of participants' receptivity to change.

Supervisory

The items measuring participants' perception of supervisory resulted in one factor explaining 65.9% of the common variance. The communalities were greater than 0.50 and the item loadings ranged from 0.71 to 0.86. The items in the factor produced a scale with a reliability of 0.74. Since one factor was extracted with a reliable scale, this factor represents the underlying constructs of perception about upper level management. The factor was labeled supervisory attitude (Paoline 2004).

Agency Readiness

Principal components analysis of six items measuring the agency readiness scale produced two factors with eigenvalues greater than 1.0 accounting for 71.5% of the total variance. Item 50C was excluded from the analysis due to law communalities (0.36). As seen in Table 16, the high loadings ranged from 0.70 to 0.88 for each of the items. A reliability analysis of these factors was performed through using Cronbach's alpha. The items in factor 1 formed an internally consistent scale (Cronbach's $\alpha = 0.80$); however, items in factor 2 failed to form a reliable scale (Cronbach's $\alpha = 0.48$). The component 1 can be thought of as representing participants' perception of agency readiness for implementing Compstat, since it consisted of items measuring policies and procedures, training, and resources for Compstat (items 50F, 50D, and 50E). High values on factor 1 indicate that the agency was ready for implementation, because those participants think that policies and procedures were clearly communicated, they received adequate training, and the department allocated sufficient resources for the implementation of Compstat.

Effectiveness of Compstat

The six items measuring the perceived effectiveness of Compstat produced one factor with eigenvalues greater than 1.0 accounting for 56.9% of the total variance. The item loadings ranged from 0.71 to 0.80 and the communalities were greater than 0.50. The Cronbach's alpha value for the factor was above the cutoff value of 0.65 (α=0.84) and formed a reliable scale. The component can be thought of as representing participants' perception of Compstat's impact on crime. High values on the factor indicate that a participant has a positive attitude toward the impact of Compstat on crime.

Support of Compstat

Principal components analysis was also performed for the dependent variable: support of Compstat. The five items measuring participants' support of Compstat resulted in one factor that accounted for 63.3% of the total variance. Item 51A was excluded from the analysis due to low communalities. The item loadings ranged from 0.66 to 0.86 and the items in the factor formed a scale with a reliability of 0.79. Because only one factor was extracted with a reliable scale, this factor represents the underlying constructs of participants' support of Compstat. Therefore, a high score on the summated rating scale indicates a positive attitude toward Compstat, while a low score indicates that a participant does not support Compstat.

Before creating new variables, it is necessary to discuss the reliability and validity of factors here. The dimensionality of scales was explored to be sure that each scale was unidimensional through principal components analysis (Spector 1992). As discussed through the principal components analysis, Cronbach's coefficient alpha was calculated for each scale in order to determine the reliability of scales. However, reliability does not assure the validity of the

scale (DeVellis 2012). Therefore, the researcher should examine the scale validity which is defined by Hair et al. (2006, 137) as "the extent to which a scale or set of measures accurately represents the concept of interest." Several measures of validity, content and construct (convergent and discriminant) validity, are discussed here. Content validity is defined by DeVellis (2012, 59) as "the extent to which a specific set of items reflects a content domain." The researcher tried to establish content validity of the scales by reviewing the literature; however, as noted by Straub et al. (2004), it is difficult to assess content validity.

Construct validity assesses "whether the measures chosen by the researcher 'fit' together in such as way so as to capture the essence of the construct" (Straub et al. 2004, 388). Construct validity can be evaluated through convergent or discriminant validity. Convergent validity "assesses the degree to which two measures of the same concept are correlated," whereas "discriminant validity is the degree to which to conceptually similar concepts are distinct" (Hair et al. 2006, 137). According to Straub et al., "construct validity (both discriminant and convergent) is established through the latent root criterion (eigenvalue) of above 1.0, loading of items at least 0.40, and no cross loading of items above 0.40" (2004, 410)." Therefore, construct validity of the scales was established by performing principal components analysis in this study.

After constructs are determined, reliability and validity of constructs are found to be adequate; the researcher can either use factor scores or create new variables with Likert-type scales. In this study, the researcher chose to create summated rating scales for further analysis. The researcher used the compute command to create new summated variables in SPSS by summing the items in each of the components which produced significant factor loadings and formed reliable scales. The new variables (summated scales) with related items and reliability values are presented in Table 2.

Table 2: Cronbach's Alpha Values for Index Variables/Newly Created Variables

Index Variables	Items	Cronbach's Alpha
Crime Fighting	(2, 8, and 9)	0.65
Legal Restrictions	(11, 12, and 13)	0.78
Community Cooperation	(14, 15,16, 20, 21, and 22)	0.78
Community Policing	(17, 18, 26, and 27)	0.68
Distrust of Citizens	(28, 30, 31, and 33)	0.73
Optimism about Community Relations	(34, 35, and 36)	0.70
Receptivity to Change	(43,45, and 46)	0.75
Supervisory Attitude	(47, 48, and 49)	0.74
Perception of Agency Readiness	50 (D, E, and F)	0.80
Perceived Effectiveness of Compstat	52 (A, B,C,D,E, and F)	0.84
Support of Compstat	51(B, C, D, and E)	0.79

Hair et al. (2006) identified two specific benefits of summated scale as follows:

1. It provides a means of overcoming to some extent the measurement error inherent in all measured variables.

2. It enables the researcher to represent the multiple aspects of a concept in a single measure (136).

Frequencies of Variables

Crime Fighting

Through principal components analysis, crime fighting attitude was found to be a subgroup in the crime control scale. The measure of law enforcement officers' attitudes toward crime fighting is an additive index of three 5-point Likert-type items. As presented in Table 3,

the findings indicate that more than half of the participants (58.6%) disagreed with the statement that acting in a service capacity detracts from their ability to fight crime; more than half of the participants (56.6%) responded that they agreed or strongly agreed that they have to spend too much of their time handling unimportant, non-crime calls for service. On the other hand, one third (37.7%) of the participants agreed, while another third disagreed (34.7%) with the statement that officers should not have to handle non-crime problems. The scale scores ranges from 3 to 15 with a mean of 9.1 and a standard deviation of 2.3. Collectively, the scale indicates that officers' perceptions varied about crime fighting.

Table 3: Distribution of Crime Fighting Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
2. If law enforcement officers act in a service capacity, it detracts from their ability to fight crime.	56 (9.9%)	274 (48.7%)	124 (22.0%)	94 (16.7)	15 (2.7%)
8. Law enforcement officers should not have to handle calls that involve social or personnel problems where no crime is involved.	29 (5.2%)	166 (29.5%)	156 (27.7%)	152 (27.0%)	60 (10.7%)
9. Most law enforcement officers have to spend too much of their time handling unimportant, non-crime calls for service.	7 (1.2%)	105 (18.7%)	134 (23.8%)	245 (43.8%)	72 (12.8%)

Legal Restrictions

The measure of officer attitudes toward legal restrictions consists of three Likert-type items. The frequencies of the items in this scale are presented in Table 4. Analysis of the findings indicated that most of the participants (63.1%) believed that they would not be more effective if they ignored the "probable cause" requirements, likewise, most of the law enforcement officers (59.2%) believed that ignoring suspect's right during interrogations would not make them more

effective, and more than one third of the participants (44.6%) thought that more power on the use of force would not contribute to crime reduction. The scores on the index ranged from 3 to 15 with a mean of 7.8 and a standard deviation of 2.7. Accordingly, the scores suggested more officers have negative attitudes toward ignoring legal restrictions; however, almost one third of participants believed they would be more effective by ignoring legal restrictions.

Table 4: Distribution of Legal Restrictions Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11. If law enforcement officers in high crime areas had fewer restrictions on their use of force, many of the serious crime problems in these areas would be significantly reduced.	48 (8.5%)	203 (36.1%)	135 (24.0%)	130 (23.1%)	47 (8.3%)
12. Law enforcement officers would be more effective if they did not have to worry about "probable cause" requirements for searches as mandated by the courts.	109 (19.4%)	246 (43.7%)	71 (12.6%)	101 (17.9%)	35 (6.2%)
13. Law enforcement officers would be more effective if they did not have to worry about a suspect's rights during interrogations.	95 (16.9%)	238 (42.3%)	95 (16.9%)	109 (19.4%)	26 (4.6%)

Community Policing

Community policing attitude is measured with an additive index of four survey items. Through these Likert-type items (Table 5), the researcher aimed to measure the participants' community policing work orientations. Overall, officers' responses were mixed on this scale. The scores on the index ranged from 4 to 19 with a mean of 10.5 and a standard deviation of 2.8. Only one third (33%) agreed with the statement that "law enforcement officers should try to solve the non-crime problems identified by citizens on their beat" and 25.1% believed that "law enforcement officers should ask citizens what types of services they want." However, almost half

of the participants (45.5%) disagreed that "law enforcement officers should be required to assist citizens who are having problems with their cars (locked out, dead battery, out of gas, etc.)"; and most of the participants (64.5%) disagreed that "law enforcement should be seen primarily as a service-oriented profession rather than a crime control profession." Collectively, participants had mixed feelings about the community policing orientations; although most of them supported the idea of cooperation with the community they serve, they were hesitant to perform non-crime related problems.

Table 5: Distribution of Community Policing Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
17. Law enforcement officers should try to solve the non-crime problems identified by citizens on their beat.	35 (6.2%)	151 (26.8%)	191 (33.9%)	161 (28.6%)	25 (4.4%)
18. Law enforcement officers should ask citizens what types of services they want.	67 (11.9%)	189 (33.6%)	164 (29.1%)	126 (22.4%)	15 (2.7%)
26. Law enforcement officers should be required to assist citizens who are having problems with their cars (locked out, dead battery, out of gas, etc.).	94 (16.7%)	193 (34.3%)	144 (25.6%)	126 (22.4%)	5 (0.9%)
27. Law enforcement should be seen primarily as a service-oriented profession rather than a crime control profession.	113 (20.1%)	250 (44.4%)	130 (23.1%)	59 (10.5%)	10 (1.8%)

Community Cooperation

The measure of participants' attitude toward community cooperation was an additive index of six Likert-type items. The scores on the index ranged from 6 to 30 with a mean of 23.7 and a standard deviation of 3.1. Based on the frequency distribution (Table 6), the findings indicate that the participants consistently accepted the idea of cooperation with the community

they serve. Eighty-seven percent agreed with the statement that "law enforcement officers should be sincerely concerned about the wellbeing of the citizens in the neighborhoods they patrol." Of the 563 participants, 84.5% believed in informal contacts with the community; 87.2% believed that they should work with community representatives; 75.5% agreed with the statement that "assisting citizens in need is just as important as enforcing law." Similarly, most of the participants agreed that "lowering citizens' fear of crime should be just as high priority for this department as cutting the crime rate" (76.6%); and that "community crime problems can be solved by cooperation between law enforcement and local non-criminal justice agencies" (79.6%).

Table 6: Distribution of Community Cooperation Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14. Law enforcement officers should be sincerely concerned about the wellbeing of the citizens in the neighborhoods they patrol.	4 (0.7%)	14 (2.5%)	61 (10.8%)	346 (61.5%)	138 (24.5%)
15. Law enforcement officers should make frequent informal contacts with the people in the area they patrol.	4 (0.7%)	21 (3.7%)	62 (11.0%)	348 (61.8%)	128 (22.7%)
16. Law enforcement officers should try to work with the neighborhood residents, civic groups and the local business community to solve crime problems in their beat.	4 (0.7%)	11 ((2.0%)	57 (10.1%)	349 (62.0%)	142 (25.2%)
20. Assisting citizens in need is just as important as enforcing law.	3 (0.5%)	43 (7.6%)	91 (16.2%)	331 (58.8%)	94 (16.7%)
21. Lowering citizens' fear of crime should be just as high priority for this department as cutting the crime rate.	8 (1.4%)	37 (6.6%)	87 (15.5%)	337 (59.9%)	94 (16.7%)
22. Community crime problems can be solved by cooperation between law enforcement and local non-criminal justice agencies.	6 (1.1%)	20 (3.6%)	89 (15.8%)	362 (64.3%)	86 (15.3%)

Distrust of Citizens

Participants' attitudes about cynicism were measured with two separate additive indexes: distrust of citizens and optimism about community relations. The distrust of citizen was measured by four five-point Likert-type items. The scores on the index ranged from 4 to 20 with a mean of 12.0 and a standard deviation of 2.9. The data shown in Table 7 indicates that almost half of the participants were distrustful of the citizens: 44.6% agreed that "most people lie when answering questions posed by law enforcement officers." However, more than half of the participants (57.1%) disagreed that "most people are untrustworthy and dishonest." Forty percent of the participants disagreed that "most people would steal if they knew they would not get caught" and almost half of the participants (45.3%) thought that "most people lack the proper level of respect for law enforcement officers." It appears that participants do not uniformly hold negative attitudes toward citizens they serve.

Table 7: Distribution of Distrust of Citizen Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
28. Most people lie when answering questions posed by law enforcement officers.	5 (0.9%)	119 (21.1%)	187 (33.2%)	193 (34.3%)	58 (10.3%)
30. Most people are untrustworthy and dishonest.	29 (5.2%)	292 (51.9%)	157 (27.9%)	68 (12.1%)	16 (2.8%)
31. Most people would steal if they knew they would not get caught.	13 (2.3%)	212 (37.7%)	133 (23.6%)	170 (30.2%)	35 (6.2%)
33. Most people lack the proper level of respect for law enforcement officers.	13 (2.3%)	189 (33.6%)	104 (18.5%)	197 (35.0%)	58 (10.3%)

Optimism about Police/Community Relations

The second measure of cynicism, optimism about police/community relations, which consisted of a three-item additive index, measured the degree to which participants held favorable perceptions about police/community relations. The scores on the index ranged from 3 to 15 with a mean of 7.5 and a standard deviation of 1.9. An examination of the index (Table 8) revealed that most of the participants (68.4%) disagreed that "law enforcement officers will never trust citizens enough to work together effectively" and that "citizens will not trust law enforcement officers enough to work together effectively" (59.7%). About half of the participants (49.0%) responded that "most citizens are open to the opinions and suggestions of law enforcement officers." The index indicated that most of the participants were optimistic about police/community relations.

Table 8: Distribution of Optimism about Police/Community Relations Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
34. Law enforcement officers will never trust citizens enough to work together effectively.	57 (10.1%)	328 (58.3%)	123 (21.8%)	52 (9.2%)	3 (0.5%)
35. Most citizens are open to the opinions and suggestions of law enforcement officers.	14 (2.5%)	101 (17.9%)	172 (30.6%)	272 (48.3%)	4 (0.7%)
36. Citizens will not trust law enforcement officers enough to work together effectively.	33 (5.9%)	303 (53.8%)	142 (25.2%)	77 (13.7%)	8 (1.4%)

Receptivity to Change

Receptivity to change was measured with an additive index of three Likert-type survey items. The scores on the index ranged from 3 to 13 with a mean of 8.4 and a standard deviation of 2.2. Table 9 displays the frequencies for the items measuring participants' perception of

receptivity to change. The findings indicated that about 41% disagreed that "most changes at work are problematic and ineffective." Almost half of the participants (47.4%) believed that most changes do not make their work more efficient and 45.5% believed that most changes do not make their work more effective. The index suggests that participants did not hold uniformly negative attitudes toward change; however, the percentage of participants who were opposed to change was higher than officers who were open to change.

Table 9: Distribution of Receptivity to Change Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
43. Most changes at work are problematic and ineffective.	18 (3.2%)	215 (38.2%)	190 (33.7%)	116 (20.6%)	24 (4.3%)
45. Most changes make my work more efficient (i.e. saves time, effort, money).	52 (9.2%)	215 (38.2%)	188 (33.4%)	101 (17.9%)	7 (1.2%)
46. Most changes make my work more effective (i.e. more arrests, faster response times, crime reduction).	50 (8.9%)	206 (36.6%)	195 (34.6%)	108 (19.2%)	4 (0.7%)

Perception of Supervisory

Participants' perception of supervisory activities was measured with an additive index of three Likert-type survey items. These items are used to measure the extent to which participants had favorable attitudes toward upper level management (Paoline 2000). The scores on the index ranged from 3 to 12 with a mean of 7.0 and a standard deviation of 2.1. The analysis of the data (Table 10) indicated that the majority of the participants (62.6%) thought that it was unlikely that "district management would publicly recognize an officer's good job" and 62.5% responded that it was unlikely that "district management would recognize a team effort rather than an individual effort." Most of the participants (69.8%) believed that it was likely that officers would be treated

fairly for a minor violation of the rules. The index suggested that the majority of the participants had unfavorable attitudes toward upper level management; however, this was not consistently true for every situation.

Table 10: Distribution of Supervisory Items

Items	Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely
47. When an officer does a particularly good job, how likely is it that district/top management will publicly recognize his or her performance?	163 (29.0%)	189 (33.6%)	180 (32.0%)	31 (5.5%)
48. When an officer gets written up for a minor violation of the rules, how likely is it that he or she will be treated fairly?	46 (8.2%)	121 (21.5%)	303 (53.8%)	90 (16.0%)
49. When an officer contributes to a team effort rather than look good individually, how likely is it that district/top management here will recognize it?	148 (26.3%)	204 (36.2%)	180 (32.0%)	30 (5.3%)

Perception of Agency Readiness

Participants' perception of agency readiness was measured with an additive index. These items were used to measure the extent to which participants appeared ready for implementation of Compstat. The scores on the index ranged from 3 to 15 with a mean of 7.9 and a standard deviation of 2.7. The analysis of the data (Table 11) indicated that less than one-third of the participants (24.7%) had received training in Compstat or computer-based decision techniques; 23% reported sufficient resources for Compstat; and only 25.1% responded that "Compstat policies and procedures had been clearly communicated."

