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Continuity and change in the history of police technology: The case of contemporary crime analysis

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Continuity and change in the history of police technology: The case of contemporary crime analysis

By

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Abstract

A series of police practices and technology make up what today is known as crime analysis. Crime analysis can broadly be defined as the use of police knowledge and data to combat and solve crime. The current study seeks to illuminate the current status of crime analysis, and the measures being taken to gain legitimacy and recognition in the field of law enforcement. First, the historical backdrop of technology and police history will be established. Next, three inter-related research projects are used to frame patterns and practices of contemporary crime analysis. The first project examines police organizations' adoption of community problem analysis. The second explores themes emerging from a list serve used by crime analysts for professional assistance and queries. Third, a survey of analysts from across New York State is used to describe the experience and training needs among contemporary crime analysts. The research findings are used to evaluate crime analysis as an emerging profession and suggest questions and avenues for future research.

Chapter 1: History of Police Technology

In the Merriam-Webster dictionary there are two definitions of technology that apply to police history. The first definition is, "the use of science in industry, engineering, etc. to invent useful things or solve problems." The second definition is, "a machine, piece of equipment, method, etc. that is created by technology" (Merriam-Webster Dictionary, 2013). Using these two definitions of technology, technology as it applies to policing is using science to help solve crimes, and to be more efficient in other daily activities. Technology is also the items the police use to help them solve crime, and be more efficient in their daily activities. These items can be computers and the information stored on them. Information technology as defined in the Merriam-Webster dictionary is, "the technology involving the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data." This type of technology applies to the current policing era.

The technology of the police in the 1700s was very limited. Watchmen carried a double reed wood rattle (NLEOMF, 2012). The whistle had not been invented at this time, and this wood rattle was what preceded the whistle. The rattle was very loud and made a distinct noise. It allowed the watchmen to alert the townspeople of danger and signal for help (NLEOMF, 2012). Uniforms were not worn, but there were ways to identify the watchmen/police. The "Watch" could be recognized by the lanterns they carried with green inserts, when the "Watch" was at home, they hung the "green" lanterns outside so that citizens knew where they were. In New York, the first paid officers of the night watch were known as leatherheads because they wore leather helmets (Buhm & Haley, 2007, p. 141).

The growth of the Industrial Revolution caused citizens to move from farms to cities in search of better employment. As the United States became more industrialized, the police force continued to resist forming into official police departments; continuing to rely on the constable-watch system (Buhm & Haley, 2007, p. 142). By the 1830s, cities in America had grown and with urbanization came mob violence, public drunkenness, and prostitution. These crimes became more visible and less controlled; the constable-watch system could no longer control the social disorder of the cities (Potter, 2013). Modern police forces began emerging as a response to this disorder.

In the nineteenth century Northern America was defined by the mercantile interests. These interests supported bureaucratic policing institutions through taxes and political influence (Potter, 2013). Businesses in Northern America no longer wanted to pay the cost of protecting themselves and wanted to transfer the costs to the state (Potter, 2013). The city police departments began to unify with New York City in 1845, St. Louis in 1846, and Chicago in 1854. Los Angeles also had their own department in 1869 (Archbold, 2012, p. 5). By 1835 in Southern America, the Texas rangers had formed, and in 1937, the Charleston police department had one hundred officers.

These newly formed police departments took on three characteristics from the English model of policing. They were limited in authority, control was local, and law enforcement authority was fragmented- meaning several agencies provided services in the same area (Archbold, 2012, p. 5). This fragmentation led to problems with communication, cooperation, and control among these police departments. Similar problems are still seen today as many individual police departments fail to cooperate and communicate with neighboring police forces. Other issues that arose at this time were

whether or not officers should be armed and wear uniforms (Archbold, 2012, p. 5).

On the issue of uniforms, the merchants and businessmen of the era wanted the police to wear uniforms. They wanted the officers to be easily identified by people needing help. Officers initially resisted wearing uniforms fearing that citizens would ridicule them, and that uniforms would make them an easy target for mob violence (Potter, 2013). In 1858, Boston and Chicago police departments issued uniforms to their officers (NLEOMF, 2013). Carrying weapons was not resisted by officers. Officers began carrying weapons even when it was not department policy to do so. There was fear from the public that arming the officers gave the state too much power (Potter, 2013). Shortly after police were required to wear uniforms, they were allowed to carry clubs, and then eventually revolvers (Archbold, 2012, p. 5-6). Police departments formally armed their officers after the officers had informally armed themselves. In 1868, Boston was the first police department to issue pistols to their officers (NLEOMF, 2013).

This era of policing was considered the political era. Police were put in place by politicians, and in return for the position they supported the politician who put them there. Since police were hired based on politics, there were no standards for hiring or training officers (Archbold, 2012, p.7). August Vollmer who was police chief of Berkeley Police Department, Los Angeles Police Department, and president of the International Association of Chiefs of Police described the lack of standards during this early time in policing…

"Under the old system, police officials were appointed through political affiliations and because of this they were frequently unintelligent and untrained, they were distributed through the area to be policed according to a hit or miss system and without adequate means of communications; they had little or no record keeping system; their investigation methods were obsolete, and they had no conception of the preventive possibilities of the service" (Archbold, 2012, p.7). Mark Haller an expert on organized crime described the lack of training in a different way,

"New policemen heard a brief speech from a high-ranking officer, received a hickory club, a whistle, and a key to the callbox, and were sent out on the street to work with an experienced officer. Not only were the policemen untrained in law, but they operated within a criminal justice system that generally placed little emphasis upon legal procedure (Archbold, 2012, p. 7)

Technology of the 1800s

Policing at this time was not effective at fighting crime. Since the officers mainly worked to make sure their politicians were voted for, they did not require technology to do their jobs which were accomplished through brute force and intimidation. While technology was not a necessity some was used. In the 1800s, nightsticks or batons became standard issue for the officers, while eighteenth century officers had nightsticks the sticks of the nineteenth century were considered improved (Potter, 2013). During the industrial revolution, there were many failed attempts to improve the baton, such as sticks with integrated handcuffs. Today, the nightstick still remains as an effective straight stick

(McDonald, 2013).

Other technology at this time, included the call and alarm boxes. These came

around in the mid to late 1800s. They contained telephone lines that linked directly to the

police departments (Archbold, 2012, p.7). Callboxes were put in place to improve

communication. Police administrators used them for supervisory and managerial

purposes (Archbold, 2012, p. 32). Officers were expected to call in every hour, never

from the same spot, so that supervisors knew that they were walking their beat (Call box

restoration project). Callboxes were the most used form of communication during this

time (Archbold, 2012, p.8). Similar to callboxes, there were also alarm boxes.

Businessmen were given the keys to alarm boxes so that they could call out the police

force if there was a criminal incident or fire (Potter, 2013).

Transportation technologies of early America were limited. In the 1700s and early

1800s police patrol was conducted mainly on foot. In the 1800s police started using

horseback patrols, they were found to be effective against strikers and demonstrators

(Potter, 2012). During this time, police also started using the wagon system. With the

wagon system a large number of people could be arrested and transported all at once

(Potter, 2013).

Reform of the 1900s

Police reform of the 1900s included removing politics from policing and moving

to a professional form of policing (Archbold, 2012, p.8). With the removal of political

control, came the creation of standards for recruiting and hiring officers and

administrators. Officers and administrators were no longer being appointed by politicians

as a way to further the political agenda (Archbold, 2012, p.8). This change to a new form

of policing did not happen overnight, and in most cities, politics still prevented the

development of the professional police model until the 1920s (Buhm & Haley, 2007, p.

143).

In 1933, August Vollmer outlined the changes that had taken place from 1900 to

1930 (Archbold, 2012, p.9). These changes included the civil service system for hiring

and promotion, which also included psychological testing (Buhm & Haley, 2007, p. 147).

As well as, set standards for recruits and effective training. Vollmer himself who was

chief of the Berkeley police department began to hire college graduates and held college

classes on police administration (Buhm & Haley, 2007, p.146-147).

Another change of this time was the reliance on technology. Technology that

arose in policing between 1900 and 1930 included motorized patrol, improved

communication, as well as the start of information technology, with improved methods of

identifying criminals such as fingerprinting, and reliable record keeping such as the

dossier system (Carter, 2005, p. 22).

In the 1930s, O. W. Wilson picked up where August Vollmer had left off in the

reform of policing. Wilson established the School of Criminology at the University of

California. He is also credited with developing a strategy that distributed officers within

the community based on reported crime and calls for service (Archbold, 2012, p. 9). This

distribution of officers based on crime reports is an early attempt at administrative crime

analysis. Wilson wrote a book called *Police Administration* that "became the blueprint

for professionalizing policing" (Potter, 2013). The ideas of this book centered on crime

control and efficiency, it recommended close supervision of officers as well as replacing

foot patrols with motorized patrols, consolidating precinct houses with central facilities,

and centralizing command functions (Potter, 2013).

This emphasis on crime control led police to start using crime prevention techniques. After World War II, efforts were directed at preventing the perceived threat of the Soviet Union (Carter, 2005, p.26). The focus was on how to improve the intelligence community's structure, organization and coordination. In 1948, the Hoover Commission argued for better working relations between agencies including the CIA and law enforcement (Carter, 2005, p. 26). The commission had found that there was a lack of coordination and information sharing that led to police repeating activities, decreasing efficiency (Carter, 2005, p. 26).