As discussed in the principal components analysis section, one item was excluded from this scale due to low communalities and two other items in another factor could not form a reliable scale. Although those items were not presented in Table 11 and were not used for further

analysis, they might contribute to the reader's understanding of the agency readiness issues. Two

items measured the degree to which participants felt that management supported Compstat. Most

of the participants (70.3%) believed that upper management supports Compstat; however, 42.3%

believed that the first-line supervisors support Compstat. According to the participants, it appears

that upper level managers supported Compstat more than the first-line supervisors.

Table 11: Distribution of Perception of Agency Readiness Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
50D. I have been trained in Compstat or computer-based decision making techniques (through formal training, such as basic training, in-service training or conferences).	113 (20.1%)	182 (32.3%)	127 (22.6%)	112 (19.9%)	27 (4.8%)
50E. My department has allocated sufficient resources to my work unit for Compstat.	75 (13.3%)	154 (27.4%)	204 (36.2%)	114 (20.2%)	16 (2.8%)
50F. Compstat policies and procedures have been clearly communicated.	89 (15.8%)	176 (31.3%)	157 (27.9%)	127 (22.6%)	14 (2.5%)

Participants' knowledge of Compstat was measured in terms of a single Likert-type item.

Participants were asked to answer a five-point Likert scale ranging from 1=strongly disagree to

5=strongly agree with the statement "I understand what Compstat is." Only 13.8% of the

participants reported that they disagreed or strongly disagreed with the statement, 16.9% reported

a neutral position, and 68.7% agreed or strongly agreed with the statement. It was presumed that

participants had heard of Compstat, because the researcher observed that shift supervisors

explain officers about crime problems and statistics during roll calls. Therefore, the item was

dichotomized into those who disagreed/neutral (1-3) vs. those who agreed (4-5). The participants

were categorized as knowledgeable if they agreed or strongly agreed with the statement. Through

recoding the item, a dichotomous understandability variable was created: 0 = nonknowledgeable vs. 1 = knowledgeable. The dichotomization of the Likert scale items have been used in natural and social science research by Sharkey et al. (2003), Pollack et al. (2004), Bostrom et al. (2008), Fishbain et al. (2008), Kaldjian et al. (2008); Schernhammer et al. (2009), Lis et al. (2011), and Kapalogwe et al. (2011). After the dichotomization process, the analysis of the data indicated that the majority of the participants (68.7%) were knowledgeable about Compstat.

Perceived Effectiveness of Compstat

Participants' perception of the effectiveness of Compstat was measured with an additive index of six Likert-type survey items. The scores on the index ranged from 6 to 18 with a mean of 13.4 and a standard deviation of 2.8. The analysis of the data (Table 12) indicated that the "no change" response category was the most common response for five out of six items. Less than one-third of the participants believed that Compstat contributes to more arrests (24.7%) and quicker responses (20.8%). About one out of three participants indicated that Compstat is more likely to contribute to crime reduction (33.2%) and more efficient use of resources (37.1%). Almost half of the participants (44.6%) believed that Compstat would contribute to increased visibility of officers on the street and more than half of the participants (54.9%) believed that Compstat would contribute to more effective use of crime information. The index suggested that about one third of the participant had favorable perceptions about the effectiveness of Compstat.

Table 12: Distribution of Perceived Effectiveness of Compstat Items

Items	Less Likely	No Change	More Likely
52A. More arrests.	70 (12.4%)	352 (62.5%)	139 (24.7%)
52B. Quicker responses by officers to calls for service.	73 (13.0%)	372 (66.1)	117 (20.8%)
52C. Increased visibility of officers on the street.	50 (8.9%)	262 (46.5%)	251 (44.6%)
52D. More effective use of crime information.	36 (6.4%)	218 (38.7%)	309 (54.9%)
52E. Reduction in crime.	75 (13.3%)	300 (53.3%)	187 (33.2%)
52F. More efficient use of police resources.	94 (16.7%)	259 (46.0%)	209 (37.1%)

Support of Compstat

A frequency distribution depicting the support of the Compstat scale was used in order to answer the first research question, "what are officers' and managers' attitudes toward the Compstat model of policing?" Table 13 shows the frequency distribution of the four variables measuring the concept of support for Compstat. These variables were used to measure the extent to which participants supported the implementation of Compstat. The scores on the index ranged from 4 to 20 with a mean of 10.4 and a standard deviation of 3.0. Analysis of the findings indicated that about one-third of the participants responded with a neutral response regarding perception of support. Almost half of the participants (48%) disagreed with the statement that "the cooperation between my unit and specialized units in the department has improved due to Compstat" and more than half of the participants (55.6%) disagreed that "Compstat has helped to improve the morale of the department." Likewise, only 24.7% reported support for Compstat, while 29.8% responded that they did not support Compstat, and 45.1% had a neutral attitude toward Compstat. Furthermore, 41.2% believed that Compstat was a fad in policing. Overall, the

index indicated that participants were ambivalent about the implementation of Compstat in their agencies. Approximately one fifth of the participants supported Compstat, half of the participants had negative attitudes toward Compstat, and about one third of them had neither positive nor negative attitudes toward Compstat

Table 13: Distribution of Support for Compstat Items

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
51B. The cooperation between my unit and specialized units in the department has improved due to Compstat.	87 (15.5)	183 (32.5%)	203 (36.1%)	84 (14.9%)	6 (1.1%)
51C. Compstat has helped to improve the morale of the department.	119 (21.1%)	194 (34.5%)	214 (38.0%)	31 (5.5%)	5 (0.9%)
51D. I very much support the department's move toward Compstat.	61 (10.8%)	107 (19.0%)	254 (45.1%)	127 (22.6%)	12 (2.1%)
51E. Compstat is just one more fad in policing and will soon be replaced by another fad.	20 (3.6%)	97 (17.2%)	214 (38.0%)	158 (28.1%)	74 (13.1%)

Comparing Group Means: Independent Samples T-Test and One-Way ANOVA

An independent samples t-test and one-way ANOVA statistics were conducted to answer the second research question, "does law enforcement officers' support of Compstat differ by demographic variables (gender, race, rank, work experience, education, age groups, and departments)?" ANOVA and independent samples t-tests are statistical techniques for comparing means; however, while independent samples t-tests can be used to compare only two means, ANOVA enables the researcher to compare more than two means (Sirkin 2006; Brace at al. 2003). Therefore, t-tests were used to compare the differences between the means of supportive attitude in terms of rank, gender, and race. The one-way analysis of variance (ANOVA) was

used to determine if there were any significant differences between the means of the dependent variable (support) and rank, work experience, education, age groups, and departments.

An independent samples t-test was conducted to compare the mean attitude of support for Compstat as a function of rank. The Levene statistic indicates that the two groups have homogenous variance; therefore, the statistics when the variances were not equal needed to be taken into consideration. There was not a statistically significant difference in the score for rank and file officers (M=10.34, SD=2.81) and for managers (M=10.74, SD=3.60), t(164)=-1.129, p>0.05. These results suggest that ranking does not have a significant impact on officers' attitudes toward Compstat (see Tables 14 and 15).

When white and non-white participants were compared by performing another independent samples t-test, the mean perception (Table 15) for white officers (M=10.34, SD=3.01) and non-white officers (M=10.79, SD=3.09) was similar. Although the mean for non-white officers was slightly higher than white officers, the difference was not found to be statistically significant t(539)=1.424, p>0.05 (Table 14). The results showed that there was no significant difference between white and non-white officers for supportive attitudes toward Compstat.

The mean attitude of support was also compared by gender. When the mean response to support was compared for males (M=10.46, SD=3.03) and females (M=10.26, SD=2.79), the difference was not statistically significant, t(549)=-0.498, p>0.05. This analysis indicated that gender did not have a significant effect on the attitudes of officers toward Compstat (see Tables 14 and 15).

Table 14: Independent Samples T-Test Results for Support by Rank, Race, and Gender

		F	Sig.	t	df	Sig. (2-tailed)
Rank	Equal variances not assumed			-1.129	163.547	.260
Race	Equal variances assumed	.266	.606	1.424	539	.155
Gender	Equal variances assumed	1.541	.215	-.498	549	.619

Table 15: Summary Statistics for Support Scale by Rank, Race, and Gender

	Categories	N	Mean	Std. Deviation	Std. Error Mean
Rank	Rank and file officer	428	10.34	2.812	.136
	Manager	121	10.74	3.602	.327
Race	Non-white	115	10.79	3.096	.289
	White	426	10.34	3.011	.146
Gender	Female	62	10.26	2.793	.355
	Male	489	10.46	3.035	.137

A one-way between subjects ANOVA was conducted to compare whether education level - high school, associate degree, college graduate, and graduate degree –affected officers' attitudes. There was no statistically significant effect of education on support at the $p<0.05$ level for the four conditions [$F_{(3,542)} = 0.923$, $P = 0.430$)]. A one-way ANOVA was also conducted to compare the effects of ranking on support at the officer, corporal, sergeant, lieutenant, and captain level. There was no statistically significant effect of officers' rank on support at the $p<0.05$ level for the five conditions [$F_{(4,544)} = 1.317$, $P = 0.262$)]. The findings imply that support attitude was not affected by educational level or officer ranking.

However, there were statistically significant effects of work experience, age groups, and departments on attitudes (see Table 16). Since the null hypotheses were rejected and concluded that there were statistically significant differences between work experiences, age groups, and departments, post hoc tests were computed to compare each of the conditions on all other conditions. Since sample sizes were unequal, the Scheffe test was selected for post hoc test (Sirkin 2006). In addition, partial eta squared values were computed to determine the size of effects of these variables on the support scale. The partial eta squared statistics can be calculated through either sum of squares between divided by sum of squares total or univariate command in general linear model of SPSS (Brace et al. 2003).

Table 16: One-way Analysis of Variance (ANOVA) of Education,
Ranking, Work Experience, Age Groups, and Departments on Support

		Sum of Squares	df	Mean Square	F	Sig.
Education	Between Groups	25.015	3	8.338	.923	.430
	Within Groups	4898.841	542	9.038		
	Total	4923.855	545			
Ranking_5 groups	Between Groups	47.479	4	11.870	1.317	.262
	Within Groups	4901.209	544	9.010		
	Total	4948.689	548			
Work Experience	Between Groups	117.805	3	39.268	4.475	.004
	Within Groups	4773.552	544	8.775		
	Total	4891.358	547			
Age Groups	Between Groups	143.231	3	47.744	5.349	.001
	Within Groups	4427.527	496	8.926		
	Total	4570.758	499			
Departments	Between Groups	169.910	2	84.955	9.580	.000
	Within Groups	4948.240	558	8.868		
	Total	5118.150	560			

A one-way between subjects ANOVA was conducted to compare the effects of work experience on support in four categories of work experience. There was significant effect of

work experience on support at the p<0.05 level for four conditions [F (3,544) = 4.475, P = 0.004)]. Post hoc comparisons (Tables 17 and 18) using the Scheffe test indicated that the mean score for officers with less than 3 years experience (M=11.49, SD=2.43) was significantly different from those who had 3-10 years experience (M=10.21, SD=2.84) and 11-20 years experience (M=10.14, SD=3.24). However, it was not significantly different from those with 21 years and more experience. These results suggest that officers with less than 3 years experience support Compstat more than officers with 3-10 and 11-20 years experience. However, the size of the effect is quite small; work experience predicts only 2.4% (partial eta squared=0.024) of the variability on support. The hypothesis of no significant differences between work experiences on support attitude was discarded and the alternative hypothesis was accepted. The findings imply that support attitude was affected by work experience.

Table 17: Scheffe Test of Multiple Comparisons of Means: Work Experience

(I) Work Experience	(J) Work Experience	Mean Difference (I-J)	Std. Error	Sig.
Fewer than 3 years	3-10 years	1.273[*]	.393	.016
	11-20 years	1.350[*]	.410	.013
	21 years and more	.737	.474	.492
3-10 years	Fewer than 3 years	-1.273[*]	.393	.016
	11-20 years	.077	.302	.996
	21 years and more	-.536	.386	.588
11-20 years	Fewer than 3 years	-1.350[*]	.410	.013
	3-10 years	-.077	.302	.996
	21 years and more	-.613	.402	.509
21 years and more	Fewer than 3 years	-.737	.474	.492
	3-10 years	.536	.386	.588
	11-20 years	.613	.402	.509
*. The mean difference is significant at the 0.05 level.				

Table 18: Descriptive Statistics for Work Experience

	N	Mean	Std. Deviation	Std. Error
Fewer than 3 years	76	11.49	2.430	.279
3-10 years	224	10.21	2.844	.190
11-20 years	168	10.14	3.243	.250
21 years and more	80	10.75	3.124	.349
Total	548	10.45	2.990	.128

A separate one-way ANOVA for age groups was conducted to compare the effects of age on support in four categories. The analysis demonstrated significant differences on support between the four groups at the $p<0.05$ level [$F (3,496) = 5.349$, $P = 0.001$)]. Descriptive statistics and a post-hoc Scheffe test (Tables 19 and 20) indicated that the mean score for officers who were between 21 and 29 years old (M=11.10, SD=2.72) was significantly different from officers who were between 30 and 39 years old (M=9.90, SD=3.00); although it was higher than the officers who were between 40 and 49 years old, for which the difference (Mean difference=0.77) did not reach statistical level (0.205). The mean score for officers who were 50 years old and above showed no statistical differences between any groups. These results suggest that officers who are between 21 and 29 years old support Compstat more than officers who are 30 and 39 years old. However, the size of the effect is quite small; age groups predict 3.1% (partial eta squared=0.031) of the variability on support. The hypothesis of no significant differences between age groups on support attitude is discarded and the alternate hypothesis is accepted. The findings imply that support attitude was affected by age group.

Table 19: Descriptive Statistics for Age Groups

	N	Mean	Std. Deviation	Std. Error
21-29	137	11.10	2.723	.233
30-39	176	9.90	3.009	.227
40-49	137	10.33	3.213	.275
50 and above	50	11.22	2.964	.419
Total	500	10.48	3.027	.135

Table 20: Scheffe Test of Multiple Comparisons of Means: Age Groups

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
21-29	30-39	1.204*	.340	.006
	40-49	.774	.361	.205
	50 and above	-.118	.494	.996
30-39	21-29	-1.204*	.340	.006
	40-49	-.431	.340	.659
	50 and above	-1.322	.479	.056
40-49	21-29	-.774	.361	.205
	30-39	.431	.340	.659
	50 and above	-.892	.494	.354
50 and above	21-29	.118	.494	.996
	30-39	1.322	.479	.056
	40-49	.892	.494	.354
*. The mean difference is significant at the 0.05 level.				

Once again, another one-way ANOVA was conducted to compare the effects of departments on officers' attitudes toward Compstat at the department level. There was a significant effect of departments on attitudes at the p<0.05 level for three departments [F (2,558) = 9.580, P = 0.000)]. Descriptive statistics (Table 21) and a post-hoc Scheffe test (Table 22) indicated that the mean scores of those with the county police department (M=10.73, SD=2.88) was significantly higher than the mean scores of those with the county sheriff's department

(M=9.24, SD=3.33). The mean scores of those with the county police department was higher than those with the transit police department (M=9.89, SD=3.08); however, it did not reach the statistical significance level (0.055). These results suggest that officers with the county police department support Compstat to a greater degree than officers in the sheriff's department. However, the size of the effect is small; and departments predict only 3.3% (partial eta squared=0.033) of the variability on support. The hypothesis of no significant differences between departments on support attitude was discarded and the alternate hypothesis was accepted. The findings imply that officers' attitudes were affected by department.

Table 21: Descriptive Statistics for Departments

	N	Mean	Std. Deviation	Std. Error
County Police Department	396	10.73	2.881	.145
County Sheriff's Department	76	9.24	3.330	.382
Transit Police Department	89	9.89	3.088	.327
Total	561	10.40	3.023	.128

Table 22: Scheffe Test of Multiple Comparisons of Means: Departments

(I) Department	(J) Department	Mean Difference (I-J)	Std. Error	Sig.
County Police Dept.	County Sheriff's Dept.	1.495[*]	.373	.000
	Transit Police Dept.	.845	.349	.055
County Sheriff's Dept.	County Police Dept.	-1.495[*]	.373	.000
	Transit Police Dept.	-.651	.465	.376
Transit Police Dept.	County Police Dept.	-.845	.349	.055
	County Sheriff's Dept.	.651	.465	.376
*. The mean difference is significant at the 0.05 level.				

In addition to comparing differences between demographic variables, the difference

between those who were knowledgeable of Compstat and those who were not knowledgeable

was compared by a separate independent samples t-test. There was a statistically significant

difference between those who were knowledgeable (M=10.69, SD=3.11) and those who were not

knowledgeable (M=9.76, SD=2.75), t(556)=-3.368, p<0.05. These results suggest that

understandability had a significant impact on attitudes toward Compstat (see Tables 23 and 24).

This finding indicates that officers who were knowledgeable of Compstat had more positive

attitudes toward Compstat than those who were not knowledgeable of Compstat.

Table 23: Group Statistics by Understandability of Compstat

Understandability	N	Mean	Std. Deviation	Std. Error Mean
Nonknowledgeable	173	9.76	2.753	.209
Knowledgeable	385	10.69	3.106	.158

Table 24: Independent Samples Test (Levene's Test) Results
for Support by Understandability

	F	Sig.	t	df	Sig. (2-tailed)
Equal variances assumed	2.903	.089	-3.368	556	.001

Bivariate Analysis

The Pearson product-moment correlation coefficient was used to measure the correlations

between variables. The value of this coefficient ranges from -1 to +1. A coefficient of -1

indicates a perfect negative relationship, 0 indicates no relationship, and +1 indicates a perfect

positive relationship (Hair et al. 2006). As stated by Field (2009, 170), "it is a commonly used

measure of the size of an effect and that values of ±.1 represent a small effect, ±.3 is a medium effect and ±.5 is a large effect."

Before performing bivariate and multivariate analysis, the non-metric independent variables, gender, race, education, rank, work experience, and departments were created in a dummy variable format as follows: for gender, 0=female and 1=male; for race, 0=non-white and 1=white; for education, 0=no college degree (4 year) and 1=college graduate; for rank, 0=rank and file officer and 1=manager; for work experience, 0=otherwise and 1=fewer than 3 years experience; and for departments, 0=otherwise and 1=each of the three agencies (three variables). Because the age of the participants was measured in years, it was included in the analysis as a continuous (metric) variable.

Table 25 presents the Pearson correlation coefficients among the variables. The analysis of the correlation matrix shows that each of the police cultural variables is significantly related to the support of Compstat and this relationship is weak to moderate in strength ($0.15 \leq | r | \geq 0.44$). Officers with strong crime fighting orientation (r=-0.28) and legal restrictions (r=-0.15) were slightly less likely to support Compstat. Officers who were distrustful of citizens (r=-0.26) and not optimistic about police/community relations (r=-0.22) were slightly less likely to support Compstat. Conversely, officers with strong orientations toward community policing (r=0.27) and officers who had a positive perception of community cooperation (r=0.29) were slightly more likely to support Compstat. Officers, who were receptive to change (r=0.41) and who had positive attitudes toward their supervisors (r=0.44) also supported the implementation of Compstat.

	(1) Support	(2) Effectiveness	(3) Crimefighting	(4) LegalRestrictions	(5) Cooperation	(6) Compol	(7) Distrust	(8) Optimism	(9) Receptivity	(10) Supervisory	(11) Readiness	(12) Age	(13) Race	(14) Gender	(15) Understand	(16) Co_PD	(17) Sheriff D	(18) Transit PD	(19) Rank	(20) Graduate	(21) Experience
1	1	.66**	-.28**	-.15**	.29**	.27**	-.26**	-.22**	.41**	.44**	.53**	-.02	-.06	.02	.14**	.17**	-.15**	-.07	.06	.01	.14**
2		1	-.29**	-.14**	.29**	.28**	-.26**	-.23**	.36**	.39**	.37**	.01	-.05	.09*	.14**	.06	-.06	-.02	.12**	.03	.10*
3			1	.37**	-.33**	-.60**	.39**	.28**	-.27**	-.28**	-.19**	-.13**	.09*	.09*	-.10*	.18**	-.08	-.15**	-.19**	-.13**	-.14**
4				1	-.21**	-.28**	.46**	.32**	-.24**	-.26**	-.10*	-.24**	.02	.03	-.09*	.002	-.01	.00	-.22**	-.12**	.05
5					1	.45**	-.25**	-.35**	.23**	.27**	.14**	.07	-.14**	.00	.13**	-.08	.07	.03	.15**	.01	.02
6						1	-.30**	-.20**	.22**	.24**	.18**	.15**	-.12**	.01	.14**	-.24**	.13**	.18**	.15**	.02	.12**
7							1	.53**	-.30**	-.37**	-.17**	-.32**	-.02	-.02	-.08	-.12*	.04	.11*	-.22**	-.12**	.10*
8								1	-.29**	-.32**	-.10**	-.19**	-.09*	-.11*	-.05	-.08	.00	.10*	-.12**	-.08*	.08*
9									1	.43**	.32**	.06	-03	.01	.07	.07	-.05	-.05	.15**	.09*	.12*
10										1	.33**	.19**	.04	.05	.13**	.13**	-.05	-.11*	.24**	.04	-.06
11											1	.02	-.06	.05	.31**	.05	-.02	-.04	.11*	-.05	.02
12												1	.08	.08	.14**	.02	.11*	-.13**	.44**	.08	-.39*
13													1	.08	.02	.24**	.09*	-.38**	.12*	.08	-.17**
14														1	.10*	-.05	.06	.01	.07	-.04	-.06
15															1	-.12*	.08	.07	.21**	.00	-.07
16																1	-.61**	-.67**	.05	.02	-.19**
16																	1	-.17**	.06	-.03	.01
18																		1	-.12**	.00	.23**
19																			1	.15**	-.22**
20																				1	.09*
21																					1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 25: Correlation Matrix between Dependent and Independent Variables

Agency readiness variables were significantly positively correlated with officers'

attitudes. Officers with positive perceptions about the effectiveness of Compstat (r=0.66), who

were knowledgeable about Compstat (r=0.14) and who had positive perceptions toward their

agencies' readiness for implementation (r=0.53), were more likely to support Compstat.

In terms of socio-demographics and work experience variables, only agencies and work

experience were significantly correlated with support of Compstat. Officers with less than three

years experience (r=0.14) were slightly more likely to have positive attitudes and support

Compstat. Officers who worked at the county police department (r=0.17) were slightly more

likely to support than other officers; conversely, officers who worked at the sheriff's department

(-0.15) were slightly less likely to support Compstat than other officers. Officers' age, gender,

race, rank, and education level were not significantly correlated with support of Compstat.

Multiple Regression Analysis

Before conducting multiple regression analysis, the researcher evaluated the impact of

missing data, identified outliers, and tested the statistical assumptions for multivariate analysis

(Hair et al. 2006). First of all, the researcher examined the data to determine what type of

missing data was evident and the extent of the missing data. Except for missing age data

(10.8%), all other variables had less than 4% missing data which can be disregarded (under 10%)

and also any of the imputation methods can be applied at this level. Variables were examined in

order to decide if the missing values were random or non-random with the Performing Missing

Value Analysis module of SPSS. They were found to be random because t-values were

significant (greater than 0.05) which indicated differences between variables and meant that

these missing values were distributed randomly. Since the missing age values are between 10%

and 20%, and randomly distributed, the researcher chose the all-available method (Pairwise in

SPSS) from a variety of options such as hot deck case substitution and regression methods. The Pairwise method uses all available data unlike the Listwise deletion method in which only complete data is included in the analysis (Hair et al. 2006).

Second, multivariate outliers were screened by calculating the Mahalanobis distance. Hair et al. (2006) stated that "this analysis evaluates the position of each observation compared with the center of all observations on a set of variables. By using all metric dependent and independent variables, the researcher used regression analysis to calculate Mahalanobis D^2 statistics and created a new variable. Seven observations (case numbers 41, 112, 389, 404, 433, 528, and 540) were identified as different at the 0.005 significance level (D^2/df, df=10) and were deleted.

Furthermore, normality, linearity, and homoscedasticity were examined. In a preliminary examination of regression analysis, the histogram and P-P plot (see Appendix H) indicated that the data was normally distributed. A scatterplot of residual standardized predicted versus residual (see Appendix H) indicates homoscedasticity which "refers to the assumption that dependent variable exhibit equal levels of variance across the range of predictor variables" (Hair et al. 2006, 83). The researcher assumed that homoscedasticity existed because although there was a fairly random pattern around 0 and 0, the data was spread out widely. Moreover, in order to identify multicollinearity problems, tolerance statistics and variance inflation factors (VIF) were reviewed. The collinearity statistics showed that there was no multicollinearity problem because tolerance values were greater than 0.1 and VIF values were less than 10.

Once statistical assumptions for multivariate analysis were met, a standard multiple regression analysis (OLS) was conducted in order to answer the third research question "how well police culture, organizational structural, and demographic variables explain officers'

attitudes toward Compstat?" The researcher used the enter method for variable selection. Therefore, demographic factors, police cultural variables, and organizational variables were entered in the regression model. The results (Table 26) provided a moderate relationship and the overall model was significant, $R^2=.590$, $R^2adj=.570$, $F_{(23,467)} = 29.199$, $p<.001$. This indicated that seven predictors significantly contributed to the model and the model explained 59% of the variance.

It was found that perceived effectiveness was the most influential variable ($\beta=.427$) in predicting officers' supportive attitude of Compstat. In addition, agency readiness ($\beta=.281$), supervisory attitude ($\beta=.119$), receptivity to change ($\beta= .074$), sheriff's department ($\beta=-.152$), transit police department ($\beta=-.111$), and less than three years of experience ($\beta=.079$) significantly predicted officers' supportive attitudes. Receptivity to change and supervisory attitude were found to be significant predictors among the dimensions of police cultural variables. The results indicate that law enforcement officers who are open to change and who have positive attitudes toward their managers are more likely to support Compstat. Among organizational variables, agency readiness and perceived effectiveness were found to be significant predictors of officers' attitudes. The results show that law enforcement officers who think that their agency is well prepared for Compstat and who think that Compstat is an effective tool are more likely to support the implementation of Compstat in their agency. Among demographic variables, only two demographic variables significantly contributed to the model: departments and work experience. The results indicate that those with the county sheriff's office and transit police department are less likely to support Compstat; on the other hand, those who have less than three years of work experience are more likely to support Compstat. The multiple regression equation

for predicting officer's attitude toward Compstat was developed based on the table of coefficients by using the equation formula (Y=b0+b1X1+b2X2):

Officer Attitude toward Compstat = -1.564 + (-.002X Crime_Fighting) + (-.001X Legal_Restrictions) + (.062X Cooperation) + (.059X Community_Policing) + (-.004X Distrust_of_Citizens) + (-.024X Optimism) + (.099X Receptivity) + (.170X Supervisory) + (.307X Agency_Readiness) + (.452X Perceived_Effectiveness) + (-.079X Understandability) + (.009X Age) + (-.195X Gender) + (.005X Race) + (-.451X Ranking) + (- 1.340X Sheriff's_Dept) + (-.909X Transit_PD) + (.173X Associates_Degree) + (-.047X Bachelor's_Degree) + (1.007X Graduate_Degree) + (.684X Less_3_exp) + (-.457X 11-20_year_exp) + (-.366X More_than_ 21_exp).

The results suggested that the view of Compstat of those who worked at the sheriff's department and transit police department was significantly different from those who worked at the county police department. The view of Compstat was significantly different between those who had less than three years of work experience and those who had more than three years work experience. Moreover, the view of Compstat was significantly different between officers in terms of agency readiness, perceived effectiveness, receptivity to change, and supervisory attitude. The direction of influence of these two departments on attitude is negative, whereas the direction of influence of agency readiness, perceived effectiveness, receptivity to change, supervisory factors, and less than three years work experience on attitude is positive.

Table 26: Regression Analysis: Demographics, Police Culture, and Organizational
Variables as Predictors of Officers' Attitudes toward Compstat

Predictors	B	S.E.	β
Crime Fighting	-.002	.054	-.001
Legal Restrictions	-.001	.039	-.001
Cooperation	.062	.035	.065
Community Policing	.059	.044	.057
Distrust of Citizens	-.004	.042	-.004
Optimism	-.024	.059	-.015
Receptivity to Change	.099*	.048	.074*
Supervisory	.170**	.053	.119**
Agency Readiness	.307***	.038	.281***
Effectiveness	.452***	.038	.427***
Understandability	-.079	.213	-.012
Age	.009	.018	.028
Gender (male=1)	-.195	.293	-.021
Race (White=1)	.005	.247	.001
Ranking (corporal and above=1)	-.451	.266	-.063
County Sheriff's Dept.	-1.340***	.287	-.152***
Transit Police Dept.	-.909**	.300	-.111**
County Police Dept. (reference)			
High School (reference)			
Associates Degree	.173	.227	.026
Bachelor's Degree	-.047	.227	-.007
Graduate Degree	1.007	.547	.059
Less than 3 years experience	.684*	.306	.079*
3-10 year experience (reference)			
11-20 year experience	-.457	.279	-.070
More than 21 year experience	-.366	.445	-.043
Constant	-1.686		
R²	.590		
Adj. R²	.570		

Note: *p<.05 **p<.01 ***p<.001

Hypotheses Testing

Hypothesis Ho1 stated that there were no statistically significant differences for demographic variables (a) age, (b) gender, (c) race, (d) rank, (e) work experience, (f) education, and (g) department on officers' attitudes toward Compstat. Independent samples t-tests were conducted to test Ho1b, Ho1c, and Ho1d. The results of these tests indicated that there were no differences on officers' attitudes in terms of gender, race, and rank. Therefore, the researcher failed to reject null hypotheses (H01b, H01c, and Ho1d).

One-way ANOVA statistics were conducted to test Ho1a, Ho1d, Ho1e, Ho1f, and Ho1g. The tests results showed that there were no statistically significant differences for education on officers' attitudes. Likewise, although rank was compared by independent samples t-test at two levels (rank and file officers, and managers), it was also compared by one-way ANOVA for five levels (officer, corporal, sergeant, lieutenant, and captain) and no statistically significant difference was found. The researcher failed to reject null hypotheses (Ho1d and Ho1f).

A one-way ANOVA demonstrated significant differences on extent of support between the four age groups at the $p<0.05$ level. Post-hoc Scheffe tests results suggested that officers who were between 21 and 29 years old supported Compstat more than officers who were 30 and 39 years old. The hypothesis (Ho1a) of no significant differences between age groups on support attitude was discarded and the alternate hypothesis was accepted. The findings imply that officers' attitudes are affected by age groups.

A separate one-way ANOVA demonstrated a significant effect of work experience on extent of support at the $p<0.05$ level. It was found that officers with less than 3 years of experience supported Compstat more than officers with 3-10 and 11-20 years of experience. The

hypothesis (Ho1e) of no significant differences between work experiences on support related attitudes was rejected and the alternate hypothesis was accepted. The findings imply that officers' attitudes are affected by work experience.

Once again, another one-way ANOVA was conducted to compare the effects of departments on officers' attitudes toward Compstat in department level. The ANOVA model suggested that there was a significant effect of departments on attitudes at the $p<0.05$ level for three departments. The results suggested that officers with the county police department supported Compstat more than officers with the sheriff's department. However, there was no statistically significant difference between transit police department and other departments. The hypothesis of no significant differences between departments on support attitudes was discarded and the alternate hypothesis was accepted. The findings imply that officers' attitudes are affected by departments.

Hypothesis Ho2 predicted that there was no statistically significant difference on officers' attitudes toward Compstat in terms of understandability. An independent samples t-test was used to test hypothesis Ho2. The results of the t-test showed that there was a statistically significant difference between knowledgeable and nonknowledgeable participants at the level of 0.05. The results indicated that knowledgeable participants supported Compstat more than nonknowledgeable ones. Therefore, hypothesis Ho2 was rejected and the alternate hypothesis was accepted. This finding indicates that officers' attitudes toward Compstat are affected by understandability. Also, the Pearson correlation table shows that understandability was positively associated with officer attitudes ($r=0.14$, $p<0.01$).

Hypothesis Ho3 stated that there were no statistically significant relationship between police cultural variables (a) crime fighting, (b) legal restrictions, (c) community cooperation, (d)

community policing, (e) distrust of citizens, (f) optimism about police/community relations, (g) receptivity to change, (h) supervisory attitude and officers' attitudes toward Compstat.

In order to test hypothesis Ho3, Pearson correlation coefficients were calculated among variables and a correlation matrix was presented. Results indicated that officers' attitude toward Compstat was significantly negatively related to crime fighting orientation (r=-0.28), legal restrictions (r=-0.15), distrust of citizens (r=-0.26), and optimism about police/community relations (r=-0.22). Conversely, officers' attitude was significantly positively related to community policing (r=0.27), community cooperation (r=0.29), receptive to change (r=0.41), and supervisory attitude (r=0.44). Therefore, Ho3 was rejected in favor of the alternative hypothesis at the 0.01 significance level.

Hypothesis Ho4 predicted that there were no statistically significant relationships between organizational/structural variables (a) perception of agency readiness, (b) perceived effectiveness, (c) understandability, and officers' attitudes toward Compstat.

In order to test hypothesis Ho4, once again the correlation matrix procedure was used. The results showed that officers' attitudes toward Compstat was significantly positively related to perception of agency readiness(r=0.53), perceived effectiveness of Compstat (r=0.66), and understandability of Compstat (r=0.14) at the 0.01 level of significance. Thus, Ho4 was rejected in favor of the alternative hypothesis.

Hypothesis Ho5 stated that there was no significant contribution of demographic variables [(a) age, (b) gender, (c) race, (d) rank, (e) work experience, (f) education, and (g) department], police cultural variables [(h) crime fighting, (i) legal restrictions, (j) community cooperation, (k) community policing, (l) distrust of citizens, (m) optimism about community

relations, (n) receptivity to change, (o) supervisory attitude], and organizational/structural variables [(p) perception of agency readiness, (r) perceived effectiveness, (s) understandability] to the prediction of officers' attitudes toward Compstat.