Police Reform of the 1950s and 1960s

The 1950s and 1960s was a trying time for police reform. Haun and Jeffries argue that the reforms of this time neglected the relationship between the public and the police (Archbold, 2012, p. 10). The social movement of the 1950s would bring the attention of race relations to all Americans. Research argued that the police presence and their actions contributed to the race riots. Also, the President's Commission (Kerner Commission) reported, "almost invariably the incident that ignites disorder arises from police action" (Archbold, 2012, p. 10).

After the 1960s, policing went back to the traditional model, focusing on responding to calls and managing crime in a reactive manner; no longer preventive (Archbold, 2012, p. 11). As the telephone and radio became available to all citizens, the police became seen as more valuable. Police were able to respond to calls quickly, once on scene they could establish control, identify offenders and make arrests (Archbold, 2012, p.37).

A major breakthrough in police technology, that lead to faster and more effective response times to calls was the creation of the 911 system. The first 911 call was made in 1968 in Haleyville Alabama (Kenneally, 2011). The 911 system caught on quickly in cities and areas with high populations, but it would take a lot longer for 911 to reach rural areas and small towns. It took twenty years for the 911 system to cover half of the United States, and by 2011 it covered 96% of the United States (Kenneally, 2011). Today's 911 system while reaching the majority of the country has been found to be outdated and not as effective as it once was in locating those in need of emergency response personnel.

A new 911 will be rolled out in the next two to five years. This new system will take into account the increasing mobility of phones from mobile phone to internet phones (Kenneally, 2011). The new 911 will be a network of networks that will find people faster, reading texts, and watching video while at the same time tracking threats to the nation. Each dispatcher will have five large screens that will display data including call status, caller information, and police-radio activity. The old 911 system will be upgraded to an IP based system so that physical distance no longer becomes an issue (Kenneally, 2011). It will create a vast emergency response system. This new system can respond to, or help prevent problems on a national scale instead of the current local level.

Reforms of the 1970s, 1980s, and 1990s

Prior to the 1970s, law enforcement took on an enforcer role. The research of the 1970s showed that a rapid response to crime and that having officers use the methods of professional policing did not significantly reduce crime (Bohm & Haley, 2007, p. 149). Researchers and police departments began experimentation with community and neighborhood based policing projects. These projects were often abandoned due to high

costs, administrative neglect, and lack of interest by citizens (Bohm & Haley, 2007, p. 149).

Research however continued to show that just responding to calls and arriving to scenes of crime and disorder over and over again without resolving the underlying problems of crime in the area resulted in the police not having any effect at reducing crime (Bohm & Haley, 2007, p. 149). Out of this research came the idea of community policing. Community policing like the New Criminal Justice presented by Klofas (2010), sought a lasting partnership between the community and the police. The goal of this partnership was to jointly approach problems of maintaining order, providing services, and fighting crime (Bohm & Haley, 2007, p. 149). The community policing movement encouraged at least two positive changes; the citizens developed better relationships with the police, and criminals began to see that residents and police had a commitment to keeping crime out of the neighborhood (Bohm & Haley, 2007, p. 149).

The community era of policing was identified in the mid- 1980s and has continued on to present day (Zhao et al, 2003, p. 698). Community policing was seen as a dramatic form of organizational change. The United States has witnessed three police reform eras; the political era, the professional era, and now the community era (Zhao et al, 2003, p. 698). With each era came the reorientation of police strategies and activities and the reordering of the priorities of police core functions (Zhao et al, 2003, p. 698). Community policing emphasizes three propositions concerning organizational change; police departments should respond to an environment that has changed, the change should correspond with the establishment of new priorities, and there should be a linkage between the agency's activities and priorities (Zhao et al, 2003, p. 703).

Zhao, He, & Lovrich (2003) conducted a study to examine how the basic functions of policing had changed in the 1990s as the police moved to a community oriented policing role. The study looked at changes in organizational priorities related to the three core functions of policing: crime control, order maintenance, and services (Zhao et al, 2003, p. 697). The conclusion of the analysis was that community oriented policing is a statistically significant predictor of all core functions of policing (Zhao et al, 2003, p. 716). Community oriented policing is characterized, "as a comprehensive effort by local police simultaneously to control crime, to reduce social disorder, and to provide services to the citizenry" (Zhao et al, 2003, p. 716).

Present-Day Information Technology

Computers have been used in law enforcement since the 1960s and some police departments had adapted them for record keeping and 911 purposes, but it was not until the 1990s, that they were being used by the majority of police departments, with the large departments like New York City and Chicago using the computers to map and analyze crime patterns.

In 2001 a study was conducted by Nunn (2001) that reviewed the computerization of 188 police agencies in 1993. Nunn (2001) concluded that cities with high computerization reported larger numbers of total employees in technical positions; they spent more per capita, but were able to deliver services with fewer officers than agencies with lower computerization. Hence computerized departments appear in this study to be more efficient.

The mid to late 1990s saw a movement of police to begin using computers not just in the office, but to adopt mobile computers in their cars (Couret, 1999). Mobile

computer terminals (MCTs) allowed police officers to access records available to the

dispatcher as well as records held at the police stations. The MCTs also provided more

details about 911 calls to the officers, it freed up the radio for emergency communication,

as well as increased confidentiality since confidential information normally shared

between dispatcher and officer over the radio would be done silently and privately

through the computer (Couret, 1999, p. 3).

Some MCTs allowed officers to write their reports electronically. Lakeland police

department's planning and research supervisor Stephen Boyer said that electronic reports

would be cleaner, easily managed, and would also produce better reports since the

officers would have so much information at their fingertips in the field. "They can

become mini crime analysts," he forecasted (Couret, 1999, p. 4). For example, officers

were able to review past records for repeat offenders and study other cases that helped

them in their completion of current reports (Couret, 1999, p. 4).

Pastore (2004) examined how the Chicago Police Department adapted their record

management system to reflect the movement toward intelligence driven police work. The

intelligence driven style of policing really gained momentum in large cities after the 9/11

attacks. Chicago however, was one city that had switched to this style before the attacks.

Chicago Police developed the CLEAR (Citizen Law Enforcement Analysis and

Reporting) database that other agencies have begun adopting (Pastore, 2004).

The CLEAR database has proven effective at fighting crime. While the national

crime rate rose, the crime rate in Chicago decreased. The crime rate decreased 16% after

the inception of CLEAR (Pastore, 2004). Chicago is also solving crime and closing them

at higher rates across all categories. They are also surpassing the average crime solving

rates for the nation and the eight largest cities. Chicago has also been engaging in predictive analysis using CLEAR. The police department estimates that these efficiencies have given it the equivalent of 1.2 officers for each one it had prior to CLEAR (Pastore, 2004). This saves the department $5.3 million dollars in overtime pay reductions. It has also allowed the elimination of 345 clerical positions, and ninety officers who had once been deskbound have now been redeployed to the streets (Pastore, 2004).

The techniques used by law enforcement to fight crime are constantly being acted upon by new technological innovations. In the world of policing technologies come and go. For technology to be useful to police it needs to be simple, easy to use, and effective. Police make split second decisions and they need technology they can use quickly that gives them quick results. The above technologies; 911 system, computers, MCTs, and record management systems, are all technologies that are here to stay.

Chapter 2: Theories of Policing and Crime Analysis

Bernard, Paoline and Pare (2005), apply general systems theory to the criminal justice system. This view of the system believes that criminal justice can best be understood as a whole instead of separated into parts such as police, courts, corrections etc. General systems theory does provide important insights into the structure and functioning of criminal justice, such as arguing that agencies in the system must be seen as moving cases backward and forward depending on pressures generated on them from other agencies in the system. However, this theory is not without its flaws and it fails to recognize the goals that each of the components of the system have. The articles that will be addressed below will not present a theory about the entirety of the criminal justice system, but of theories of the police component of the system with a focus on the crime analysis element. Understanding the components of the system, via their function and goals, is important in determining what drives the system as a whole.

Theories about policing that will be presented in this paper examine how and why police agencies act, and recognize that a range of variables affect police organizations. While the theories presented differ they agree that the external environment plays a large role shaping the function of police agencies. Common variables that these theories present as having an effect on the operations of the police organization include the social, political, and economic makeup of the community (Maguire and Uchida, 2007).

Varieties of Police Behavior

In the book Varieties of Police Behavior by J.Q. Wilson (1974) he lays out a theory that police departments take on one of three styles of policing: watchman, legalistic, and service. The style the police department adopts is determined by the social, economic, and political culture of the community, as well as the values of the police chief. The style of policing then determines the perceived quality of law enforcement as well as how the individual police officers are treated. Crime analysis centers also have "work" styles, similar to the ones presented by Wilson (1974) depending on the community they serve.