The results of a multiple regression analysis were used to test hypothesis Ho5. It was found that some of the variables (which were found to be significantly associated with officer attitudes) did not significantly contribute to the regression model. This can be explained by the fact that there was overlapping variance among some of the independent variables. The following variables contributed to the regression model. Among demographic variables, only work experience and departments; variables measuring police culture, supervisory and receptivity to change; and organizational/structural variables, perceived effectiveness and perception of agency readiness contributed significantly to the prediction of officer attitude model. Thus, hypotheses (Ho4e, Ho4g, Ho4n, Ho4o, Ho4p, and Ho4r) were rejected in favor of alternative hypotheses. The model explained 59% of the variance. The multiple regression equation used for predicting officers' attitudes toward Compstat was the following:

Officer Attitude toward Compstat = -1.564 + (-.002X Crime_Fighting) + (-.001X Legal_Restrictions) + (.062X Cooperation) + (.059X Community_Policing) + (-.004X Distrust_of_Citizens) + (-.024X Optimism) + (.099X Receptivity) + (.170X Supervisory) + (.307X Agency_Readiness) + (.452X Perceived_Effectiveness) + (-.079X Understandability) + (.009X Age) + (-.195X Gender) + (.005X Race) + (-.451X Ranking) + (- 1.340X Sheriff's_Dept) + (-.909X Transit_PD) + (.173X Associates_Degree) + (-.047X Bachelor's_Degree) + (1.007X Graduate_Degree) + (.684X Less_3_exp) + (-.457X 11-20_year_exp) + (-.366X More_than_ 21_exp)

Age, gender, race, rank, education, crime fighting, legal restrictions, cooperation, community policing, distrust of citizens, optimism about police/community relations, and

understandability of Compstat did not significantly contribute to the prediction of officers' attitudes toward Compstat. Therefore, the researcher failed to reject these null hypotheses (Ho5a, Ho5b, Ho5c, Ho5d, Ho5f, Ho5h, Ho5i, Ho5j, Ho5k, Ho5l, Ho5m, and Ho5s).

Discussion of the Quantitative Findings

The quantitative data was used for two main purposes. The first was to understand law enforcement officers' attitudes toward Compstat. Second, it was used to examine the underlying factors affecting their attitudes. Overall, the results indicated that approximately half of the participants had negative attitudes toward Compstat; only one fifth of the participants support Compstat; and about one third of the participants neither had positive nor negative attitudes toward Compstat.

It was anticipated that there would be differences on officers' attitudes by demographic variables. Previous research on community policing and police culture indicated that there were some demographic differences among officers' attitudes toward community and police roles. Therefore, it was anticipated that white and male officers would be more supportive than female and non-white officers. Likewise, the researcher expected to find differences by rank and educational level. Contrary to expectations, the results show that there are no statistically significant differences on attitudes by gender, race, and educational level. Moreover, since Farkas and Manning (1997) found three segments of police culture in police organizations, the researcher assumed to find significant differences among lower participants, middle management, and top command. The analysis of quantitative data enabled the researcher to compare the attitudes of lower participants and middle management; however, the results showed no significant differences.

All of the organizational variables were found to be significantly associated with officers'
attitudes. As anticipated, law enforcement officers who understand Compstat well, who feel that
their agency is well prepared for Compstat and who perceive Compstat as an effective tool are
more likely to support Compstat. These findings are consistent with Cochran et al.'s (2002) study
of sheriff's deputies' attitudes toward community policing.

Likewise, all of the police cultural variables were significantly associated with officers'
attitudes. Contrary to expectations, it was found that crime fighting was negatively associated,
while community policing was positively associated with receptivity to Compstat. Since
Weisburd et al. (2003) argue that Compstat reinforces the traditional hierarchical model of police
management, it was assumed that crime fighting would be positively associated because the
crime fighting role of police is one of the characteristics of the traditional model. Surprisingly,
the results indicate that law enforcement officers with strong crime fighting orientation are less
likely to support Compstat; however, officers with community policing orientation are
significantly more receptive to Compstat. It appears that policing has been going through a
paradigm shift (Walsh 2001). Like many other law enforcement agencies around the country,
these law enforcement agencies have been implementing community policing programs since the
1980s and have recently introduced the Compstat approach. Most of the participant have been
either recruited during this era or received in-service training in community policing. Therefore,
those officers who have strong service orientation are more likely to support Compstat.

Results of Qualitative Data

This section presents the process and the results of the qualitative data. The purpose of
collecting and analyzing qualitative data was to explore the perceptions of police chiefs, crime

analysis unit supervisors, and law enforcement officers and managers toward Compstat. The personal interviews were performed in two ways: structured and semi-structured interviews.

First, chiefs or assistant chiefs and crime analysis unit supervisors of each agency were interviewed by using structured interview questions. The structured interview data was used to explore the adoption and implementation of Compstat, analysis of crime data, and attitudes of top management and technical personnel toward Compstat. The structured interviews allowed the researcher to understand their perspective in detail and to compare the answers as the same questions were asked at each interview. Before the interviews, interview questions were e-mailed to the chiefs a few days in advance to allow them to review the questions. The researcher made appointments and interviewed chiefs and crime analysis unit supervisors at their offices. Because a structured interview format was used, the researcher did not use an audio recording device but instead took notes.

Upon completing the law enforcement attitude survey, follow up data were collected from some officers and various ranking officers who completed the questionnaire using the interview method. A sample of 17 officers and managers participated in the study. The sample does not exactly represent the departments, but the researcher interviewed officers from various ranks at each agency: four captains, four lieutenants, four sergeants, and five officers. The convenience sampling approach was adopted. The participants were contacted during the survey and those who were volunteers were interviewed after the primary data collection method, the survey, was completed. The willing participants were interviewed at roll call meeting rooms or at their own offices in the districts. Only two of the participants were interviewed by phone. All but one interview was recorded using an audio recording device and transcribed. One of the interviewees did not feel comfortable with the audio recording device and did not want to be

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recorded; therefore, the researcher took notes for his interview. However, the researcher observed that using an audio recording device caused a formal discussion atmosphere and some of the interviewees felt somewhat uncomfortable in discussing issues. The names of interview subjects and departments were not used in this study. Interviews were conducted between September and October 2011 and generally lasted about 15 to 20 minutes.

The findings are discussed in three sections: the perspectives of top management, the perspectives of the crime analysis units' supervisors, and the perspectives of middle managers, line supervisors, and rank and file officers. The findings are further broken down under the following themes: adoption, implementation, crime analysis, understandings, communication and cooperation, decision making tool, crime analysis, accountability, autonomy, community policing, effectiveness, and attitude.

I. The Perspectives of Top Management

Adoption

First, the researcher examined why and how departments adopted the Compstat approach. The top manager of the county police department stated that "they saw success in the departments that implement Compstat and they thought that it would be beneficial to the department." They also wanted to implement Compstat to "decrease crime in the county." The top manager of the transit police department stated that they adopted Compstat to "have a defined process to address crime." The head of the sheriff's department stated that they adopted Compstat to "develop strategies to decrease crime." Moreover, when asked to select the primary reasons the department implemented Compstat out of 14 reasons, the common reasons of three

agencies were "to reduce serious crime, to improve the quality of police/citizen satisfaction, and to increase efficiency of service (reduce cost per unit of service)."

The managers from each department visited at least one other department that implemented Compstat to observe the meetings and receive information from staff. After site visits, the top managers discussed the process and tailored it to their departments. One of the chiefs suggested that agencies considering adopting Compstat "should not do the way other departments have done, take the idea and tailor it to your specific organization." The top managers stated that "Compstat is a major part of the agency's organization and operations." They also stated that they informed sworn officers about the implementation of Compstat through departmental policies. They tried to gain support of officers for implementing Compstat through communication and training. However, training was provided to crime analysts, lieutenants and above level managers. Training was not provided to patrol officers and line supervisors by the agencies. They also stated that only lieutenants, captains, and higher level officers attend meetings regularly; however, several officers from each district attend meetings as observers at the sheriff's and transit police departments.

The researcher aimed to explore the challenges that departments had and how successful they were in overcoming these challenges. During the adoption and implementation phases, the most common challenges that departments encountered were "(1) getting commanders to cooperate and share resources, while holding them individually accountable for reducing crime, (2) finding police managers who have the ability and desire to do Compstat, (3) getting sufficient resources to do Compstat right, (4) overcoming rivalries and distrust among different police units, (5) getting officers to take the initiative in solving problems, (6) getting middle managers to take the initiative in solving problems, and (7) overcoming the objections of the union when

greater organization flexibility was required." The top managers reported that they were somewhat or moderately successful in overcoming these challenges.

Implementation

Based on top managements' perspective, the researcher examined whether the departments were following the core elements of Compstat identified by Weisburd et al. (2008). The top managers of all three departments stated that they "set specific objectives in terms that can be precisely measured" which measured the "mission clarification." Furthermore, in order to measure the degree of mission clarification, one item "in the last 12 months has your agency publicly announced a goal of reducing crime or some other problems by a specific number of percent" was used. All three top managers stated that they publicly announced a goal of reducing crime problems.

The second element, "internal accountability" which was a key word that all top managers pointed out, was measured with three questions. The top managers stated that they were "holding regular scheduled Compstat meetings with district commanders to review progress toward objectives," "holding middle managers responsible for understanding crime patterns and initiating plans to deal with them," and "holding specialized units accountable at regularly held meetings." Furthermore, the degree of accountability was measured with five questions. According to the top managers of the county police and sheriff's department, "if crime in a district stays at a high level or continues to rise over many months, the district commander would be somewhat likely replaced." The chief of the transit police department stated that "it is somewhat unlikely the commander would lose his/her position in this situation." Likewise, in both the county police and sheriff's department, "if the commander of a specialized unit

frequently fails to fulfill requests for cooperation from district commanders, the specialized unit commander would be somewhat likely replaced"; however, this was not the case in the context of the transit police department. The top manager of the county police department stated that "if a district commander does not know about crime patterns in the district, the district commander would be somewhat likely replaced"; however, the top managers of the sheriff's and the transit police department stated that it was somewhat unlikely for this situation to arise. All three top managers of departments stated that "if crime in a district declines over many months" or "if the commander of a specialized unit routinely fulfills requests for assistance from district commanders," "the commanders would be somewhat unlikely promoted or get a desired job." The items collectively indicated that the agencies use "punishment" but they do not use "reward" to hold managers accountable and motivate them. The findings are consistent with those in Willis et al. (2003; 2007).

In addition, when asked about the relentless follow-up and assessment, which is one of the principles of Compstat, top managers stated that they did not practice relentless follow-up and assessment which is hostile, instead they practice persistent follow-up. They stated they did not want to intimidate or put too much pressure on managers at Compstat meetings. In some agencies, Compstat meetings are held in a harsh and unpleasant atmosphere where executive managers question middle managers; however, in selected agencies, according to top management personnel, managers can act creatively by discussing the impact of previous strategies and developing new ones.

Geographic organization of command and organizational flexibility were measured with three questions. The researcher aimed to examine whether middle managers were given the authority and autonomy to accomplish Compstat goals. The top managers stated that "they give

middle managers independence in selecting strategies to accomplish these objectives," "give middle managers control over more resources to accomplish objectives," and "require specialized units to assist patrol officers to solve problems."

Moreover, the degree of autonomy and authority given to middle level managers and line supervisors was measured using eight questions. It was found that transit police department managers have less autonomy and authority when compared with the other departments' managers. Specifically, the autonomy of "problem solving strategies for high-profile problems, approving flexible hour requests for sworn personnel, and providing official recognition for exceptional performance by a police officer" is still used by top executives or operational commanders. In the county police and sheriff's departments, these authorities were given to district commanders. In addition, the autonomy of "determining routine staffing levels for patrol shifts, giving individual employees job assignments, mobilizing SWAT units to support operations, and selecting problem solving-strategies for low-profile problems" was given to district managers and specialized units commanders. The findings suggest that middle management is given more autonomy and responsibility under a Compstat system. Therefore, middle managers can be more flexible in the decision making and implement strategies and tactics to achieve their mission.

The element of "innovative problem solving tactics" was measured with a single question. All three top managers stated that "they develop, modify, or discard problem-solving strategies based on what the data show."

The element of "data driven problem identification and assessment" was measured with two questions. The top managers stated that "they use data to review progress toward

objectives." The top managers of the county police and sheriff's department stated that they also "use maps to display crime problems and department activities which address those problems"; however, the transit police department does not use crime mapping. Timely and accurate data is one of the principles of Compstat.

The researcher examined what type of information top management received and how useful this was in assessing the department's performance. Responses of the three top managers were similar. They received crime statistics (daily, weekly, and monthly), department activity statistics, such as arrests, citations, calls for service (weekly and monthly), complaints against police officers (same day once an incident occurs), summaries of problem solving projects (monthly), and staff's descriptions of important events/accomplishments (daily or weekly). The top managers stated that they found the information very useful. The findings indicate that the top managers received timely data, and they believed that these were very useful for assessing organizational performance. The crime mapping issue was discussed in detail from the perspective of the crime analysis unit supervisors.

Lastly, the top managers were asked how effective Compstat was in the agency. They found it very effective or effective. One of the executives stated that it is an effective tool for holding managers accountable, establishing cooperation, and reducing crime. Furthermore, when their overall attitude was assessed, they all expressed positive attitudes toward Compstat. One of the executives said "it is a good program and we will keep doing it to fight crime."

II. The Perspectives of Crime Analysis Unit Supervisors

The crime analysis unit is responsible for analyzing data, producing crime analysis and crime maps, and then providing this information to district commanders, specialized unit

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commanders, and high ranking officers in a timely manner. The unit also prepares Compstat briefing reports for Compstat meetings. Timely and accurate information is crucial for proactive policing; therefore, the role of this unit is very important for implementing Compstat. Supervisors of the county police and sheriff's departments stated that patrol officers can access crime case files, crime statistics for assigned beats, and crime maps for assigned beats at headquarters and precincts. At the transit police department, only supervisors can access crime case files and crime statistics.

The supervisors were asked about the attitudes of crime analysts and effectiveness of Compstat. They had positive attitudes toward Compstat and believed that it was effective or very effective. One supervisor who thought that it was very effective commented that "absolutely positively, it improves communication and encourages information sharing."

Section III. The Perspectives of Middle Managers, Line Supervisors, and Rank and File Officers

Participants' Understanding of Compstat

In order to investigate what the participants' understanding of Compstat was, the researcher asked participants whether they knew about Compstat, and how they would describe it. The participants' understanding of Compstat was similar. According to interviewees, Compstat is a measurement tool that helps identify crime trends and problems and helps allocate resources based on statistical data. Compstat is used for both crime prevention and crime fighting purposes. "It is a weekly meeting of command staff. Captains, members of specialized unit, and some of the support operation units attend the meeting. It is a summation of how we are addressing crime trends" said one of the lieutenants. One of the captain stated that "Compstat

makes us pay attention to what is going on." Another captain pointed out this point when he acknowledged that "we can look at the bigger picture, we can put cops on the dots."

These data indicate that Compstat appears to be well understood by supervisors and managers. Although all participants had heard of Compstat, and the researcher observed that crime maps and Compstat statistics were posted in the roll call meeting rooms; and shift supervisors explained what the crime problems were and what officers should do based on the statistics; when reviewing the questionnaires, the researcher realized that some participants disagreed with the statement "I understand what Compstat is". As discussed in the analysis of the survey section, this survey item was dichotomized to discriminate those were knowledgeable versus unknowledgeable. Furthermore, during the survey, the researcher asked some officers who disagreed with the statement if they understand Compstat, most of them commented that "it is a meeting; it is for the upper echelon not for us." One officer said that "I barely understand it. Compstat is more for the upper echelon. As far as I know they are getting information to deploy resources." However, some officers understood Compstat to a higher degree than managers. One of the patrol officers stated that Compstat is a top-down model. Captain and above level officers hold meetings; first-line supervisors and officers receive information at the roll calls. According to one captain, "officers may not know the details of Compstat, but they know that precinct commanders and the upper echelon are involved in this. Street officers know that they are given orders based on stats. The data drives that and they know where to go."

Technology and Crime Analysis

Geographic Information Systems technology and crime data are key components of timely and accurate information, which are crucial for implementing Compstat. Responses varied when the interviewees were asked whether they received timely information. It was found that

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the interviewees with the county police department were satisfied with crime data, crime maps, and analysis; but those with the sheriff's department stated that they did not get timely data and analysis; those with the transit police department stated that they did get timely data but not crime maps with analysis because they did not have sufficient technology. Almost all of the participants stated that GIS technology would be useful to them. The researcher observed that information sharing is crucial for Compstat because those who do not get timely information think that Compstat is not being implemented properly in their departments or it is not an effective tool.

Communication and Cooperation

Interviewees were asked if they think that Compstat improves the communication and cooperation between their units and specialized units in their department. Most of the participants said that Compstat improves communication and coordination between units. According to interviewees, everybody focuses on the same issue at the meetings, so higher ranking officials, commanders and members of specialized units share information and discuss the problems. One of the lieutenants said that "Compstat is excellent for exchanging information." Another lieutenant illustrated this point by acknowledging that "Compstat brings the entire department together…It has opened up communications in our department. The communication is now much clearer and more collaborative."

However, some interviewees question the effectiveness of Compstat on communication. According to them, it does not improve communication; conversely, it creates an atmosphere which causes infighting between managers. Since police agencies generally operated based on compartmentalization, each commander wants to show that his or her unit is doing great job instead of identifying and discussing the problems. One of the lieutenants pointed out this issue,

by stating "it ends up being a blaming area. Commanders do not want to look bad in these meetings. So, they defend their areas as opposed to fixing the problems and want to make others look bad to make themselves look better." One of the sergeants stated that some commanders are closed-minded and they do not care what others are talking about. The sergeant continued stating that if management forces them too much, they pretend to care.

Some officers thought Compstat creates a barrier between officers and managers, but that they could not express their problems with this and higher managers did not share information with them, instead managers told officers where to go and what to do. One of the officers said that Compstat takes into account only the paperwork and statistics, and that this made their work more difficult. However, in contrast to officers who talk to people in their community and help them with their problems; Compstat does not take any of these activities into account. The officer felt that this did not improve communication because there was a big break in communication between officers and administrators. The officer continued stating that "they forgot what it is like to be a patrol officer. Their entire structure is how I do my job is based on a piece of paper." Furthermore, the officer pointed out the problems with communication channels. According to the interviewee, captains and above level managers do not share useful information with the officers. In addition, "they do not talk to us anymore because they think they have everything, because they have Compstat reports. They think they know more. From my perspective, communication between officers and higher ranking officers is even worse now" said one of the interviewees. Another officer complained about constantly being assigned to new places without being given the reason for the assignment. The officer said that "information is going up but not coming down."

Compstat as a Decision Making Tool

Almost all of the participants perceived Compstat as a decision-making tool for resource allocation and strategic planning. Some participants thought it an important aspect of decision making. One of the captains stated that instead of making random action plans, they now work based on evidence. Another captain pointed out this issue and acknowledged that "Compstat is an important tool for decision making. It allows us able to see where the crime trends are so we can allocate our resources." However, some interviewees believed that Compstat is not being used properly. One of the sergeants argued that Compstat was not being implemented successfully because his department did not focus on underlying reasons behind the problems. The sergeant further continued stating that since they do not use it for proactive purposes, crime trends shifts and police only respond to calls for service instead of preventing crime.

Accountability

All of the chiefs of the agencies stated that accountability is one of the most important reasons for implementing Compstat in their agency. During the interviews, almost all of the participants mentioned accountability. Most participants stated that since the implementation of Compstat, they were being held accountable for crimes in their geographical areas. One of the captains said that "Compstat puts pressure on commanders for crime in their jurisdictions. I do put pressure on lieutenants and sergeants to make sure that they use resources adequately to take care of the issues." Consistent with this statement, one of the sergeants reported that "Captain wants to know what is going on at all the times. So, it is pretty much our responsibility to keep an eye on crimes, try to identify trends and allocate resources that we have available."

Some interviewees found Compstat useful for accountability reason; however, some stated that it was a problem because they believed that they could not affect crime problems. One

of the captains reported that they had never used statistics before; however, the agency expected them to come to meetings and explain crime problems based on statistical analysis. The captain also complained about the implementation style of Compstat in their agency, he felt it was burdensome for captains and other officers with not much responsibility for Compstat. Another problem associated with Compstat mentioned was that "it holds you accountable for things that you cannot affect" said the captain.

Based on the interviewees' comments, it was found that lieutenants and captains were the ones who felt much more pressure than other officers. One of the lieutenants stated that "if I have a problem or crime trend and I am not focusing on it, doing everything that I can I would probably be replaced. There is no true reward or punishment other than embarrassment at meeting or removal from your position for getting it right." One of the sergeants pointed out that since Compstat puts too much emphasis on stats and administrators constantly asking for better results, the morality of personnel is decreasing. In addition, being recognized or getting compensated for extra job or efforts would motivate organization members, said the sergeant.

Autonomy

Compstat requires decentralization and giving autonomy to middle level managers. Therefore, autonomy is important for implementing Compstat. During the interviews, when participants were asked if there were any comments they would like to add, some participants made some commentaries about the implementation of Compstat. While analyzing these answers, the researcher found that district commanders were given autonomy to develop and implement strategies; however, they were usually under pressure to a greater extent than other managers. Moreover, they had to consider budget and unions. One of the captains stated that he has autonomy to implement strategies but he also has to deal with the union. The captain further

stated that overtime is a big problem; when he needs more officers in certain places, because of union restrictions and an insufficient budget he cannot put his plans into effect.

According to some interviewees, the autonomy of line officers is restricted; they are more or less told what to do; however, responses vary by department. One of the officers reported that officers have less autonomy compared to what they had prior to Compstat. The officer also said that prior to Compstat officers used to work the same beat/post but now they are being directed to hot-spot areas. The officer also complained that "how could anyone hold officers accountable for crime in their beats/posts? I cannot be everywhere at one time. I have too much on my plate." These statements are consistent with some managers' attitudes. For instance, one lieutenant reported that "officers' autonomy is restricted to some degree; they are told a lot more than it was used to be. Therefore, in order to make them feel better and gain their support for Compstat efforts, I asked for their opinions and suggestions." On the other hand, some participants stated that they did not see any difference when compared to their jobs prior to and after the implementation of Compstat.

Compstat and Community Policing

Since the literature indicates that there are different views on whether Compstat can be implemented together with community policing, the researcher asked participants what they thought about community policing. All of the interviewees made favorable comments about community policing and most of them expressed that "it is a very effective tool." Most of them agreed that these two policing methods are compatible. Moreover, during the interviews, all top managers expressed favorable attitudes toward community policing and stated that they can be implemented together. The finding is consistent with those of Willis et al. (2010) who found that 91% of police executives found the two police innovations compatible.

One of the captains stated that in the early 1990s, police agencies were focusing on community policing and problem solving strategies. However, when crime became a big problem around the nation, police agencies started to address crime issues. The captain also said that they implemented Compstat and community policing together and used Compstat data in community meetings. Another captain pointed out the same issue and acknowledged in that "in the community meetings, we talk based on stats." Likewise, one of the lieutenants reported that Compstat was not separate from community policing, broken windows or zero tolerance theories. The lieutenant further argued that police agencies can use these various theories with Compstat. Furthermore, one of the captains acknowledged that Compstat makes police agencies more crime oriented and the paradigm is shifting from community policing to crime prevention.

Conversely, one of the officers stated that community policing and Compstat cannot be implemented together, because community policing requires developing good relationships with the community whereas Compstat pushes officers to produce stats and closes communication channels between officers and managers. The officer believed that community policing was the most effective tool for policing. The officer thought Compstat hurts police work and communication between police officers and the community.

Effectiveness

Participants were asked overall, how effective Compstat was in their departments. Nearly half of the participants stated that it was a very effective tool and it has contributed to crime reduction. One of the lieutenants reported that Compstat helps in two ways: to strategize their plans and to justify their efforts. Through Compstat, managers can allocate resources more effectively and justify their actions to community. One of the captains stated that it was a very

effective accountability tool; however, "it is not the cure to all problems." Another captain reported that it was effective but it did not affect everything.

However, some participants thought that it was not effective because it was not implemented properly; some of the participants thought that it was not effective at all. One of the captains said "it would be great if we had enough sources and had a good data system." Likewise, one of the lieutenants argued that they did not receive sufficient information. One of the sergeants reported that it was not effective as it could be because agency had not won the support of organization members. The sergeant continued to state that officers were not buying into it, captains and above level officers buy into it, while some sergeants and lieutenants buy into it and some do not. Furthermore, one of the officers believed that Compstat was less effective because it hurt communication between management and street level officers.

Attitude toward Compstat

Attitude is the key word for this study. Therefore, participants were asked about their attitudes toward Compstat. It was found that some participants had positive attitudes but some of them had negative attitudes toward Compstat. One of the captains reported that "we see so much positive results in this department." Likewise, one of the lieutenants stated that he had positive attitudes toward Compstat because "it helps one stay in tune."

Conversely, one of the sergeants stated that Compstat does not make things any different from normal, because if it did not exist they would be doing the same things. The sergeant believed that it was a waste of resources and time. The sergeant felt crime moves around and police cannot prevent all crimes because it is a social problem. Another problem with Compstat is manpower, "we do not have the people to put everywhere" said the sergeant.

One of the lieutenants reported that his attitudes toward Compstat were ambivalent. The lieutenant acknowledged the idea of Compstat in theory and thought that if it was used properly it could be useful. However, since it creates infighting between commanders as opposed to solving problems, he believed that it was not helpful. The lieutenant continued to say that statistics should be used as a tool not as an end result. "However, most of the time, upper management looks at statistics as an end result" said the lieutenant.

One officer, who used to work for another agency (agency ABC) for more than 5 years, had to leave agency ABC because of Compstat and its effects such as too much pressure on officers and aggressive policing. The officer shared his experience and compared his former and current agency. The officer felt that his current agency did not utilize Compstat at the officer level. However, in agency ABC, he explained how he was turned off by police work. The officer described Compstat within agency ABC as a game played by managers. The officer said that every week managers wanted them to focus on various problems and asked them to aggressively fight crime. Generating stats was the priority of agency which also created false reporting. The officer also reported that lieutenants and commanders were being embarrassed at Compstat meetings. If their stats were not adequate, they were fired or replaced. There was too much emphasis on statistics.

Summary of Findings

This mixed-methods study examined the views of law enforcement officers toward Compstat and the underlying reasons affecting their attitudes. To accomplish this goal, data was analyzed to understand the officers' attitudes toward Compstat and the effects of demographic variables, police culture, and organizational variables on attitudes. The findings indicate that most participants consider legal restrictions as necessary while enforcing law. Most participants

support the idea of cooperation with the community they serve; however, almost half of those surveyed are unwilling to serve the community in the context of non-crime related problems. Almost half of the participants reported that they were distrustful of citizens. On the contrary, most of the participants believed that police/community relationships could improve and they could work together effectively. Approximately half of the participants were found to be resistant to change, believing that most changes are problematic and ineffective. Most of the participants had unfavorable supervisory attitudes toward upper management.

Results also indicated that less than one third believed that they are ready for implementing Compstat. Approximately one third of the participants had positive perceptions about the effectiveness of Compstat. More than one third of the participants neither supported Compstat nor opposed the idea and only one fifth supported Compstat. The analyses of demographic variables showed that there were no significant differences on attitudes by ranking, race, gender, and education. Work experience, age groups, and department differences showed a significant impact on participants' attitudes toward Compstat. In general, officers with less than 3 year experience, younger officers, and those who worked at the county police department expressed more positive attitudes toward Compstat.

Furthermore, a standard multiple regression analysis was conducted to examine how well demographic variables, police cultural variables, and organizational variables predicted officers' attitudes. In the regression model, among organizational variables, perceived effectiveness and readiness; among police cultural variables, receptivity to change, and supervisory; among demographic variables, departments (sheriff's department and transit police department) and work experience (less than 3 years of experience) were found to be statistically significant contributors (R^2=.590).

Follow-up interviews were conducted after completing the survey in order to better understand participants' attitudes in detail toward Compstat. First, the top managers and crime analysis unit supervisors of each agency were interviewed. Next, 17 participants were selected among those who participated in the survey. The surveys and interviews were conducted on a voluntary basis. These participants represented various hierarchical levels within selected agencies. These analyses indicated that top managers and crime analysts supported Compstat and they all found it effective and useful. On the other hand, other participants were ambivalent about Compstat. They neither unanimously supported nor equally opposed the implementation of Compstat. Some of the reasons for disapproving Compstat were implementation style, leadership style, and lack of training, communication, and resources. The findings suggest that middle managers, line-supervisors, and officers were not ready and willing to implement Compstat within these agencies.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Adopting and implementing a quality improvement approach to improve the organizational performance necessitates an organizational change. The successful implementation of such innovation often requires employees to modify their behavior (Spector 2007). Therefore, positive employee attitudes toward change are crucial determinants for a successful implementation of performance reforms (de Lancer Julnes 2009; Yong and Pheng 2008). One of the main goals of performance reform is to create high performance organizations and change organizational culture toward a performance-based approach (Kamensky 1996; Popovich 1998). However, organizational change is often a difficult process for both agencies and organization members (Trice and Beyer 2005) because change results in anxiety, uncertainty, and resistance (Edosomwan 1996).

Today, law enforcement agencies are facing difficulties in accomplishing their missions and they are under pressure to improve their performance, police services, and accountability structures. They are, more than ever before, being held accountable by the communities they serve. Therefore, they are introducing various police strategies and attempting to change their organizational structures. Compstat, an administrative innovation in policing, aims to improve accountability and reduce crime (Moore 2003; Willis et al. 2007). Compstat has been adopted by a large number of law enforcement agencies in the United States (Weisburd et al. 2003). Lurigio and Skogan (1994, 316) state that police executives should gain the "hearts and minds of the officers" to implement a policing program. Furthermore, in his article "Why Reforms Fail," Skogan argued that resistance to innovations in policing can come from top managers, middle-level managers, first line supervisors, rank-and-file officers, special units, and police unions

(2008). However, there is not enough knowledge on officers' and managers' attitudes toward Compstat and the factors affecting their attitudes. Therefore, this research aimed to contribute to the literature by exploring attitudes of law enforcement officers and providing suggestions about gaining the hearts and minds of officers to law enforcement agencies.

However, this researcher does not disparage or advocate against Compstat. The purpose of this study was to understand the attitudes of law enforcement officers toward Compstat and to explore which factors influence their attitudes toward Compstat. In order to accomplish these goals, a self-administered survey was completed by middle level managers, first line supervisors, and rank-and-file officers within three law enforcement agencies. In addition, interviews were conducted with head of agencies, supervisors of crime analysis units, and officers from different ranks. Selecting three various agencies allowed the researcher to examine the differences in attitudes by agency because as noted by Rashid et al. (2004), management and leadership style affects change process in addition to work culture and attitudes of employees. However, since the focus of the current study was to understand officers' attitudes, the researcher did not evaluate the implementation process but rather examined whether the agencies had adopted and implemented core elements of Compstat and to what extent they were capable of producing sufficient information for Compstat efforts.

The implementation of innovations (Campbell and Masser 1995), change theory (Lewin 1947), the theory of planned behavior (Ajzen 1985), and organizational culture (Schein 2010) theories were used to guide this study. This study has made several contributions to the literature. First, the attitudes of officers and managers toward Compstat were identified. Second, the organizational culture theory was tested and it was found that organizational culture significantly influences officers' attitudes toward Compstat.

Findings and Discussions

Since Compstat is a management and technological system (Moore 2003; Willis et al. 2007), agencies should first meet the technical proficiency and managerial requirements needed to implement Compstat. Campbell and Massser (1995) suggest that successful implementation of an innovation depends on technical proficiency, rational management, and gaining the organizational and user acceptance. For this reason, the technical proficiency of agencies, managerial aspects of change, and law enforcement officers' attitudes were examined.

Personal interviews were conducted to better understand the adoption and implementation issues with the heads of agencies and supervisors of the crime analysis units. The data indicate that police agencies adopted Compstat under both technical and institutional pressures. From a technical perspective, agencies adopted Compstat to perform more efficiently. All three chiefs stated they have seen successes in other agencies; therefore, they adopted Compstat to reduce crime, to improve police/citizen satisfaction, and to increase efficiency of service; whereas from an institutional perspective, agencies adopted Compstat to look good because the heads of agencies stated that they adopted Compstat because there was a growing trend toward Compstat.

Based on the statements of top managers, although there are several differences in implementation styles, it appears that all three agencies implemented the core elements of Compstat. They all clarified their mission and announced a goal of reducing crime, held regular Compstat meetings for holding managers accountable for crime, practiced persistent follow-up instead of relentless follow-up, provided authority and autonomy to middle managers in order to accomplish Compstat goals, developed problem solving strategies based on the data, and adopted

a data driven approach. According to the supervisors of crime analysis units, data was gathered

and produced in a timely way to support Compstat efforts. It was found that the county police

department had the most advanced technology for computerized crime mapping and statistical

analysis, the sheriffs' department had few crime analysts, and the crime analysis unit of the

transit police department only produced crime analysis and statistical data, but the agency did not

have a GIS.

All chiefs and supervisors of the crime analysis units had positive attitudes toward

Compstat and strongly supported it. They believed it to be an effective tool for crime fighting,

communication and accountability.

Attitudes toward Compstat

To answer the first research question "What are officers' and managers' attitudes toward

Compstat?", frequency distributions to describe support for Compstat scale were presented.

These data indicated that half of the participants did not believe that it improves communication

between units, more than half of the participants thought it does not improve the morale of the

department, one third of participants stated they support the department's move toward

Compstat, and two fifths of participants believed Compstat to be a fad in policing. Collectively,

the data suggests that the majority of participants do not have positive attitudes toward Compstat.

Based on the data, it appears that officers are not ready and willing to fulfill the requirements of

Compstat efforts in these agencies.

Furthermore, independent samples t-tests and one-way analysis of variance (ANOVA)

tests were conducted to examine if attitudes toward Compstat differed by demographic variables.

The data analyses indicated that there were no significant differences between the means of

support by rank, education, race, and gender. However, work experience, age groups, and departments were found to be significant determinants of attitudes. Furthermore, post-hoc Scheffe test indicated that officers with less than three year experience, younger officers (21 to 29 years old), and officers with the county police department supported Compstat more than other groups. The analysis of Pearson correlation coefficient was consistent with the independent sample t-tests and ANOVA tests. The analysis of the correlation matrix showed that work experience and departments were significantly correlated with the degree of support for Compstat; however, age was not correlated significantly. This was because age was analyzed as a continuous variable in the correlation matrix; however, in the ANOVA test, this was categorized by four groups. Therefore, when age was considered as age groups in this study, it was found that there was significant difference between age groups.

Follow-up interviews were conducted in order to better understand officers' attitudes in detail with officers from various ranks. The qualitative data was consistent with the quantitative data, suggesting that some officers supported and thought it effective and that it improves communication; while some others thought it ineffective as a method of improving communication and fighting crime. On the other hand, some participants thought Compstat was an effective tool in theory, but it was ineffective in their agencies because they thought that their departments implemented it incompletely or incorrectly.