The variables that are found to determine if a department will adapt the watchman style of policing center around political and social culture; since, the watchman are personally acquainted with the citizens. Often times in this style, being a police officer is not the individual's primary job, they have a main job and can relate more to the citizens than officers working under the other styles. Also, in relation to the watchman style and social culture, the community will have a strong ethnic identification, and there will be an exchange of favors driving the police activity. The economic culture of the watchman style communities is usually working to lower class. This working to lower class economy leads to a political culture seeking party loyalty and low taxes. Police departments that are in jurisdictions with low tax rates are allotted a smaller amount of monetary resource than departments in jurisdictions with high tax rates.
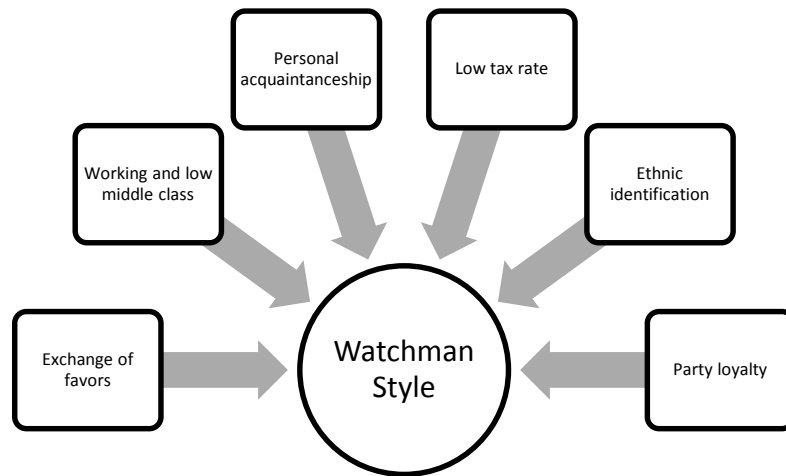
Examining the legalistic style of policing, the social and political culture of a

community that leads to this style being adapted is a diverse culture of class and race, and

a community that encourages citizen's arrest. The political culture of these communities

seeks to reduce corruption and the use of police discretion. With the political party in

charge wanting all community members to feel that they are treated equally, fearing

retaliation if some groups feel targeted by the police more than others. Thus, the police

are expected to treat everyone the same and follow the law. Following the law this strictly

means facilitating citizen arrests, prosecuting shoplifters, handling juveniles formally,

and arresting drunks and prostitutes. This style of policing tends to be more proactive

than the watchman style. While the watchman police only come when called, the

legalistic police are actively watching the street looking for wrongdoers. If a watchmen

officer found a drunk wandering the street, he would escort him home with no criminal

consequences; a legalistic officer would make an arrest. The watchman would encourage

citizens to handle their disputes privately, the legalistic police do not.
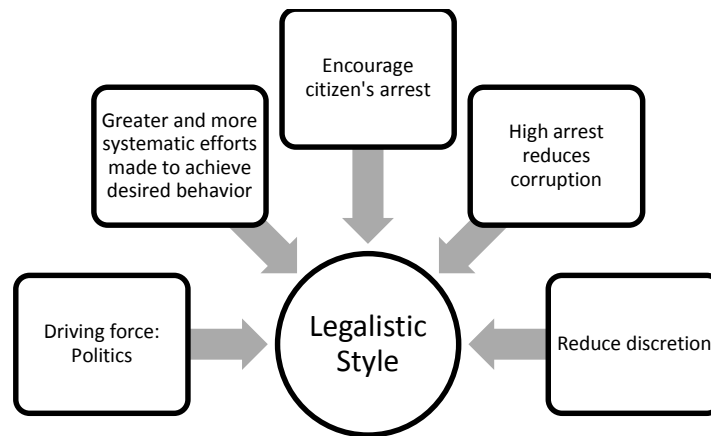
The third style of policing is the service style. Police departments that adopt this style are usually working in a community that is not deeply divide by race or class lines, and the community is represented by peaceful neighborhoods. The economic culture is middle to upper class. With the political culture, the community would prefer low taxes, but is willing to pay for programs to improve community life more than what is minimally necessary. In this community, the police department takes all its calls for law enforcement or order maintenance seriously, but is less likely to make an arrest or impose a formal sanction. In these communities, the police intervene frequently but not formally, and their work is much more broadly defined.
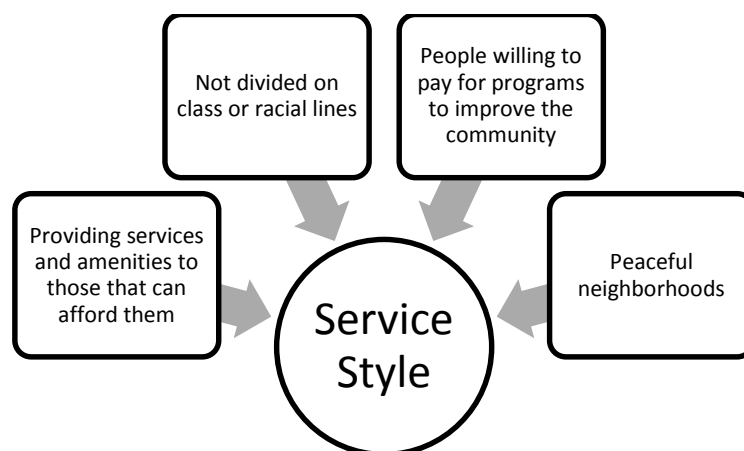
While the style of policing has variables that act upon it to develop it, once the style is adapted it becomes a variable acting on how the community views the quality of policing they are receiving. It also determines how the individual officers are treated. The watchman style of policing can cause the citizens to feel they are being offered a poor quality of law enforcement. The police of this style are not paid well, this leads to difficult recruitment and high turnover. The police are expected to have other jobs; they are given virtually no training, and are not rewarded for higher education. There is no support staff or written rules, with an absence of specialization of departments. This style of policing is similar to the policing of the nineteenth century; the police are there for only dire emergencies.

With the legalistic police departments, the job of the police officer is taken more seriously with better treatment of the officer. In departments who have adapted this style, the police officers have promotional opportunities, desirable working conditions, and specialized units that the "elite" officers may join. There is also planning and research taking place in the department, with the goal of hiring the best person for the job so that the number of citizen complaints stay down. The officers also receive more training in the law than the other styles. The better treatment of the officers and the goal of maintaining a low number of citizen complaints leads to a better perceived quality of law enforcement.

The service style of policing also offers fair treatment of the police force and a high perceived quality of law enforcement. Since police work in this style is so broadly defined, the police are also trained in community relations, evaluation, and leadership. The department also tries to hire officers that will not produce citizen complaints. With

less populated communities this style of policing is effective. The police know the

citizens personally; they know their personality and characteristics. In highly populated

communities, it is harder to adopt this style of policing and can lead to a low perceived

quality of law enforcement since the officers do not know the citizens on a personal level

and must rely on external characteristics when judging how to handle a situation.

Wilson (1974) presented a theory that he argued explained how and why police

departments operate. That theory is now forty years old and in many ways has become

out dated. Police departments today cannot be easily placed into one of the three styles,

as many departments have developed a style that incorporates all three of the original

styles. Other police departments cannot be classified in this way at all. What is still

relevant when it comes to this theory, however, is that the political, social, and economic

make-up of the community is the independent variable and it drives the operations of the

police organization, the dependent variable.

This theory relates to crime analysis in that certain communities are more

accepting of new technology, which leads to a police organization that can also be

accepting of technology, and use it as an organizational tool. Police Administrators are

often tasked with creating policies and obtaining resources to carry them out, as well as

evaluating their effectiveness. Administrators, who are too busy or are not comfortable to

do this, stick with the old policies even if they have become outdated. Also, few

administrators show interest in planning how to best utilize their personnel and

equipment. Both tasks would be aided by the adoption of crime analysis.

Theories Explaining Police Organizations

Resource dependency theory seeks to explain the police organization. This theory is about power and politics and focuses on the methods used by police organizations to secure resources from their external environment (the community) (Maguire & Uchida, 2007). The theory discusses how police organizations are externally controlled. This article states that police are shaped by an external organization depending on the external organizations need for information about risks. The idea that police organizations are shaped by external forces goes along with the theory presented by J. Q. Wilson (1974). Wilson showed how police departments adapt certain styles based on the social, economic, and political dynamics of the community.

In the resource dependency theory, the major variable that effects the police organization is the external environment. The external environment consists of funding agencies, raw materials, clients, potential employees, the media, politicians, rumors, legislation, and the employee's union (Maguire & Uchida, 2007). The three most important environmental features that shape the police are the nature of the legal system, the nature of illegal activity, and the structure of civic accountability. In the theory developed by J.Q. Wilson (1974), he found that characteristics of the population, the form of government, and political culture, shape the behavior of the police agency.

Maguire and Uchida (2007) identified twenty studies that sought to explain why police organizations act the way they do. They found eighty-five separate independent variables. The three variables that appeared the most included organization size, city governance, and region. These top three measures coincide with J.Q. Wilson's (1974) theory that police style is determined by the social, economic, and political culture of a

community. A large police organization often represents a large community. Larger

communities tend to be more diverse, with the level of diversity of the community

affecting its social culture. City governance represents the political culture of the

community, and the region determines the economic culture.

While not in the top three, two other variables Maguire and Uchida (2007) found

in their study should not be discounted. These two variables suggest a historical effect on

police organizations. The variables are the department's age and the passage of time.

These variables suggest that police departments change in ways that are somewhat

predictable. Police theory needs to take into account the historical effects that can alter a

community or a police department.

A study conducted by McCarty, Ren, & Zhao (2012) sought to test the resource

dependency theory presented by Maguire and Uchida (2007). McCarty, Ren, & Zhao

(2012) use resource dependency theory to explain the increase in the number of police

officers in the 1990s. This theory hypothesizes that the number of police officers is

determined by the amount of available financial resources that an organization has (p.

402). In the literature review conducted by McCarty, Ren, & Zhao (2012) they found that

the greater the police budget, the greater the police growth (p. 403).

To conduct their study, McCarty et al (2012) gathered data from five sources.