Willis et al. state that "a high level of accountability should be experienced by all members of the organization, including those at the bottom" (2007, 154). However, based on the observations of the researcher, interviews and off-the-record conversations conducted during the conducting survey, it was found that Compstat was not felt to impact at the officer level within the county police and the sheriffs' departments, and there was minimum change in the way these

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individuals did their jobs. On the other hand, even street level officers in the transit police department were affected by Compstat. Likewise, none of the agencies provided training for sergeants and low level officers. These issues might have affected the attitudes of officers toward Compstat.

Influences of Police Culture, Organizational Variables, and Demographics on Attitudes

In order to answer the third research question "How well police culture, organizational structural, and demographic variables explain officers' attitudes toward Compstat?", a standard multiple regression (OLS) was conducted. In the regression model, police cultural variables, organizational/structural variables, and demographic variables were taken as independent variables. The regression model explained 59% of the variance in officers' attitudes toward Compstat.

Among the demographic variables, work experience and departments were found to be significant predictors of officers' attitudes. The findings indicate that officers with less than 3 years of experience were more likely to support Compstat; however, officers working at the sheriff's department and the transit police department had more negative attitudes toward Compstat. The findings indicate that characteristics of departments and implementation style influence officer attitudes because each department has its own characteristics, and implementation varies by departments. One possible explanation of negative attitudes of more experience law enforcement officers is that more experienced officers might have had negative experiences with changes as noted by Edosomwan (1996) or they might have experienced previous policing reforms that resulted in failure ((Lurigio and Skogan 1994). Other demographic variables (age, race, gender, rank, education) were not found to be significantly associated with officers' attitudes. However, when age was categorized by four groups,

significant differences were found between age groups. The data show that younger officers are more likely to support Compstat.

Among organizational variables, perceived effectiveness, readiness, and understandability were positively associated with officers' attitudes. Perceived effectiveness and agency readiness were significant contributors to the regression model, whereas understandability was not found to be a significant contributor to the regression model. Perceived effectiveness, which was inspired by the Theory of Planned Behavior (Ajzen 1985) and the Technology Acceptance Model (Davis 1989), was found to be the most influential factor in predicting officer attitude among all significant variables. The results indicated that law enforcement officers who believed that Compstat was an effective tool had more likely to support Compstat. One possible explanation is that agencies have been implementing Compstat for a while and officers who have experienced the impact of Compstat on crime had more positive attitudes. Furthermore, agency readiness, which measures communication, training, and resource sufficiency, was found to be the second most influential variable in predicting officers' attitudes. The findings showed that officers who received training, who believed that their agency has allocated sufficient resources for Compstat efforts, those who thought that Compstat policies were communicated clearly, and those who perceived Compstat as an efficient tool had more positive attitudes toward Compstat.

Among the police culture variables, supervisory and receptivity to change significantly contributed to the model. The findings suggested that officers with positive attitudes toward their supervisors have more positive attitudes toward Compstat. As anticipated, the behaviors of managers influence officers' attitudes and if officers have more positive relationships with their managers, they are more likely to support organizational change efforts. Likewise, the results

showed that officers who were receptive to change had more positive attitudes toward Compstat. One possible explanation is that officers who like to try new ways of doing business and who are open to change will exhibit more commitment to organizational change.

In addition, the results of Pearson correlation coefficient analysis showed that all police culture variables were significantly correlated with officers' attitudes. The Pearson correlation takes each variable into consideration separately while multiple regression analysis takes all variables at the same time; therefore, overlapping variance occurs among the independent variables. Thus, it is notable to present the correlation findings based on the Pearson correlation coefficient. The correlation matrix shows that crime fighting, legal restrictions, distrust, and optimism were negatively associated with officers' attitudes; however, cooperation, community policing, receptivity to change, and supervisory attitude were positively associated with officers' attitudes.

The findings suggested that officers with crime fighting orientation, officers who tend to ignore legal restrictions, officers who are distrustful of citizen, and officers who are not optimistic about community relations are less likely to support Compstat. On the other hand, officers who value cooperation and community policing principles, officers who are open to change, and officers who have positive attitudes toward their managers are more likely to support Compstat. The results of the current study do not support the assumption (Weisburd et al. 2003) that Compstat reinforced the traditional model of policing. If this assumption had been correct, this study should have showed the opposite results. In this study, variables measuring police culture were used to examine whether organizational culture has any impact on attitudes. The findings show that police culture has a significant influence on officers' attitudes toward Compstat.

Implications

The researcher attempted to identify organizational and individual variables that might influence officers' attitudes because these variables can facilitate the implementation of Compstat. In this study, perceived effectiveness, agency readiness, supervisory, department, experience, and receptivity to change were found to be significant contributors in predicting officers' attitudes. Furthermore, the findings of the qualitative analysis suggest that communication, cooperation, competition, implementation style, flow of information, information quality, GIS and crime mapping technology, pressure, and incentive influence officers' attitudes toward Compstat. Top managers of the selected agencies attempted to implement Compstat; however, the findings showed that the majority of organization members were not willing to commit to the implementation of Compstat.

The results indicate that top managers have positive attitudes toward Compstat and strongly support it; however, other organization members have mixed attitudes toward Compstat. Nearly half of the participants expressed negative attitudes toward Compstat. One possible explanation is that police culture has a significant effect on attitudes. Reuss-Ianni (1983) argued that street cop and management cop cultures exist in police organizations. Reuss-Ianni further stated that managers generally introduce organizational changes; however, street level officers resist changes because street level officers have quite different perspectives on solving crime problems than managers. The findings of the current study are consistent with Reuss-Ianni's study that demonstrates different types of police culture exist among organization members. It was also found that street level officers and top managers have different approaches to the police role. Therefore, police administrators should be aware of the attitudes of their officers toward Compstat. They should also be aware of the police culture and other factors affecting officers'

attitudes. Thus, top management can develop effective strategies to "win the hearts and minds of organization members" (Lurigio and Skogan 1994, 316) and eliminate barriers for effective implementation.

Top management should understand that their organizations, human behavior, and organization members are affected by organizational change (Hultman 1998). According to Hultman (1998), management should interact with organization members, attempt to meet their physical and psychological needs, and find a way to motivate them. In addition to cultural variables, agency readiness, which was the second significant contributor in predicting officer attitudes, should be taken into consideration. The agency readiness variable consists of communication, training, and resources. Top managers and middle managers should use communication channels effectively to inform lower ranking officers about the policies of Compstat and receive feedback from them. In addition to middle managers, the agencies should provide training in Compstat to line supervisors and rank-and-file officers. Moreover, managers should allocate sufficient resources for Compstat efforts. Top management should show its commitment to Compstat by allocating sufficient resources. Likewise, through effective communication and training, top management can persuade organization members to support Compstat efforts and commit to organizational change.

Policy Recommendations for Law Enforcement Agencies

As Schein (2010) points out, leaders can change organizational culture in their organizations by changing the values. Therefore, the top management actors of agencies that are attempting to implement Compstat should demonstrate new values associated with Compstat efforts to fulfill the organization's mission and if these efforts contribute to successful outcomes,

organization members will accept the Compstat model and the new values will become a part of normal police activities.

Top management can follow various ways to introduce Compstat and gain the support of organization members. Scholars discuss three types of theories for change initiation: burning platform theory, which refers to forcing employees to recognize the urgency for change; leader pressure theory which focuses on leaders' commitment and pressure for change efforts; and persuasive theory which was introduced by Kurt Lewin (Kelman 2005). Since police agencies are managed from the top, personal commitment of top management is crucial for successful implementation; however, they should not pressure on organization members. The researcher recommends that top managers who attempt to implement Compstat should understand the change process and follow the Lewin's three-step change process: unfreezing, moving, and freezing (1947).

According to Lewin's theory, top management should persuade organization members; thus, organization members will understand the need for change and show commitment to change efforts. Community dissatisfaction or other departments' success can demonstrate that the agency should introduce a new management model. As Cawsey and Deszca (2007) point out, unfreezing is required to occur at various levels. Data shows that top managers introduce Compstat in their agencies, and top managers and technical personnel are ready to implement Compstat; however, most of the organization members at middle or lower level officers have either neutral or negative attitudes toward Compstat. In order to provide an openness to change and unfreeze middle and lower level managers' and officers' perceptions, the top management should explain the reason for implementing Compstat because such a change in the organization will affect them.

Most importantly, top management should understand the existing police culture in the organization. As noted by Paoline (2003), cultural fragmentation exists in law enforcement agencies due to variations of organizations, rank, and individual officer styles. Regarding organizational differences, Wilson (1968) found that organizational culture is shaped by organizational environment. For instance, if crime is not a major problem in the community, the police department focuses more on the service role. On the other hand, the crime fighting role is the focus of departments if crime is a major problem in their communities. Moreover, Reuss-Ianni (1983) found the existence of *management cop culture* and *street cop culture* in her study in the NYPD. Likewise, the results of qualitative data indicate that there is a big gap between top management and street level officer's attitudes toward Compstat. In addition, research suggests the existence of police subculture among police officers. Because of the characteristics of officers and the socialization process, individual officers have different styles of policing approaches.

According to Schein (2010), leaders should understand the existing culture because if leaders cannot change the organizational culture, the culture will be more effective on the organization and its members. Therefore, top management should take these features of police culture into consideration in order to manage organizational change in their agencies. Top management should consult with community and other stakeholders to identify the problems and choose the best approach, value the street level officers, communicate with them more frequently, and ask their input for problem solving. Top management should motivate and encourage organization members to get involved in the process and avoid punishing them for making mistakes. Otherwise, middle managers will feel too much pressure which decreases the

level of commitment to organizational change and morale. Likewise, street level officers will not get involved in the process and even might manipulate data in order to avoid confrontation.

In addition, top managers should follow the strategies for overcoming resistance to implementing Compstat:

- If management establishes a positive climate, organization members will be more likely to aid efforts during change.

- Management should establish conditions under which people want to do their best.

- Management should lower the uncertainty as much as possible by showing people how the change can benefit them.

- If the change provides people with opportunities to increase their knowledge and skills through real accomplishments, they will be less likely to resist.

- People will be more supportive of change if they are involved in decision making.

- Encouraging a value for teamwork will be helpful in introducing change.

- Reacting emotionally will intensify resistance.

- Using coercion to bring about change is not a very effective way and it will serve to drive the resistance underground.

- Managers should concentrate their attention on factors over which they can exercise some control. They should not become frustrated because of factors that they cannot control (Hultman 1998, 171-175).

Once organization members have accepted the idea of implementing Compstat, the top management personnel, along with the involvement of other organization members, should make decisions on what needs to be changed. In terms of technological requirements, the agency should invest in GIS technology and crime analysis, hire crime analysts and train them, as

required. Nowadays, most of the law enforcement agencies use technology to change the structure and operation of agencies (Roberts 2011). Agencies should use information technology to improve the communication between headquarters, precincts, and officers in the field; disseminate information such as crime maps and crime analysis on a timely basis; and deploy the human and other resources effectively (Roberts 2011). Thus, the successful use of information technology will facilitate the implementation of Compstat in agencies.

In addition, most of the law enforcement officers complained about paperwork during interviews, so the effective implementation of information technology would be a solution to the paperwork problem. Law enforcement officers are increasingly using smartphones and mobile devices such as Blackberry, iphone, and Ipad (National Audit Office 2012). Agencies should encourage officers to use mobile devices in order to "(1) reduce unnecessary bureaucracy, (2) increase the visible presence of front-line-staff in public, (3) increase the efficiency and effectiveness of the police service" (National Audit Office 2012, 15). Agencies can manage the use of mobile devices to open communication channels. Since police agencies are highly structured organizations, organization members often use formal communication channels, which reduce the effectiveness of police work. However, the use of mobile devices along with other information technologies would enable officers to access databases and communicate with one another more efficiently and effectively.

Furthermore, agencies should prepare themselves and their members for the implementation of Compstat. Change agents should work with the strategic planning unit and other organization members to perform SWOT analysis. Performance indicators should be identified and decided upon collectively for facilitating the Compstat process. Although the reasons for unsupportive attitudes vary, agency readiness is one of the most influential factors as

regards attitudes. The present data showed that officers who had received training, those who thought Compstat policies had been communicated clearly, and those who thought adequate resources were allocated for Compstat had more favorable attitudes toward Compstat than those who did not experience these factors. Therefore, agencies should provide training to officers at various levels, provide more frequent information about Compstat to lower-ranking officers, and provide adequate resources. Moreover, organization members should be informed about the changes in their roles and the expectations anticipated from them ahead of time.

In order to adopt the change, organization members should attempt to adapt to Compstat, learn about Compstat and develop new behaviors, as indicated. Michael (1981) argued that roles and role relationships are affected by organizational change. Michael also pointed out that attitudes are affected by changes in status. Moreover, since the implementation of Compstat varies by agencies, top management should identify the role changes that are likely to occur with this, and try to develop a balanced approach. As Michael has suggested, in order to ensure cooperation rather than conflict between the opponents and proponents of Compstat, "top management should weaken and win over the restraining forces in the organization" (1981, 31). The top management personnel should also change the reward system so as to motivate employees. In this way, Compstat can become the 'new' way of doing business in police agencies.

Limitations of the Study

This research had some limitations that should be addressed. First, the study sites were selected purposefully due to proximity and accessibility. The researcher contacted law enforcement agencies and the ones which were willing to cooperate were selected. These agencies had implemented Compstat at least one year prior to the research and served diverse

neighborhoods in rural and urban populations. Therefore, the research findings may not be generalized outside of these agencies.

Second, convenience sampling was selected as a nonprobability sampling technique because the researcher was not able to obtain the list of officers from the agencies; however, the researcher obtained permission to access agencies and their precincts to collect data. Even though the researcher visited each precinct at each roll call to conduct surveys in order to minimize sampling bias and interviewed officers from various ranks, the sampling technique limits the ability to generalize the findings.

Another limitation is that this study attempted to explain human factors by focusing on organizational culture and attitudes through the use of a cross-sectional design. First, attitudes are not the only predictors of behavior because numerous other variables affect human behavior. Second, a cross-sectional design does not allow for examining organizational culture in depth and other variables that affect attitudes. Also, since the data collection method relied on officers' self-report of attitudes, it is possible that participants might not have presented their honest and candid responses.

Recommendations for Future Research

This study included a large and two mid-size law enforcement agencies but city or state agencies were not included in this study. For that reason, researchers should replicate this study using various types of agencies across states. It would be useful to understand the perspectives of law enforcement officers who work in city and state law enforcement agencies. Moreover, a comparison of similar state and local agencies would be useful to understand officers' attitudes toward Compstat. Since each agency has its own characteristics, work culture, and

implementation style, conducting such research would enable discovery of how these differences influence the views of officers.

Since this study was a first attempt to explore the reasons behind officer attitudes toward Compstat, the survey subjects were determined by the researcher and survey scales were adapted from other police studies, especially from the police attitude studies about police culture and community policing. To make this study manageable, the researcher focused on attitudes and some of the variables measuring police culture; however, some other police cultural variables such as loyalty, the perception of danger, and social isolation were excluded from this study. In addition, the items of traditional management did not form a reliable scale; therefore, this should be replaced with a participatory management variable. In addition to occupational outlook, variables measuring organizational culture and leadership such as autonomy, reward orientation, cooperation, job satisfaction, competition, teamwork, communication, and leadership style should be covered in future studies. Therefore, it would be interesting to examine the occupational and organizational variables together.

Furthermore, the researcher briefly attempted to understand the implementation of Compstat within the selected agencies; however, a process evaluation of the actual implementation was not conducted. There have been few studies focusing on process and outcome evaluation. However, scholars have focused on either process or outcomes. Therefore, more research needs to be done to evaluate both the process and outcomes.

Also, attitudinal similarities and differences between communities have not been empirically examined. Research needs to be conducted to compare the attitudes of police officers and community members within communities which implement Compstat and those which do

not implement Compstat. Such a comparison would enable us to understand the effects of Compstat on organization members and communities. This study should include both officer and community surveys. Officers can be compared in terms of organizational commitment, satisfaction, and stress. Communities can be compared in terms of feelings of safety, police/community relations, and community involvement.

Finally, a longitudinal study needs to be done in order to examine the cultural and attitudinal change. In order to gain information on officers' attitudes and factors concerning their acceptance toward Compstat, a survey should be conducted prior to the implementation of Compstat. In this way, senior level managers can identify the attitudes of organization members and organizational culture which will help management strategize their efforts to gain the hearts and minds of organization members for successful implementation. Organization members should also be asked to participate in the same survey after introducing Compstat. A second survey will identify the extent to which management was successful for changing officers' attitudes and organizational culture. Such a longitudinal research study would enable researchers to identify attitudinal and cultural changes and their impact on officers.

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Appendix A: Informed Consent Form for Questionnaire

Title: An Assessment of Law Enforcement Officers' Attitudes toward Compstat Model of Police Management

You are being invited to participate in a research study about attitudes of law enforcement officers toward Compstat. This research project is being conducted by Bulent Uluturk, a member of the Turkish National Police Department and a doctoral candidate in Public Administration at the University of Baltimore. The objective of this research study is to attempt to understand the law enforcement officers' view of Compstat.

There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. This survey uses a standardized questionnaire to determine your views on Compstat, police culture, agency readiness to Compstat, and demographic questions. Your participation will help understand the human factor and improve the implementation of Compstat. The information collected may not benefit you directly, but what I learn from this study will provide benefits to law enforcement agencies and researchers. The questionnaire takes approximately 15 minutes to complete.

This study is anonymous. If you choose to participate, do not write your name, badge number or your unit's name on the questionnaire. No one will be able to identify you, nor your answers will be shown to officials/superiors (i.e., supervisors, commanders, or administrators at headquarters). The questionnaires can be dropped into a locked box. It will not be possible to know who participates in this study and who does not. Nothing you say on the questionnaire will in any way influence your present of future employment with your agency.

Your participation in this study is voluntary. If you choose to participate, you may refuse to answer any of the questions and you may stop or end the survey at any time. By responding to survey, you are giving consent to participate in this study. The results of the study will be provided to participants who request results via e-mail or phone by the researcher.

If you have any questions or concerns, you can contact Dr. Eric Easton, Chair of the Institutional Review Board at the University of Baltimore 410-837-4874 or Dr. Laura Wilson-Gentry, Professor, University of Baltimore at 410-837-6102. You can also contact me at 713-391-0044 or at bulent.uluturk@ubalt.edu.

Appendix B: Law Enforcement Survey

Section 1. Listed below are a number of statements specifically related to your job, police work, and this law enforcement agency. Please indicate the extent to which you agree with the following statements:

		(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree
1.	An aggressive, tough bearing is more useful to a law enforcement officer than a friendly, courteous manner.					
2.	If law enforcement officers act in a service capacity, it detracts from their ability to fight crime.					
3.	Law enforcement officers should not become personally familiar with the residents of the area they patrol.					
4.	All laws should be fully enforced at all times; otherwise people lose respect for the law.					
5.	Problem solving should not be part of an officer's responsibility.					
6.	Good law enforcement requires that officers concern themselves with the consequences of crime and not with its root cause.					
7.	Law enforcement officers should not forget that enforcing the law is by far their most important responsibility.					
8.	Law enforcement officers should not have to handle calls that involve social or personnel problems where no crime is involved.					
9.	Most law enforcement officers have to spend too much of their time handling unimportant, non-crime calls for service.					
10.	Many of the decisions made by the courts interfere with the ability of law enforcement officers to fight crime.					
11.	If law enforcement officers in high crime areas had fewer restrictions on their use of force, many of the serious crime problems in these areas would be significantly reduced.					
12.	Law enforcement officers would be more effective if they did not have to worry about "probable cause" requirements for searches as mandated by the courts.					
13.	Law enforcement officers would be more effective if they did not have to worry about a suspect's rights during interrogations.					

		(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree
14.	Law enforcement officers should be sincerely concerned about the wellbeing of the citizens in the neighborhoods they patrol.					
15.	Law enforcement officers should make frequent informal contacts with the people in the area they patrol.					
16.	Law enforcement officers should try to work with the neighborhood residents, civic groups and the local business community to solve crime problems in their beat.					
17.	Law enforcement officers should try to solve the non-crime problems identified by citizens on their beat.					
18.	Law enforcement officers should ask citizens what types of services they want.					
19.	Crimes are only one of several problems about which law enforcement officers should be concerned.					
20.	Assisting citizens in need is just as important as enforcing law.					
21.	Lowering citizens' fear of crime should be just as high priority for this department as cutting the crime rate.					
22.	Community crime problems can be solved by cooperation between law enforcement and local non-criminal justice agencies.					
23.	Law enforcement officers should be required to help settle family/domestic disputes.					
24.	Law enforcement officers should be required to handle public nuisance problems.					
25.	Law enforcement officers should be required to attend to the sick or injured.					
26.	Law enforcement officers should be required to assist citizens who are having problems with their cars (locked out, dead battery, out of gas, etc.).					
27.	Law enforcement officers should be seen primarily as a service-oriented profession rather than a crime control profession.					

		(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree
28.	Most people lie when answering questions posed by law enforcement officers.					
29.	Most people do not hesitate to go out of their way to help someone in trouble.					
30.	Most people are untrustworthy and dishonest.					
31.	Most people would steal if they knew they would not get caught.					
32.	Most people respect the authority of law enforcement officers.					
33.	Most people lack the proper level of respect for law enforcement officers.					
34.	Law enforcement officers will never trust citizens enough to work together effectively.					
35.	Most citizens are open to the opinions and suggestions of law enforcement officers.					
36.	Citizens will not trust law enforcement officers enough to work together effectively.					
37.	To be effective, an organization should have clearly defined positions of power/authority among its members/employees.					
38.	In law enforcement organizations, power should be evenly distributed among its personnel.					
39.	Communication works best when it follows clear, established channels from the top down.					
40.	Participatory management schemes do not work within law enforcement agencies.					
41.	The quasi-military structure is the most effective organizational type for law enforcement agencies.					
42.	Subordinates should not be involved in either the setting or the enforcing of policies and procedures within law enforcement agencies.					

		(1) Strongly Disagree	(2) Disagree	3) Neutral	(4) Agree	(5) Strongly Agree
43.	Most changes at work are problematic and ineffective.					
44.	I often suggest new approaches for doing things at my work.					
45.	Most changes make my work more efficient (i.e. saves time, effort, money).					
46.	Most changes make my work more effective (i.e. more arrests, faster response times, crime reduction).					

	Please mark the following questions either: very unlikely, somewhat unlikely, somewhat likely, very likely.	(1) Very Unlikely	(2) Somewhat Unlikely	(3) Somewhat Likely	(4) Very Likely
47.	When an officer does a particularly good job, how likely is it that top management will publicly recognize his or her performance?				
48.	When an officer gets written up for a minor violation of the rules, how likely is it that he or she will be treated fairly?				
49.	When an officer contributes to a team effort rather than look good individually how likely is it that top management here will recognize it?				

Section 2. Listed below are a number of statements specifically related to the implementation of Compstat or Compstat like programs in this department.

50. We would like to get your views on this approach. Please indicate the extent to which you agree with the following statements:

		(1) Strongly Disagree	(2) Disagree	3) Neutral	(4) Agree	(5) Strongly Agree
a.	Upper management supports the Compstat model.					
b.	The first-line supervisors support Compstat efforts.					
c.	I understand what Compstat is.					
d.	I have been properly trained in Compstat or computer-based decision making techniques (through formal training, such as basic training, in-service training or conferences).					
e.	My department has allocated sufficient resources to my work unit for Comsptat.					
f.	Compstat policies and procedures have been clearly communicated.					

51. The next questions ask about your views on Compstat. Please indicate the extent to which

you agree or disagree with the following statements:

		(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree
a.	All officers and staff in this department should be required to take training in Compstat.					
b.	The cooperation between my unit and specialized units in the department has improved due to Compstat.					
c.	Compstat has helped to improve the morale of the department.					
d.	I very much support the department's move toward Compstat.					
e.	Compstat is just one more fad in policing and will soon be replaced by another fad.					

52. Please read the following and rate each on whether you believe Compstat contributes to:
For each item, please answer with either to a: less likely to occur, remain same, or more likely
to occur.

		(1) Less Likely	(2) No Change	(3) More Likely
a.	More arrests.			
b.	Quicker responses by officers to calls for service.			
c.	Increased visibility of officers on the street.			
d.	More effective use of crime information.			
e.	Reduction in crime.			
f.	More efficient use of police resources.			

Section 3. Please respond to the following socio-demographic and work experience questions.

53. What is your age?

54. Would you identify yourself as.

(1) White   (2) Black or African-American   (3) Hispanic or Latino

(4) Asian   (5) Other (specify)…..

55. What is your gender?

() Female   () Male

56. What is the highest level of formal education that you have completed?

(1) High school diploma or GED

(2) Associates degree

(3) Bachelors degree

(4) Graduate degree

57. What is your current rank?

(1) Police Officer/Sheriff's deputy   (2) Sergeant   (3) Lieutenant

(4) Captain   (5) Major & above   (6) Other (specify)………

58. How many years have you worked for this law enforcement agency in a sworn position?

() Fewer than 3 years

() 3-10 years

() 11-20 years

() 21 years and more

Thank you for your participation in this study.

Appendix C: Informed Consent Form for Interview

Title: An Assessment of Law Enforcement Officers' Attitudes toward Compstat Model of Police

Management

You are being invited to participate in a research study about attitudes of police officers and managers toward Compstat. This research project is being conducted by Bulent Uluturk, a doctoral candidate in Public Administration at the University of Baltimore. The objective of this research study is to attempt to understand the law enforcement employees' view of Compstat. It is being conducted at several law enforcement agencies in the United States. The interview is being conducted with head of agencies, someone familiar with technical aspects of the agencies, and several sworn officers.

There are no known risks if you decide to participate in this research study, nor are there any costs for participating in the study. This interview asks questions to determine your views on Compstat, its implementation, your attitudes, technical and managerial issues. Your participation will help understand the implementation of Compstat at your agency in terms of managerial and technical level. The information collected from this study will provide benefits to your agency as well as other law enforcement agencies and researchers. The interview takes 30 minutes to complete.

Any information that is obtained in this study will remain confidential and will not be used for other than academic purposes. Information that can identify you individually will not be released to anyone outside the study. Your participation in this study is voluntary. If you choose to participate, you may withdraw at any time without consequences of any kind and you may refuse to answer any questions you do not want to answer.

Your willingness to answer the questions and completion of the interview indicates your consent to participate in this study. If you have any questions or concerns, you can contact Dr. Eric Easton, Chair of the Institutional Review Board at the University of Baltimore 410-837-4874 or Dr. Laura Wilson-Gentry, Professor, University of Baltimore at 410-837-6102.

Agreement:

I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

Name (Printed) _____

Signature: _____

Date: _____

Appendix D: Head of Department Interview Questions

1. What year did you assume the position of chief of this department?

2. In the last 12 months has your agency publicly announced a goal of reducing crime or some other problem by a specific number or percent?

   o Yes (Please indicate crime or problem)………………………………….

   o No

3. We are interested in how you get a sense of the day-to-day performance of the department. For each type of information, indicate how often it is reported to you and how useful it is in assessing the department's performance. Check N/A if you not routinely receive this type of information.

Types of Information	How often reported?				How useful?			
	Daily	Weekly	Monthly	Less Often	N/A	Very Useful	Somewhat Useful	Not Useful
a. Crime Statistics (offenses)								
b. Department activity statistics (arrests, citations, calls for service, etc.)								
c. Response time averages								
d. Complaints against police officers								
e. Summaries of problem-solving projects								
f. Staff's descriptions of important events/accomplishments								
g. Other:…………………….……								

4. How does your department organize the command of personnel assigned to district?

   o No person below the rank of chief has 24-hour responsibility for the district

   o A single district commander has 24-hour responsibility for the district

   o Other …………………………………………………………………..

5. Thinking about department practices while you have headed your organization, please indicate how likely the event in the second column would be if the situation in the first column occurred. If you do not divide your territory into districts (as described above), consider the following situations in terms of patrol areas and patrol supervisors.

If this situation occurs,	How likely is that this event will occur?	Very Likely	Somewhat Likely	Somewhat Unlikely	Very Unlikely
a. If crime in a district stays at a high level or continues to rise over many months,	the district commander will be replaced.				
b. If crime in a district declines over many months,	the district commander will be promoted or get a desired job assignment.				
c. If a district commander does not know about crime patterns in the district,	the district commander will be replaced.				
d. If the commander of a specialized unit frequently fails to fulfill requests for cooperation from district commanders,	the specialized unit commander will be replaced.				
e. If the commander of a specialized unit routinely fulfills requests for assistance from district commanders,	the specialized unit commander will be promoted or get a desired job assignment.				

6. Listed below are a variety of decisions that are made in police organizations. Please indicate who usually makes each type of decision with little or no review by superiors. Check only one response for each item. A guide for the terms are provided below:

Top Executive: Highest ranking executive in police agency (Chief).

Operational Commander: Administrator ranking between top executive and district commander in chain of command (such as Head of Patrol)

District Commander: Has 24-hour responsibility for district or precinct

Line Supervisor: Works shifts with subordinates

Specialized Commander: Commander of a specialized unit outside of district chain of command

Type of Decision	Top Executive	Operational Commander	District Commander	Line Supervisor	Specialized Commander
a. Determine beat boundaries					
b. Determine routine staffing levels for patrol shifts					
c. Approve flexible hour requests for sworn personnel					
d. Give individual employees job assignment					
e. Mobilize SWAT unit to support operations					
f. Select problem-solving strategies for high-profile problems					
g. Select problem-solving strategies for low-profile problems					
h. Provide official recognition for exceptional performance by a police-rank officer					

7. Has your department implemented a Compstat program or a program similar to Compstat?

   1. Yes, it is a major part of the agency's organization and operations.

   2. Yes, it is a moderate part of the agency's organization and operations.

   3. Yes, it is a minor part of the agency's organization and operations.

   4. No

8. What motivated your department to adopt the Compstat approach?
   …………………………………………………………..

9. What year did your agency begin to implement Compstat or a similar program?

   Month / Year

10. How long did it take for the program to become fully operational in the police department (implemented department wide)?

    ……………………………………………………

11. How many different people, including the current chief, have served as the chief of this department since the year noted in #11 above? (Count acting chiefs).

12. How would you characterize your approach to Compstat compared to that your immediate predecessor in the chief's position?

    1- I have continued the pursuit of Compstat with about the same degree of resources as my predecessor.

    2- I have increased the level of resources to Compstat compared to my predecessor.

    3- I have decreased the level of resources to Compstat compared to my predecessor.

13. Were you encouraged by any of the following to initiate Compstat or to implement Compstat in a particular way? Check all that apply.

- State grant requirement

- Federal grant requirement

- CALEA accreditation requirement

- State accreditation requirement

- Local government official request

- Community request

- Other…………….

14. Please select from the following list the five primary reasons why the department

    implemented Compstat.

    - Reduce serious crime

    - Decrease top management's direction of field operations

    - Improve the quality of police/citizen satisfaction

    - Improve public image of police

    - Reduce fear of crime

    - Improve officers' policing skills

    - Reduce conflict among different segments of the community

    - Give citizen groups influence over police policy and practice

    - Reduce complaints about police misbehavior

    - Increase top management's direction of field operations.

    - Reduce minor crimes and disorders

    - Be responsive to the priorities of individual neighborhoods

    - Increase citizen participation in police programs

    - Increase efficiency of service (reduce cost per unit of service)

o Other…………………………

15. Did your police department try to emulate another department? Did the agency study

what other police were departments doing? Which ones? How did they study them?

………………………………………….

16. How did you inform sworn officers about implementation of Compstat in your

agency? Check all that apply.

o Mission statement

o Annual reports

o Departmental policies

o Media

o Press conference

o Other (please describe)

17. What has your department done to gain support of officers for implementing

Compstat? Check all that apply.

o Communication

o Training

o Survey

o Other (please describe)

o Not Applicable, do nothing

18. Below is a list of features that have been associated with Compstat and similar

programs instituted in other departments. Please indicate how long your department

has been doing this, if at all. Also, indicate if your department plans to or will

continue to do each of these in the future.

Feature	How long has your department been doing this?				Plans to do or will continue in the future	
	N/A	1-3 years	4-7 years	>8 years	Yes	No
a. Set specific objectives in terms that can be precisely measured						
b. Give middle managers independence in selecting strategies to accomplish these objectives						
c. Give middle managers control over more resources to accomplish objectives						
d. Hold regularly scheduled meetings with district commanders to review progress toward objectives						
e. Use data to review progress toward objectives						
f. Use maps to display crime problems and department activities which address those problems						
g. Develop, modify, or discard problem- solving strategies based on what the data show						
h. Use aggressive enforcement strategies to deal with minor disorders and threats to quality of life in the neighborhood						
i. Hold middle managers responsible for understanding crime patterns and initiating plans to deal with them						
j. Require specialized units to assist patrol to solve problems						
k. Hold specialized unit accountable at regularly held meetings						

19. Most organizations encounter some challenges when implementing Compstat. For each of the following, please indicate how challenging it has been for your agency and how close your agency is to overcoming the challenge. If you mark "not at all" for a feature, skip to the next feature rather than rating the success at overcoming the challenge.

Feature of Comptat	How challenging?				How successful in overcoming the challenge?			
	Not at all	Somewhat	Moderately	Very	Not at all	Somewhat	Moderately	Very
Thoroughly analyzing crime problems, while at the same time responding rapidly to them when they appear.	1	2	3	4	1	2	3	4
Dealing with pressures to reduce crime, while trying innovative ways to deal with these problems.	1	2	3	4	1	2	3	4
Getting commanders to cooperate and share resources, while holding them individually accountable for reducing crime.	1	2	3	4	1	2	3	4
Responding to a wide range of community expectations about which problems should receive priority, while attempting to accomplish a focused departmental mission.	1	2	3	4	1	2	3	4
Getting police to try something innovative without fearing the consequences of failure.	1	2	3	4	1	2	3	4
Getting crime analyses to decision-makers on a timely basis.	1	2	3	4	1	2	3	4
Getting police to use crime data and maps in making decisions instead of relying solely on personal experience.	1	2	3	4	1	2	3	4
Finding police managers who have the ability and desire to do Compstat.	1	2	3	4	1	2	3	4
Doing what the data indicate should be done when it conflicts with community or political pressure.	1	2	3	4	1	2	3	4

Giving commanders authority but ensuring that they exercise good judgement.	1	2	3	4	1	2	3	4
Improving responsiveness of subordinates to commanders.	1	2	3	4	1	2	3	4
Getting sufficient resources to do Compstat right.	1	2	3	4	1	2	3	4
Hiring well-trained crime analysis personnel	1	2	3	4	1	2	3	4
Shifting personnel to handle emerging crime problems, while complying with union contracts and other work regulations.	1	2	3	4	1	2	3	4
Getting data systems to function compatibility with software.	1	2	3	4	1	2	3	4
Overcoming resistance from specialist units to reallocating resources to districts or precincts.	1	2	3	4	1	2	3	4
Getting police managers the training and education they need to use Compstat. Overcoming rivalries and distrust among different police units.	1	2	3	4	1	2	3	4
Getting rank and file officers to try innovative approaches to problem solving.	1	2	3	4	1	2	3	4
Getting commanders to try innovative approaches to problem solving.								
Getting officers to take the initiative in solving problems.	1	2	3	4	1	2	3	4
Overcoming the objections of the union when greater organization flexibility is required.	1	2	3	4	1	2	3	4
Getting middle managers to take the initiative in solving problems.	1	2	3	4	1	2	3	4

20. How effective is Compstat in this police department?

- o Very effective

- o Effective

- o Neither effective nor ineffective

- o Ineffective

- o Very ineffective

…………………………………………….