Their five sources were the police employee (LEOKA) data, which comes from UCR

data, the police employee annual data that comes from ICPSR, they obtained data from

the annual finance survey of city government from the census bureau, and UCR data

taken from the FBI looking at crimes known to police (p. 403-404).

The dependent variable for their study was police strength, measured as the

number of sworn officers per 100,000 residents (p. 404). Their independent variables

were drawn from five theories one of which was resource dependency theory. They also

controlled for socioeconomic health of the cities, and social disorganization (p. 406).

There findings showed strong support for resource dependency theory; with an increase

of one hundred dollars in city expenditures per resident resulting in an increase in two

officers per 100,000 (p. 411-412).

The McCarty et al (2012) study concluded that changes in police organizations

depend largely on the availability of monetary resources (p. 413). They found that the

increase in the police strength that happened in the 1990s was largely due to the COPS

(Community-Oriented Policing Services) organization that infused law enforcement

agencies with 8.8 billion dollars to improve their community policing capabilities (p.

413). McCarty et al (2012) looked at Donaldson (1995) who pointed out that,

"organizational innovations are closely associated with the availability of external

resources" (p. 413).

Resource dependency theory relates to crime analysis in how it explains that a

police department is acted on by external forces. These external forces would also act on

the crime analysis center in similar ways to the police department. The police department

could also be considered an external force that acts on the crime analysis center.

The theory of the rationalization of police discusses how connections are made in

the police department between resources, means, and objectives, or goals, then the

outcomes of these connections are evaluated (Manning, 2001). The rationalization of

policing has also been known as professional policing, and it seeks to take on a

scientifically based crime control mandate.

The process of rationalization however, moves slowly and unevenly. At the heart of this process is the use of information to guide budgeting management, personnel allocation, and career guidance for the police department and its members. Like the theories presented by J.Q. Wilson (1974) and Maguire and Uchida (2007), this theory is guided by an external force. With this theory, the audience who is receiving information from the police (community, politicians, social program leaders, etc.) shapes how the process of rationality is adopted and used.

The variables that determine how rationalization is adopted include; external developments in social science, new innovations, and how quickly they can be adopted for police purposes, trust between the police and the community and other groups outside of the department, as well as social control. As social control increases, the demand on the police force also increases. These variables also coincide with the variables presented by J.Q. Wilson (1974) and Maguire and Uchida (2007) in that these variables are external to the police department with many being driven by the community and the changes the community may go through over time; thus causing the police department to adapt to different community dynamics.

The police are not completely manipulated by the external variables that are acting on them. They also have internal variables that decide how quickly or slowly they adapt with their changing external environment. These variables include the timing and manner of the introduction of information technology, the officers and specialization of function, the level of information to which the officer has access and most use, and the local policing practices and traditions.

This article relates to crime analysis in its discussion of how police departments

are slowly making the move toward scientific based policing and beginning to rely more on information technology than in the past. It discusses why certain communities and police departments resist new technology at first, and what causes them to slowly come around. It discusses how information can be used to direct and systemize enforcement making it more effective and offering the community a higher quality of policing.

The New Criminal Justice

The New Criminal Justice Theory builds off of previous theories such as Wilson (1974), Maguire and Uchida (2007) and Manning (2001). The New Criminal Justice Theory suggests that the criminal justice system is best understood as locally based (Klofas, 2010). The community decides whether or not a behavior is a crime, and it also decides the seriousness of the crime. The decision to define a certain behavior as a crime is not a permanent decisions and changes as the community changes. It is the same for the determined seriousness of the crime.

In the New Criminal Justice Theory, actors within the criminal justice system as well as community members form powerful partnerships called coalitions. These coalitions then pool their knowledge and resources to address crime in the community with the goal being crime reduction (Klofas, 2010). Another feature somewhat unique to the New Criminal Justice Theory is that it advocates for the use of technology and new innovations. It discusses the use of surveillance and analysis to better understand crime problems, to find a solution, and to determine if the solution is effective or not. In this theory the independent variable is the community (external environment) as well as the coalition and their resources. The dependent variable is the crime rate.

Out of the New Criminal Justice Theory emerged the idea of strategic problem

solving (McGarrell, 2010). This technique is being adopted by police departments and communities on how to fight crime, it asks the coalition to use data driven strategies to reduce crime.

The independent variable of this theory includes the partnership made by the criminal justice players and community groups, how the strategies are planned, the training for all those involved in the coalition, how the coalition reaches out to the community, and the accountability of their strategies. The dependent variable is the success of the coalition, success being determined by the coalition's influence on crime rates and victimization.

This theory directly relates to crime analysis in that crime analysts use strategic problem solving to identify crime problems and to reduce them. The problem solving technique laid out by McGarrell (2010) suggests that this technique should include not just crime analysts and the police department but also the involvement of prosecutors, judges, probation officers, and the external environment made up of community members, community groups etc.

How this relates to crime analysis

To determine how this relates to crime analysis we first need to establish how crime analysis relates to police departments. Crime analysis is a resource for the community, the police, and academia. The function of crime analysis is performed by both sworn and civilian personnel. Those that perform the crime analysis function are a specialized unit of the police department they serve, as well as their own separate entity. More precisely, the location of crime analysis (internal/external to organizations) is a variable.

The police department approaches crime analysts when they need certain information, thus driving some of the research the analysts do. The analysts also have the ability to drive the police, crime analysts can choose what they research without being asked to do so, if an analyst discovers information of value to the police department, in passing it on to them they drive how the police force operates. In the above theories, it was discussed how external variables such as the community influence the police department. The community may put pressure on the police department to solve a community crime problem; the police in turn look to the crime analysts to aid in addressing the problem and coming up with a solution for it. This again can be reversed by a crime analyst discovering a crime problem on their own, sharing the information with police, and then police putting pressure on the community to address the issue discovered by the analyst. Educational programs also put pressure on crime analysts since funding and staffing often comes from area college programs that have partnered with the analysts and police departments to solve community issues. The influence of analysts on crime control efforts is an "organizational variable" it may depend on location (internal/external) and the source of the analysis produced (proactive/reactive).

Crime analysis is a dependent variable that is subject to external independent variables similar to those that effect the police organizations. Crime analysis has more independent variables acting on it then those that act on police organizations. Crime analysis is affected by the social, economic, and political culture of the community, mainly through how the police department responds to those external variables. Crime analysis is also affected by the police department as a whole, individual officers and command staff, as well as other specialized units in the department that utilize crime

analysis as a resource. Crime analysis is also acted upon by the universities that help fund

and staff it. In the Rochester, NY area, the Monroe Crime Analysis Center would likely

not exist without the support of the Rochester Institute of Technology.

While individual analysts are able to use discretion and choose what they

research, a majority of what they do is driven by the interests and resources of the

Department of Criminal Justice, the State, the police department and the university or

college that helps support them. An analyst may "choose" to research something without

being told to do so; it is likely that this research is still within the interest of one of the

external variables that work on them.

Testing a theory and relating it to crime analysis

Maguire and Uchida's resource dependency theory could be applied to crime

analysis and tested. In their theory they argue that the external variables interact and

shape the organization when they need information about risks. The major function of

crime analysis is to supply information and it is mainly about a risk in the community.

Maguire and Uchida found that the three most important features of the external

environment that effected the police organization was the nature of the legal system, the

nature of illegal activity, and the structure of civic accountability. These features should

have a similar effect on crime analysis as they did on the police department. Maguire and

Uchida also conducted a study that examined twenty studies, and found eighty-five

separate independent variables. These variables were combined and it was found that

fourteen different measures had at least one statistically significant effect. Of the fourteen

measures, the top three were organization size, city governance, and region. The three

independent variables should also affect the crime analysis organization, as they did the

police department.

To test this theory, I would suggest looking at the seven crime analysis centers in the state. The centers are located in Erie county, Monroe county, Onondaga county, Albany county, Nassau county, Westchester county, and Suffolk county. I would examine the legal system in the county of the center and determine if the legal system and center interact, I would look at crime rate for each center's county, and I would look at the structure of civic accountability of each center's county. I would also look at the three independent variables by the Maguire and Uchida's study; organization size, city governance, and region for each of the centers' counties. I would then determine how the differences or similarities of the variables affect the crime analysis centers.

Resource dependency theory was tested in 2012 by McCarty, Ren, & Zhao. They examined large U.S. cities and their respective police departments in the 1990s to getter a better understanding of why during this time there was a large increase in the number of police officers in these cities. They looked at five different theories in relation to this influx of officers, one being resource dependency theory. They found a strong support for the theory. They found that an increase of one hundred dollars in city expenditures per resident will result in an increase of two officers per 100,000 (p. 412). These findings suggest that change in police organizations depend largely on the availability of resources (p. 413). Also, this article discussed that organizational innovations are closely associated with the availability of external resources (p. 413).

Looking at this view of resource dependency, crime analysis would be a resource to police departments, and could effect change within the department. No studies have been conducted on crime analysis as an independent organization, and what resources or

variables act upon it. Crime analysis is still an emerging field/technology. It would be valuable to look at crime analysis from its on-set, examine how it has changed over time and what brought about those changes. Resource dependency theory would hypothesize that the external environment provides the resources that act upon the crime analysis department.