21. What is your attitude toward Compstat?

…………………………………………..

22. Are there any comments you would like to add?

…………………………………………..

Appendix E: Technical Interview Questions

1. Who performs the data analysis for the department's crime and problem solving efforts? Check only one.

   o Officers/civilians in a centralized unit in headquarters

   o Officers/civilians in both headquarters and district units, but mostly by headquarters unit

   o Officers/civilians in both headquarters and district units, but mostly by the district units

   o All data analysis is performed by district units

   o Other (please describe)………………………………………

2. Who operates the records management system for crime incidents used by your department?

   o An information systems unit outside of the police department

   o Internal police unit

   o Unit in another law enforcement agency

   o Private contractor

   o Other (please describe)………………………………………

3. How are records entered into the records management system? If more than one system is used, select the one that applies to the largest number of sworn personnel.

   o Officers handwrite or type reports that are entered by data entry personnel

   o Officers dictate reports that are entered by data entry personnel

   o Officers directly enter computerized reports from station house

- o   Officers directly enter reports from laptops or terminals in vehicles

- o   Reports are written by officers from laptops or terminals in vehicles and then send to the records management system

- o   Not Applicable, data are not entered

4. How are records exported from the computer-aided dispatch system to departmental computers in order to generate reports and conduct crime and data analysis? Check only one.

- o   Department does not have a computer-aided dispatch system

- o   Records are transferred/downloaded through a network

- o   Records are copied to a computer disk/tape and then copied to another computer

- o   Records are printed and typed into another database

- o   Analysis is performed within the computer-aided dispatch system

- o   Other (please describe)……………………………………

- o   Not Applicable, records are not exported

5.   Here are several types of technology used by some departments. For each one, please indicate whether your department uses it for crime analysis, problem solving, and/or for Compstat-like meetings. Check all that apply.

Technology	Crime analysis	Problem Solving	Compstat meetings	Not used
a. Mapping software				
b. Presentation software				
c. Database or statistical analysis software				

6. Please indicate whether your department uses each of the following crime mapping/crime analysis techniques.

Techniques	Yes	No
a. Pin mapping-of crime activity for all crimes by area (for example, maps of all crimes within patrol areas)		
b. Pin mapping- of specific crimes by type (for example, maps of burglary locations)		
c. Pin mapping - of specific suspect or modus operandi		
d. Crime trend identification and analysis		
e. Serial crime profiling		
f. Hot spot mapping		
g. Gang territory identification		
h. other uses (please specify)…………………………….		

7. How can patrol officers access the computerized data files listed below? (at station or headquarters, from vehicle, be provided with hard copy, or no access)

   a. Crime case files

   b. Crime statistics for assigned beat

   c. Crime maps for assigned beat

   d. Calls for service for assigned beat

8. How often are the following types of information reported to the police managers who are responsible for problem solving efforts?

Type of information	Never	Annually or less	Quarterly	Monthly	Weekly	Daily
Criminal Incidents Detailed information on individual cases						
Statistical summaries or graphs						
Maps						
Arrests Detailed information on individual cases						
Statistical summaries or graphs						
Maps						
Calls for service Detailed information on individual cases						
Statistical summaries or graphs						
Maps						
Complaints against police Detailed information on individual cases						
Statistical summaries or graphs						
Maps						
Problem-solving projects Detailed information on individual cases						
Statistical summaries or graphs						
Maps						

9. How effective is Compstat in this police department?

   o Very effective

   o Effective

   o Neither effective nor ineffective

   o Ineffective

   o Very ineffective

10. What is your attitude toward Compstat?

…………………………………………

11. Are there any comments you would like to add?

…………………………………………..

Appendix F: Sworn Officer Interview Questions

1. Do you know what Compstat is? How would you describe it?

2. Do you think that Compstat improves the communication and cooperation between your unit and specialized units in this department?

3. Do you think that Compstat is an important aspect of decision making (resource allocation, strategic planning, etc.)

4. What is your attitude toward Compstat?

5. Overall, how effective is Compstat in this department?

6. Do you receive timely information from crime analysis unit?

7. What do you think of community policing? Do you think Compstat and community policing can be implemented together?

8. Are you held accountable for crimes in your beat/district?

9. Are there any comments you would like to add?

Appendix G: Factor Loadings and Reliability

Factor Loadings for Items Measuring Crime Control

Item	Component			
	1	2	3	4
9. Most law enforcement officers have to spend too much of their time handling unimportant, non-crime calls for service.	**.793**	-.086	-.089	.025
8. Law enforcement officers should not have to handle calls that involve social or personnel problems where no crime is involved.	**.766**	-.044	.094	.074
2. If law enforcement officers act in a service capacity, it detracts from their ability to fight crime.	**.463**	.001	.390	.064
12. Law enforcement officers would be more effective if they did not have to worry about "probable cause" requirements for searches as mandated by the courts.	-.075	**-.922**	-.029	-.010
13. Law enforcement officers would be more effective if they did not have to worry about a suspect's rights during interrogations.	-.010	**-.913**	-.005	-.007
11. If law enforcement officers in high crime areas had fewer restrictions on their use of force, many of the serious crime problems in these areas would be significantly reduced.	.343	**-.494**	.059	.009
5. Problem solving should not be part of an officer's responsibility.	.070	.015	**.752**	-.128
6. Good law enforcement requires that officers concern themselves with the consequences of crime and not with its root cause.	.168	.004	**.655**	.010
3. Law enforcement officers should not become personally familiar with the residents of the area they patrol.	-.322	-.070	**.616**	.157
4. All laws should be fully enforced at all times; otherwise people lose respect for the law.	-.133	-.012	-.013	**.854**
7. Law enforcement officers should not forget that enforcing the law is by far their most important responsibility.	.252	.024	-.026	**.729**

Item-Total Correlations for the Attitudes toward Crime Fighting

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 2	6.56	3.289	.354	.695
Item 8	6.01	2.405	.555	.422
Item 9	5.62	2.873	.498	.514

Item-Total Correlations for the Legal Restrictions

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 11	5.00	4.517	.394	.836
Item 12	5.39	3.501	.632	.567
Item 13	5.35	3.506	.687	.502

Factor Loadings for Items Measuring Service-Community Policing

Item	Component		
	1	2	3
16. Law enforcement officers should try to work with the neighborhood residents, civic groups and the local business community to solve crime problems in their beat.	**.777**	-.019	.095
15. Law enforcement officers should make frequent informal contacts with the people in the area they patrol.	**.712**	-.038	-.082
14. Law enforcement officers should be sincerely concerned about the wellbeing of the citizens in the neighborhoods they patrol.	**.690**	-.117	.068
22. Community crime problems can be solved by cooperation between law enforcement and local non-criminal justice agencies.	**.681**	-.039	.071
21. Lowering citizens' fear of crime should be just as high priority for this department as cutting the crime rate.	**.663**	.156	-.121
20. Assisting citizens in need is just as important as enforcing law.	**.510**	.358	-.050
27. Law enforcement should be seen primarily as a service-oriented profession rather than a crime control profession.	-.107	**.816**	-.063
26. Law enforcement officers should be required to assist citizens who are having problems with their cars (locked out, dead battery, out of gas, etc.).	-.090	**.710**	.152
18. Law enforcement officers should ask citizens what types of services they want.	.216	**.597**	.028
17. Law enforcement officers should try to solve the non-crime problems identified by citizens on their beat.	.362	**.421**	.215
23. Law enforcement officers should be required to help settle family/domestic disputes.	-.161	.055	**.863**
24. Law enforcement officers should be required to handle public nuisance problems.	.192	.010	**.750**

Item-Total Correlations for the Community Cooperation

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 16	19.66	7.110	.631	.732
Item 15	19.73	7.386	.499	.762
Item 14	19.68	7.526	.486	.764
Item 22	19.85	7.287	.538	.752
Item 21	19.91	6.826	.563	.746
Item 20	19.91	7.119	.503	.762

Item-Total Correlations for the Service Orientation Role

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 27	8.24	5.460	.427	.639
Item 26	7.98	5.168	.433	.637
Item 18	7.84	4.919	.511	.584
Item 17	7.56	5.143	.485	.602

Factor Loadings for Items Measuring Cynicism

	Component	
Item	1	2
28. Most people lie when answering questions posed by law enforcement officers.	**.825**	-.120
31. Most people would steal if they knew they would not get caught.	**.806**	.031
30 Most people are untrustworthy and dishonest.	**.755**	.095
33. Most people lack the proper level of respect for law enforcement officers.	**.408**	.369
36. Citizens will not trust law enforcement officers enough to work together effectively.	-.050	**.880**
34. Law enforcement officers will never trust citizens enough to work together effectively.	-.012	**.808**
35. Most citizens are open to the opinions and suggestions of law enforcement officers.	.039	**.674**

Item-Total Correlations for the Distrust of Citizens

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 28	8.73	5.535	.490	.703
Item 31	9.05	4.897	.605	.636
Item 30	9.49	5.430	.600	.648
Item 33	8.87	5.213	.454	.731

Item-Total Correlations for the Optimism about Community Relations

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 34	5.24	2.095	.520	.618
Item 35	4.83	2.139	.433	.724
Item 36	5.05	1.784	.624	.479

Factor Loadings for Items Measuring Traditionalism

Item	Component		
	1	2	3
39. Communication works best when it follows clear, established channels from the top down.	**.795**	.038	-.158
37. To be effective, an organization should have clearly defined positions of power/authority among its members/employees.	**.744**	-.293	.106
41. The quasi-military structure is the most effective organizational type for law enforcement agencies.	**.676**	.244	.069
42. Subordinates should not be involved in either the setting or the enforcing of policies and procedures within law enforcement agencies.	-.099	**.749**	-.056
40. Participatory management schemes do not work within law enforcement agencies.	.125	**.738**	.075
38. In law enforcement organizations, power should be evenly distributed among its personnel.	-.037	.021	**.988**

Factor Loadings for Items Measuring Receptivity to Change

Item	Component
	1
45. Most changes make my work more efficient (i.e. saves time, effort, money).	**0.914**
46. Most changes make my work more effective (i.e. more arrests, faster response times, crime reduction).	**0.902**
43. Most changes at work are problematic and ineffective.	**0.638**

Item-Total Correlations for the Receptivity to Change

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 43	5.30	3.015	.391	.886
Item 45	5.82	2.292	.716	.523
Item 46	5.79	2.378	.689	.558

Factor Loadings for Items Measuring Perception of Supervisory

Item	Component
	1
49. When an officer contributes to a team effort rather than look good individually, how likely is it that district/top management here will recognize it?	0.863
47. When an officer does a particularly good job, how likely is it that district/top management will publicly recognize his or her performance?	0.846
48. When an officer gets written up for a minor violation of the rules, how likely is it that he or she will be treated fairly?	0.719

Item-Total Correlations for the Perception of Supervisory

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 47	4.95	2.044	.611	.600
Item 48	4.31	2.583	.454	.774
Item 49	4.93	2.041	.643	.560

Factor Loadings for Items Measuring Agency Readiness

Item	Component	
	1	2
50F. Compstat policies and procedures have been clearly communicated	.881	.096
50D. I have been trained in Compstat or computer-based decision making techniques (through formal training, such as basic training, in-service training or conferences).	.830	-.159
50E. My department has allocated sufficient resources to my work unit for Compstat.	.815	.106
50A. Upper management supports the Compstat model.	-.156	.882
50B. The first-line supervisors support Compstat efforts.	.263	.706

Item-Total Correlations for the Agency Readiness

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 50D	5.37	3.711	.579	.815
Item 50E	5.22	3.977	.638	.748
Item 50F	5.29	3.481	.750	.629

Factor Loadings for Items Measuring Perceived Effectiveness of Compstat

Item	Component
	1
52F. More efficient use of police resources.	.804
52E. Reduction in crime.	.782
52A. More arrests.	.759
52D. More effective use of crime information.	.747
52C. Increased visibilities of officers on the street.	.723
52B. Quicker responses by officers to calls for service.	.710

Item-Total Correlations for the Perceived Effectiveness of Compstat

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 52A	11.33	5.994	.635	.823
Item 52B	11.37	6.212	.579	.833
Item 52C	11.09	5.946	.594	.830
Item 52D	10.96	5.952	.625	.825
Item 52E	11.25	5.701	.665	.817
Item 52F	11.25	5.434	.691	.812

Factor Loadings for Items Measuring Support of Compstat

Item	Component
	1
51C. Compstat has helped to improve the morale of the department.	.863
51D. I very much support the department's move toward Compstat.	.858
51B. The cooperation between my unit and specialized units in the department has improved due to Compstat.	.783
51E. Compstat is just one more fad in policing and will soon be replaced by another fad.	.661

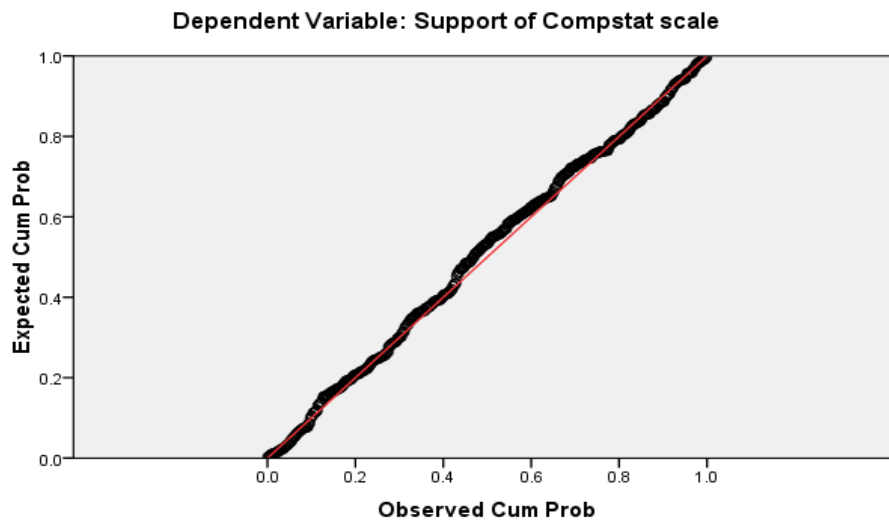Item-Total Correlations for the Support of Compstat

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Item 51B	7.86	5.585	.583	.762
Item 51C	8.09	5.411	.706	.704
Item 51D	7.53	5.135	.710	.698
Item 51E	7.70	5.814	.468	.821

Appendix H: Figures of Multiple Regression Analysis

Histogram

Dependent Variable: Support of Compstat scale

Mean =0.02
Std. Dev. =1.001
N =466
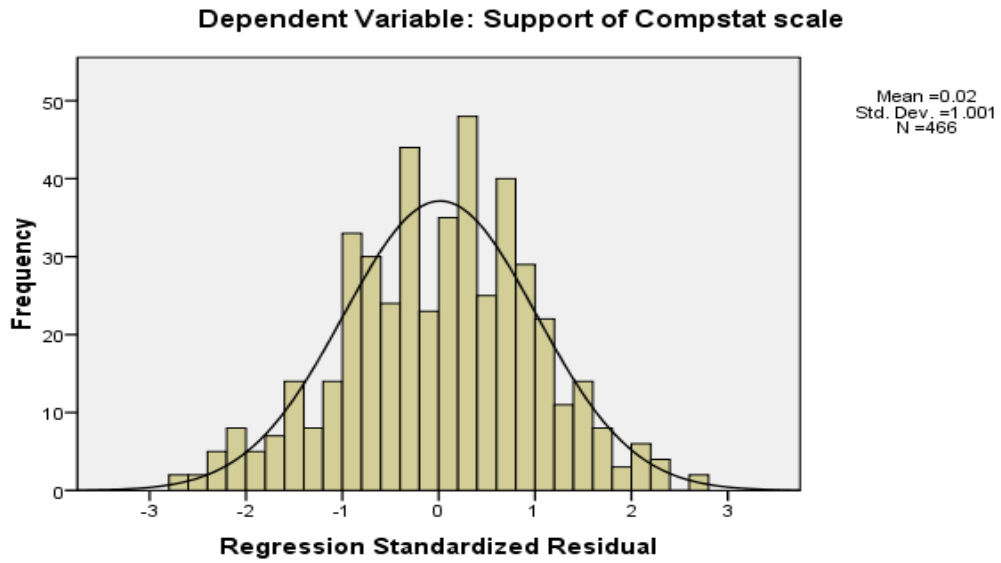
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Support of Compstat scale

Scatterplot

Dependent Variable: Support of Compstat scale