Environmental Criminological Theory and Crime Analysis

Environmental criminology helps us understand how opportunities for crime are created and why they cluster together (Boba, 2009, p. 24). The goal of environmental criminology is to identify patterns of behavior and environmental factors that create opportunities for crime and other unwanted activity (Boba, 2009, p. 24). Offenders estimate risk, effort, and possible profit, using knowledge of the area to determine if committing a robbery is worth it (Bernasco & Block, 2009, p. 95). Crime generators such as the presence of illegal drugs and prostitutions as well as crime attractors such as high schools and retail business make areas attractive to robbers (Bernasco & Block, 2009, p. 121). Bernasco & Block (2009) found support that physical and social barriers have an effect on crime location (p. 123). If offenders do not commit offenses in the vicinity of their own homes, then they will most likely search for targets in similar nearby areas (Bernaco & Block, 2009, p. 123). In different settings there are different types of peoples and behaviors (Boba, 2009, p. 24).

Crime occurs only when the opportunity for crime exists (Boba, 2009, p. 24). Crime situations and opportunities play significant roles in the development of crime (Weisburd et al, 2004, p. 284). Future crime is six times more predictable by the address of occurrence than by the identity of the offender (Weisburd et al, 2004, p. 284). The

availability of suitable targets, of capable guardians, and the presence of motivated

offenders are not expected to change rapidly under natural condition in the urban

landscape; they are likely to change over longer periods as the routine activities of the

offender, victim, and guardian change (Weisburd et al, 2004, p. 307). Stable crime

patterns can be expected if there is social and demographic stability (Weisburd et al,

2004, p. 308). Stable high crime rates at places may be explained by continuous social

change that prevents the establishment of strong social bonds and community controls at

the micro place level (Weisburd et al, 2004, p. 308).

People are both self-interested and socially concerned (Agnew, 2014, p. 1). Social

concerns include caring about others, forming close ties and cooperating with others, and

following certain moral intuitions and conforming (Agnew, 2014, p. 1). Crime is said to

result when people have not learned to control the pursuits of their interests or are in

environments where their pursuits are better served through crime (Agnew, 2014, p. 1).

Social concern has direct, indirect, mediating, and conditioning effects on crime (Agnew,

2014, p. 2). Social environment has a large impact on social concern, influencing the

level and nature of social concern, as well as its expression (Agnew, 2014, p. 2). Poverty

and social inequality cause strain which reduces social concern (Agnew, 2014, p. 11-12).

Strong bonds support and reduce strain, thus increasing social concern.

Community variables such as level of poverty, community size, and the number

of crimes in the community relative to the number of police, play a role in an offender's

willingness to offend (Paré et al, 2007, p. 244). Paré et al (2007) found that larger

communities are more likely to have lower crime clearance rates. Larger communities

offer offenders more anonymity (p. 245). Impoverished areas are more likely to have a

higher crime clearance rates than their wealthier counter parts. Police are more likely to enforce the law more vigorously in poor communities, offenders in poor areas are easier to identify, and impoverished communities see more serious crime which garners more police attention (Paré et al, 2007, p. 256). A policy implication discussed by Paré et al (2007) is that if the police force is expanded then more crime will be cleared. However, more police does not mean lower crime rates and higher clearance rates (Paré et al, 2007, p. 245).

Situational Crime Prevention

Situational crime prevention is a practice of crime analysts who look to understand the crime opportunities in the setting and recommend ways in which the environment and victim behavior could be altered to reduce or eliminate opportunities for this type of crime (Boba, 2009, p. 24-32). The concentration of crime at places suggests significant crime prevention potential for strategies such as crime prevention through environmental design (CPTED) and hot spot patrol (Weisburd et al, 2004, p. 285).

Crime levels are higher for particular victims and places (Rogerson, 2008, p. 434). Crime reduction strategies should focus on if there is a high prevalence or high concentration of crime (Rogerson, 2008, p. 435). The process of identifying repeat victims is important in the calculation of crime concentration (Rogerson, 2008, p. 445). The accuracy and detail of recorded crime needs to be improved. Chronic victims may be reluctant to report crimes to police; crime reporting should be encouraged (Rogerson, 2008, p. 445). To ensure an accurate picture of crime, prevalence, concentration, and incidence need to be considered together (Rogerson, 2008, p. 446). High levels of concentration point to victim based targeting. Resources should then be focused at the

most vulnerable (Rogerson, 2008, p. 446). In areas of high prevalence the focus should

be wider with area based initiatives (Rogerson, 2008, p. 446).

Evidence based crime prevention attempts to overcome obstacles by ensuring that

the best available evidence is considered in any decision to implement a program

designed to prevent crime (Welsh & Farrington, 2005, p. 339). Welsh & Farrington

(2005) worked to advance knowledge on what works to prevent crime for a wide range of

interventions. They organized their work around four important domains in criminology

(at-risk children, offenders, victims, high-crime places) (Welsh & Farrington, 2005, p.

340). Welsh & Farrington (2005) found that hot spot policing, and crime prevention

through environmental design practices such as CCTVs, and improved lighting worked at

preventing and reducing crime for high crime places (p. 347-348).

Hot Spot Policing

Problem solving strategies focus on crime generators and hot spots (Wolfer et al,

1999, p. 9). Residential locations can generate as much as 85% of the repeat calls for

service, and in many communities more than 50% of the calls for service come from only

10% of the locations (Wolfer et al, 1999, p. 10). Specific problem solving activities to

eliminate these hot spots include working with citizens through programs like

neighborhood watch to increase surveillance and territorial control (Wolfer et al, 1999, p.

10). Being able to identify a hot spot through crime analysis and then respond with a

specific plan for the location lowers the level and fear of crime (Wolfer et al, 1999, p.

10). Law enforcement often uses the SARA Model (scanning, analysis, response,

assessment) to help them identify a community problem, determine how to best address

the issue, and then determine if their strategy for solving the problem was successful or

not.

With the SARA model, the first step is scanning. Scanning requires community involvement which is essential if the fear of crime is to be reduced (Wolfer et al, 1999, p. 10). During the scanning stage, law enforcement gathers data. Data can be gathered through crime prevention surveys. Information from these surveys can help police officers eliminate the motives, opportunities, and means for individuals to commit crimes (Wolfer et al, 1999, p. 10). The data from these surveys can also reveal hot spots locations which can then be pin pointed using calls for service records of areas considered problematic by the community. Crime analyst use computer mapping and photographs to help demonstrate hot spots (Wolfer et al, 1999, p. 10).

The second step of the SARA model is analysis. Analysis allows the officers to understand the actions and interactions among offenders, victims, and the crime scene before developing a response. It is important that the crime analyst discover as much as possible about these players (Wolfer et al, 1999, p. 11). The data gathered from crime series and pattern analysis can also provide estimates on future target locations and times (Wolfer et al, 1999, p. 11). Research has shown that criminals do not move randomly through neighborhoods, but instead in a predictable pattern (Wolfer et al, 1999, p. 11). This makes hot spot analysis, and the analysis of the movements of offenders a crucial part of the crime analysis function.

The third step in the SARA model is response. Crime analysis can determine the social and geographic features of a hot spot and a safe haven (Wolfer et al, 1999, p. 12). Emphasis on crime analysis and proactive patrol reduces crime in hot spot locations, which means the reduction of redundant calls for service. Crime specific planning also

allows for improved tactical responses which means patrols are freer and can respond to emergency situations more effectively (Wolfer et al, 1999, p. 13).

The final step in the SARA model is assessment. The assessment stage measures the results of the response stage (Wolfer et al, 1999, p. 14). A key part in the success of a response is that the problem is reduced without displacing it to another area (Wolfer et al, 1999, p. 14).

The SARA model has empirical and practical support (Bond & Hajjar, 2013, p. 324). Research on problem-oriented policing found problem focused approaches have been applied to a myriad of crime problems and evidence on its effectiveness is growing (Bond & Hajjar, 2013, p. 324) Police practitioners and scholars are building a strong knowledge base for what works to reduce crime (Bond & Hajjar, 2013, p. 324). They now know that crime occurs in clusters in small geographic places (hot spots) (Bond & Hajjar, 2013, p. 324). Also, strategies focused on the situational elements of crime areas as opposed to random patrol are more effective at producing crime (Bond & Hajjar, 2013, p. 324-325)

Problem oriented policing works as a crime prevention tool and a control strategy. Problem solving strategies have effectively reduced crime hot spots (Bond & Hajjar, 2013, p. 325). Effective strategies include the analysis of crime characteristics and data sharing, increased attention to offenders, communication between patrol and detectives, target hardening and dissemination of crime prevention tips, working with repeat victims, focusing on stolen property outlets (pawn shops) etc. (Bond & Hajjar, 2013, p. 325).

Crime prevention requires constant vigilance and thorough planning (Wolfer et al,

1999, p. 14). The crime prevention survey is a basic tool for law enforcement that can get

them started in understanding the crime problems in their community. The survey paired

with the SARA model helps law enforcement in focusing on specific problem solving

approaches and making sure the appropriate response is chosen (Wolfer et al, 1999, p.

14).

Crime Prevention through Environmental Design

Crime prevention through environmental design (CPTED) is the design or

redesign of an environment to improve safety, to decrease the incidence of criminal

activity, and to eliminate conditions that may contribute to crime (Walsh, 1999, p. 42).

The key principles of CPTED include, "facilitating the visibility of people's activities,

natural access control to manage ingress and egress, territorial reinforcement to

distinguish public and private spaces, and ongoing maintenance to sustain the other

principles" (Cartier et al, 2003, p. 1442). Changes that can be made could be as simple as

the installation of brighter lighting or as complex as redesigning the architecture of the

buildings in development (Walsh, 1999, p. 42). The basic elements of CPTED include

high fences, delineated paths and curbs, facades on buildings that distinguish them from

one another, and improved lighting (Walsh, 1999, p. 42).

CPTED results have been positive, showing that changes to the environment

decrease crime in that area (Walsh, 1999, p. 42). The programs are increasingly effective

when combined with other community efforts (Walsh, 1999, p. 42). Advantages of

CPTED include that it can be implemented within any budget (Walsh, 1999, p. 43).

Implementing a CPTED plan may be as simple as pruning existing trees and bushes.

Shrubs can do more than make a development look attractive (Walsh, 1999, p. 42).

Bushes and shrubs also serve as a place to hide, as a fence, as a screen over a graffiti covered wall, a means of dividing space, or as a barrier that cannot be seen through (Walsh, 1999, p. 42). Other small changes could include supplementing existing fencing, replacing lighting bulbs with brighter ones, or re-directing traffic with gates (Walsh, 1999, p. 43).

CPTED can be implemented over times as funds become available (Walsh, 1999, p. 43). The benefits of CPTED include making residents feel safer without increasing security patrols or law enforcement monitoring of housing developments (Walsh, 1999, p. 43). Crime prevention through environmental design also improves the appearance of the community, giving residents a sense of ownership in their communities (Walsh, 1999, p. 43).

Once a CPTED plan is in place, in order for it to remain effective, policies and procedures should be developed that support and maintain the environmental changes (Walsh, 1999, p. 43). There should be regular inspections, making sure bushes are trimmed and graffiti is not being repainted.

Popular responses to hot spot locations include CPTED strategies such as the installation of closed circuit television surveillance cameras, repairing damaged fences, improving lighting, locking the park fence during evening hours, limiting access, and posting and enforcing signs such as "Park Rules" and "Regulations" (Wolfer et al, 1999, p. 13). Cartier et al (2003) observed improvements in several measures of crime suggesting that community interventions including CPTED contributed to making the areas safer over time (p. 1443). The planning process also improved the social capital of the community by engaging residents and government in reviewing the issues and

proposing solutions (Cartier et al, 2003, p. 1443-1444). Business owners also started a

merchants association and made physical improvements to their businesses (Cartier et al,

2003, p. 1444). The physical changes made to the environment and the raised social

expectations created an environment less tolerant of criminal behavior thus reducing

crime (Cartier et al, 2003, 1444).

Environmental criminology helps us understand why crime clusters in certain

areas. Many of the reasons for these clusters are related to social aspects of crime,

including changes in population, residential mobility, and the customs and religions of

the residents. Using environmental criminology theory we are able to initiate effective

crime prevention techniques such as hot spot policing and crime prevention through

environmental designs. These techniques address clusters of crime and the factors that

cause them.

Chapter 3: Communities, Crime Analysis, and Partnerships

The earliest forms of American policing were geographically based, the precinct captains held the power, police walked beats, and corruption was common (Maguire, 1997, p. 330). The organization structures of police agencies change in response to social, political, and technological changes of their environment. The twentieth century saw a change in the organizational structures of large municipal police departments (Maguire, 1997, p. 327). The change in organizational structure was brought about by the emergence of new technologies such as the patrol car, mobile two way radios, and advances in dispatching technology. These technologies centralized police territorially (Maguire, 1997, p. 327). Corruption problems in the police departments also led to the development of "administrative mechanisms" to attempt to prevent corruption. These "mechanisms" included formal written policies, centralized operations, and larger administrative staffs (Maguire, 1997, p. 327).

The above changes led to what we consider the traditional or professional model. This model has been seen as being unsuccessful at lowering crime rates. The professional policing model which was in place from the 1930s to 1970s, led to practices that sought to prevent corruption, but at the consequence of reducing citizen involvement and trust, and thus limiting police agency access to valuable information (Lyons, 2002, p. 532). Rising crime rates of the 1970s and 1980s led to a change in focus on different types of crime which led to more formal written policies and specialized units to address individual crimes (Maguire, 1997, p. 327).

The end of the 1980s saw a change in how the American police department operated, as they were under pressure to adopt more innovative practices (Zhao, He, &

Lovrich, 2003, p. 698). The catalyst for this change was the two decades of rising crime and a worsening drug problem which led to an increase in fear of crime (Zhao, He, & Lovrich, 2003, p. 698). The inability for the traditional policing model to control crime led to a decrease in public confidence of law enforcement agencies (Zhao, He, & Lovrich, 2003, p. 698). The community policing model gained popularity as it was said to emphasize crime control as a result of the police taking on other activities such as maintaining order and providing services (Zhao, He, & Lovrich, 2003, p. 698).

The community policing model has currently gained favor as being more likely to prevent crime and strengthen communities. Proponents of this model would like to see a reverse from the current progression of highly centralized, specialized, and formal organizations with tall hierarchies to less complex departments that can accommodate community policing demands (Maguire, 1997, p. 328). For police organizations to make the switch from the traditional model to the community model they need to decentralize, de-formalize (eliminating unnecessary rule and policies), de-specialize, de-layerize (shortening rank structures), and they must civilianize (replacing sworn officers with civilians in clerical, technical, and professional duties) (Maguire, 1997, p. 328).

Two trends that have helped lead to the development and application of community oriented policing are the realization that local police cannot successfully combat crime and related forms of disorder in the absence of citizen assistance, and the increased availability of federal funds to assist community crime prevention and neighborhood revitalization efforts (Reisig & Giacomazzi, 1998, p. 547). Community oriented policing is a major change from traditional policing. Change will not occur

overnight, and change will be met with internal resistance and conflict (Rohe, Adams, & Arcury, 2001, p. 80).

Defining Community Policing

Community policing can be characterized as an organizational strategy that seeks to reduce crime and disorder through police-community partnerships, problem solving, and greater discretion to patrol officers and sergeants (Willis, 2010, p. 655). Community policing is not a single approach, it takes on many forms, but all with the goal of improving "the citizens role in addressing neighborhood crime problems" (Reisig & Giacomazzi, 1998, p. 548). Community policing includes programs that increase the accessibility of police, decentralize police operations, crime prevention programs, and longer term assignment of police to certain areas in an attempt to establish police-community partnerships (Reisig & Giacomazzi, 1998, p. 548). Two ways citizens can get involved is either individually assisting the police by reporting crimes and suspicious behaviors, or by acting collectively as a neighborhood and participating in police sponsored programs such as neighborhood watch (Reisig & Giacomazzi, 1998, p. 548).

Police officers who operate under the community policing model are tasked with improving the quality of life in low to moderate income neighborhoods (Rohe, Adams, & Arcury, 2001, p. 78). Police officers tasked with this function are asked to identify problems experienced by residents, and to then work with the residents to develop way of addressing the community problems. To bring about change to these neighborhoods the appropriate public and nonprofit agencies need to work together to implement the correct strategies (Rohe, Adams, & Arcury, 2001, p. 78). Community oriented police agencies and those involved in the development and planning of communities have been able to

design and create stable neighborhoods that keep community residents involved in

improvement efforts (Rohe, Adams, & Arcury, 2001, p. 78).

Legitimacy

Legitimacy is defined in terms of policing as the judgments that people make

about the appropriateness of what the police do and how they do it (Willis, 2010, p. 656).

Legitimacy is important for police agencies that are viewed unfavorably or suspiciously,

and it is especially important for those that live in disadvantaged areas (Willis, 2010, p.

656). In disadvantaged areas, residents report the least amount of trust of police, but it is

in these areas where police need the most cooperation and support (Willis, 2010, p. 656).

When residents believe a police agency to be legitimate the residents are more likely to

obey laws, comply voluntarily with requests and provide information that aids in

identification, arrest, and conviction of offenders. Residents are also more likely to

participate in crime prevention programs and believe that officers should be allowed wide

discretion (Willis, 2010, p. 656).

One route to legitimacy is through crime reduction (Willis, 2010, p. 657). Police

can gain cooperation and support from residents by achieving crime reduction or another

outcome valued by residents (Willis, 2010, p. 658). Research suggests that a more

"potent" source of legitimacy is how residents perceive their treatment by police, rather

than crime reduction, thus community policing would be better at providing the police

with legitimacy (Willis, 2010, p. 659).

Citizens will view police as trustworthy when the police show care and concern,

and explain their decisions. This is often called procedural justice. There are four

elements to procedural justice. The first element is participation. People are more

satisfied with procedures when they are allowed to have input into the decision making

process (Willis, 2010, p. 661). The second element is neutrality; people are dissatisfied

when authorities not objective and appear to make decisions based on personal preference

(Willis, 2010, p. 661). The third element is dignity and respect. Citizens care about how

they are treated; they value politeness and having their rights acknowledged (Willis,

2010, p. 661). The last element is motives. Residents will consider procedures fair when

they can trust the motives of the decision makers (Willis, 2010, p. 661).

Community Policing and Organizational Change

Community oriented policing stresses the importance of mobilizing residents and

establishing partnerships with them to address a wide range of community problems

(Reisig & Giacomazzi, 1998, p. 547). Community- police partnerships encourage

residents to unite to solve problems rather than relying completely on the police (Reisig

& Giacomazzi, 1998, p. 547). The adoption of community policing brought about two

levels of organizational change. There was change seen through innovations on the

operational level, as well as changes at the organizational level through the alterations of

goals and priorities (Zhao, He, & Lovrich, 2003, p. 699). The changes were cyclical in

that changes at the organizational level led to changes in the operational level and vice

versa (Zhao, He, & Lovrich, 2003, p. 699). A police agencies goal's has a direct effect on

its daily activities (Zhao, He, & Lovrich, 2003, p. 700). The community policing model

reprioritized the three core functions of policing by moving away from a crime control

focus and giving a higher priority to order maintenance (crime prevention) and the

service functions (Zhao, He, & Lovrich, 2003, p. 700). Non emergency services began to

take on a greater importance in an effort to better understand and develop relationships

with citizens. Crime prevention/ order maintenance activities "secondarily addressed crime-reduction goals" (Zhao, He, & Lovrich, 2003, p. 701). Community policing involves reforming the traditional decision making processes in a way that creates a new culture within that agency (Rohe, Adams, & Arcury, 2001, p. 79).

Community Policing and Partnerships

Within the community policing model, there are certain expectations placed both on police officers and the community residents. Both officers and residents are expected to share the responsibility for community safety and aid in crime prevention. Officers are also expected to use discretion (Rohe, Adams, & Arcury, 2001, p. 79). With the shared responsibility of safety and crime prevention, officers and residents should engage in frequent communication, and the police need to be respectful of the citizens. Agencies should also have permanent beats, so that the officers can get to know the residents, the officers need to work to prevent crime, not just respond to it, and police discretion should be used in a way that is responsive to community concerns and builds trust (Rohe, Adams, & Arcury, 2001, p. 79).

Each police agencies community policing program should be unique to its community. Special police units should be assigned to high crime areas with the goal that the officers of these units will get to know the community and its problems so that strategies can be developed to improve the area. (Rohe, Adams, & Arcury, 2001, p. 79). Community oriented policing activities are any activities that support the community policing goal. Examples of community policing activities include foot and bike patrol, knock and talk, data collection and analysis, and the planning and implementation of neighborhood improvement projects (Rohe, Adams, & Arcury, 2001, p. 80). Not all

communities are equally accepting of a partnership with police. Fear of retaliation, poor

relations between police and residents, disorganization, intra group conflicts between

residents and communities that have large, heterogeneous, transient populations are less

likely to want to be involved with a partnership with police (Reisig & Giacomazzi, 1998,

p. 548-549). Minority individuals have been found more likely to participate in anti crime

efforts, as well as those from higher social classes, and residents who feel that their

neighborhood is a problem and in need of attention (Reisig & Giacomazzi, 1998, p. 549).

Police- community partnerships seek to rebuild citizen trust and mobilize informal

mechanisms of social control that will allow communities to aid in public safety, and

increase access to critical information embedded in the community (Lyons, 2002, p.532).

Partnership calls for the police to protect communities, respond to their concerns, and

show respect (Lyons, 2002, p. 532-533). This is not always easy in communities that are

not immediately willing. Community policing calls on citizens to help the policing

improve neighborhoods safety (Thatcher, 2001, p. 3). An issue that can occur with this is

that not all community interest groups may voice their concerns as loud as other groups,

leading to a skew in priorities that may benefit the better off at the expense of the poor

(Thatcher, 2001, p. 3). Police need to make an effort to reach all groups in the

community; to do this they must accomplish three tasks.

The first task police must accomplish is to focus the attention of their partnerships

on the question of what is public good. Secondly, they must investigate the needs and

wants of social groups that may not be readily vocalizing with police. Third, police must

understand the "methods and conditions of debate" (Thatcher, 2001, p. 3).

There are two views of community partnerships, as an exchange and as an

institution. There are two assumptions of the exchange view, the first that public agencies should try to satisfy the preferences that citizen already hold. The second assumption is that community groups are a way to make those preferences known (Thatcher, 2001, p. 4). Police should remain neutral when it comes to the demands of different community groups, with the goal being that each "segment" of the public is heard (Thatcher, 2001, p. 4). To complete these two assumptions requires a highly organized public (Thatcher, 2001, p. 4).

The institutional view argues that properly managed discourse between police and residents can lead the results away from deliberations away from self interest (Thatcher, 2001, p. 4). Community partnerships should be considered sites of public deliberation about the common good, not just a way for individual groups to make their interests known (Thatcher, 2001, p. 5). Community partnerships should bring about new information on the social problems facing the community, as well as the capabilities of the government and the community to solve them. Community partnerships are also a way for citizen and officials to learn about the constraints of their roles and that of their partners (Thatcher, 2001, p. 5). Decisions that arise out of these community partnerships should be well informed, after debates and persuasion versus relying solely on majority vote (Thatcher, 2001, p. 5).

Police cannot be blindly responsive to community demands since often times when demands are made they are not in the interest of all community groups. Police need to protect the important values that individual groups may not (Thatcher, 2001, p. 11-12). The attention needs to be focused on public good, with an effort made to represent the absent or silent public (Thatcher, 2001, p. 12). Community policing requires police

partnerships with people and organizations as well as other public and private service

agencies (Willis, 2010, p. 660). Community policing argues that the police and the public

should work together to identify local crime and disorder problems; they are "co-

producers" of public safety (Willis, 2010, p. 660).

Community policing works to improve community relationships and establish

partnerships by assigning officers to beats for long period of time so that officers can

learn about local problems, and neighborhood residents and resources (Willis, 2010, p.

660). Also, police may set up neighborhood watch groups and citizens academies as a

way of partnering with residents (Willis, 2010, p. 660).

Community Policing and Partnership Research

Zhao, He, & Lovrich (2003) conducted a follow up study on community policing.

They found that the priority to control violent crime was independent of the influence of

internal and external organizations (p. 716). Zhao, He, & Lovrich (2003) found that the

extent to which community oriented policing is implemented is a statistically significant

predictor of all the core functions of policing (p. 716). It was also found that community

oriented policing can be characterized as, "a comprehensive effort by local police

simultaneously to control crime, to reduce social disorder, and to provide services to the

citizenry (Zhao, He, & Lovrich, 2003, p. 716).

The study conducted by Reisig & Giacomazzi (1998) found that residential areas

where residents lived long term, had higher incomes, were white, highly educated, and

owned their homes rated police performance higher than residents in areas that had a

more transient population, were younger, less educated, with lower incomes. These more

transient, lower income areas were considered less integrated and more disorderly (Reisig

& Giacomazzi, 1998, p. 556). The Reisig & Giacomazzi (1998) study also found that just

because a community harbors negative attitudes toward police that does not mean they

are unwilling to support community policing initiatives or are unwilling to partner with

police (Reisig & Giacomazzi, 1998, p. 556-557).

Research from 1990, 1997, and 1999 showed that police are seeking partnerships

with communities that are least likely to have the crime and terror information they seek.

The communities they are partnering with communities are "easier" to work with, in that

they are more likely to support police, and define community policing as more aggressive

policing versus communities that would seek the reinvention and reorganization of police

agencies (Lyons, 2002, p. 532). A community that is more resistant to police should be

considered an undeveloped resource that should not be overlooked. Information vital to

combating terror and other threats is likely found in these communities (Lyons, 2002, p.

532).

Research has shown that a community's willingness to share information and

assists police is dependent on improved cooperation and communication between citizen

and police (Lyons, 2002, p. 533). An obstacle to community partnerships is that agencies

select to partner with white, business communities that offer political power but do offer

the needed information (Lyons, 2002, p. 537). For community policing to be effective it

needs to strengthen the most crime victimized communities by rebuilding trust, it needs

to encourage community input at all problem solving stages including problem

identification, analysis, response development, and evaluation (Lyons, 2002, p. 538).

Lastly, it needs to encourage police and political leaders to accept civic responsibility and

address *all* concerns voiced by the partnerships (Lyons, 2002, p. 538-539). Another way

to strengthen high crime communities is to partner with other city agencies to stop

redlining, improve housing and code enforcement etc. These strengthened communities

produce more citizens that are more willing to assist police and public safety (Lyons,

2002, p. 539)

Maguire (1997) expected in his study to find that the community policing

movement had altered the formal structures of police organizations between 1987 and

1993. He was expecting to find change, based on two reasons. He expected change

because reformers have outlined the changes police organizations should/ are expected to

make, and because changes in operational technology produce structural modification as

organizations work to find a "fit" between the new technology and structure (Maguire,

1997, p. 328).

Maguire (1997) used LEMAS data from 1987, 1990, and 1993 to provide him

with information in regards to the effect of the community policing model on structural

organization in large police departments (p. 338). He also used data from two national

surveys on community policing (Maguire, 1997, p. 338). In the study Maguire (1997)

found that 44% of his 236 sample of large municipal police departments said they had

adopted community policing, 47% said they were planning to or were in the

implementation process, and 9% said they had no plans to adopt the community policing

model (p. 332). Maguire (1997) found that only two of his five structural variables had

changed significantly from 1987 to 1993, and one of those variables had changed in the

wrong direction (p. 343).

The results of Maguire's (1997) study were not what had been hypothesized.

Maguire (1997) expected a more significant change in the structures of police

organizations since over half had stated they had implemented community policing. One

criticism Maguire (1997) made was that there are multiple definitions of community

policing (p. 332-333). "Community policing in its ideal sense, means changing the

traditional definition of policing from crime control to community problem solving and

empowerment" (Maguire, 1997, p. 335). Maguire (1997) found that police departments

would implement community policing activities, but not change structurally (p. 331-332).

Maguire (1997) felt that his study may have been conducted too soon, and that six years

was not enough time for organizations to experience structural change (p. 343).

Community Policing Activities

Hot Spot Policing

Problem solving strategies focus on crime generators and hot spots (Wolfer, L.,

Baker, T. E., & Zezza, R., 1999, p. 9). Hot spots are locations where a large percentage

of crime occurs. Residential locations can generate as much as 85% of the repeat calls for

service, and in many communities more than 50% of the calls for service come from only

10% of the locations (Wolfer et al., 1999, p. 10). Specific problem solving activities to

eliminate these hot spots include working with citizens through programs like

neighborhood watch to increase surveillance and territorial control (Wolfer et al., 1999, p.

10). Being able to identify a hot spot through crime analysis and then respond with a

specific plan for the location lowers the level and fear of crime (Wolfer et al., 1999, p.

10). Law enforcement often uses the scanning, analysis, response, assessment (SARA)

Model to help them identify a community problem, determine how to best address the

issue, and then determine if their strategy for solving the problem was successful or not.

Success is determined by if the area being targeted sees a reduction in crime, and that the

crime is not displaced to other surrounding areas.

Problem oriented policing also works as a crime prevention tool and a control strategy. Problem solving strategies have effectively reduced crime hot spots (Bond & Hajjar, 2013, p. 325). Effective strategies include the analysis of crime characteristics and data sharing, increased attention to offenders, communication between patrol and detectives, target hardening and dissemination of crime prevention tips, working with repeat victims, and focusing on stolen property outlets (pawn shops) (Bond & Hajjar, 2013, p. 325).

Crime prevention requires constant vigilance and thorough planning (Wolfer et al, 1999, p. 14). The crime prevention survey is a basic tool for law enforcement that can get them started in understanding the crime problems in their community. The survey paired with the SARA model helps law enforcement focus on specific problem- solving approaches and make sure the appropriate response is chosen (Wolfer et al, 1999, p. 14).

Hot spot policing has been found to be effective at preventing crime, but sometimes at the cost of police-community relations (Willis, 2010, p. 666). Supplying citizens with data that the police use to determine hot spots can help bring community attention to the high crime areas, potential victims could benefit from this knowledge (Willis, 2010, p. 666). Research has shown that police strategies that are focused on high risk of crime areas are more successful that police strategies that are less focused (Willis, 2010, p. 667). By systematically discussing crime data and community problems in meetings with residents and other stake holders, the police can "reduce the perception and realities of unfairness" (Willis, 2010, p. 667-668).

Compstat

Compstat is a strategic management system that works to reduce serious crime through the decentralization of decision-making, and by making middle managers accountable for the performance of their district. Compstat seeks to increase the police department's "organization capacity to identify, understand, and monitor responses to crime problems" (Willis, 2010, p. 654-655). The community is also not usually represented at Compstat meetings (Willis, 2010, p. 655).

Research has shown that Compstat and community policing work independently of each other, with Compstat strategies focusing on serious crime and community policing focusing on quality of life issues (Willis, 2010, p. 655).The 1997 Police Foundation Survey found that 85% of police departments had reported that they had implemented community policing or were trying to do so (Willis, 2010, p. 655). In 2000, one-third (33%) of police departments with 100 or more sworn officers had implemented Compstat or a similar program with one-fourth (25%) planning to do so (Willis, 2010, p. 655). Police organizations are implementing these programs because they are interested in reforms that will cause the public to view them more positively (Willis, 2010, p. 655-656).

Compstat occurs in an environment saturated with data (Willis, 2010, p. 658). For Compstat, crime analysts collect, analyze and map crime statistics to spot trends which help the district commanders identify factors that can explain crime cause (Willis, 2010, p. 658-659). The top administrators then use information on crime stats to hold district commanders accountable for crime in their areas. Recently, it has become important for Compstat information to be made available to the public (Willis, 2010, p. 659). A source of legitimacy for citizens is whether or not police can lower crime rates. Crime rates are

difficult for citizens to observe, and those who encounter the police directly use that

experience to judge police legitimacy (Willis, 2010, p. 659). There are four core elements

of Compstat. The first is accurate information is made available in a timely manner to all

levels of the organization. The second is the making sure to select the most effective

tactics for specific problems. The third element is rapid and focused deployment of

people and resources to the effective tactics. The last element is evaluation; making sure

the tactics used were affective (Willis, 2010, p. 658).

Integrating Community Policing and Police Activities

Research shows that the view of police is shaped by the degree to which people

feel the police are capable at reducing crime as well as how well the police treat the

public (Willis, 2010, p. 661). Willis (2010) makes three recommendations for improving

police legitimacy (Willis, 2010, p. 661).

The first recommendation is making sure there is systematic reporting of

community problems at Compstat meetings. This means making sure quality of life and

less serious crime are reported (Willis, 2010, p. 661). These issues are often of the

greatest concern to citizens. A department may be successful at reducing serious crime,

but if they are unresponsive to the concerns that matter most to citizens, such as quality

of life concerns then the citizens will feel the police are unresponsive (Willis, 2010, p.

661). For Compstat to be successful within the community then it should address

community related issues at meetings and it should demonstrate a commitment to

addressing the community needs (Willis, 2010, p. 662).

The second recommendation is that the community needs to be involved in the

problem- solving efforts. Community involvement is seen as "indispensable" in the

problem solving process (Willis, 2010, p. 664). Compstat and community policing are great tools for finding and implementing innovative solutions, but these solutions are most likely to be ineffective if they are not supported by the community. Research has shown that even when community members do not have a favorable view of police, they are still supportive of police-community partnerships (Willis, 2010, p. 664).

The third recommendation is that Compstat and problem-solving data should be used to strengthen perceptions of fairness in police decision making. Using data in this manner is an attempt to make police departments transparent to citizens (Willis, 2010, p. 665). Currently, police departments that use Compstat are accountable to the stakeholders, but not the community, the data should be used to increase community involvement (Willis, 2010, p. 665). With community policing, police are accountable to the residents they collaborate with; within this collaboration they are responsive to citizen concerns and should be holding an open dialogue on policies and practices (Willis, 2010, p. 665). The strategy should be to gain citizen support and cooperation by implementing approaches such as hot spot policing (Willis, 2010, p. 666).

Theories

Two theories have been applied to the development of community oriented policing; contingency theory and institutional theory. Contingency theory states that the external environment is the driving force behind organizational change (Zhao, He, & Lovrich, 2003, p. 701). Contingency theory holds two assumptions in regards to organizational change. The first assumption is that organizations must adapt themselves to the external environment when their goals are affected on the operational level. The second assumption is that a "fit" must be made between the organization and its

environment (Zhao, He, & Lovrich, 2003, p. 702). Police agencies adopting the

community policing model must adopt three propositions. The first is that agencies

should determine if their environment has changed, and to understand the public's

expectations about the government and public services (Zhao, He, & Lovrich, 2003, p.

703). The second is that organization change needs to lead to operational change (change

in police functions). The third is that the police agency's operational activities need to

reflect their organizational priorities (Zhao, He, & Lovrich, 2003, p. 703).

Institutional theory argues that organizations do not change easily (Zhao, He, &

Lovrich, 2003, p. 703). Organizational goals are influenced by cultural and political

attributes. Police departments are driven to adopt and implement innovations in order to

meet cultural explanations (Willis, 2010, p. 657). These innovations help the police

agencies appeal to stakeholders which in turn helps them gain better prospects and

resources (Willis, 2010, p. 657). However, the cultural and political foundation of *the*

agency is a lasting legacy (Zhao, He, & Lovrich, 2003, p. 703-704). An organizations

culture cannot change overnight. Agencies will feel pressure from their external

environment to change and thus "loosely" engage in activities. For a time, organizations

will maintain their deep foundations or their mission, even though they may adopt

innovative and unconventional activities (Zhao, He, & Lovrich, 2003, p. 704).

A LEMAS Survey from 1999 found that 90% of local police departments serving

a population of 25,000 or more had some type of community policing plan in place, with

64% of local police department reporting having a full time community policing unit

(Renauer, 2007, p. 121). The institutional theory perspective describes the forces that

cause the adoption of structural, strategic, and policing innovations of community

policing by police organizations (Renauer, 2007, p. 122).

Institutional theory examines in depth the organizational-environmental relations. It addresses the question of how an organization's environment influences its operations, structures, and delivery of services (Renauer, 2007, p. 127). Criminal justice organizations often shape their operational strategies in reaction to the demand of other organizations, the law, and their locality (Renauer, 2007, p. 127). Traditional institutional theory has also been referred to as resource dependency theory. A "new" institutional theory perspective is emerging that differs from the traditional theory in two ways. The first way is that the "new" institutional theory argues that the source of organizational change and stability is from a broad "organizational field" rather than the local level (Renauer, 2007, p. 127). The second difference is the argument that the mechanism that influences organizational change and stability is maintenance of organizational legitimacy rather than constant improvement of technical efficiency and service delivery to meet local demands (Renauer, 2007, p. 128).

There are three relationship networks that influence how community policing is diffused and implemented (Renauer, 2007, p. 129). The first relationship network is the centrist level; this includes the relationships between local police agencies and national and state organizations. The second relationship network is the local level; this includes relationships between local police and local political leaders, government agencies, businesses, and organized resident groups (Renauer, 2007, p. 129). The third relationship network is the internal police department level; this relationship reflects the police culture. The internal police cultures can, "greatly shape the success or failure of community policing implementation efforts" (Renauer, 2007, p. 130).

There are also three institutionalizing forces or processes that can either support or constrain an organizations activities, as well as influence change and stability (Renauer, 2007, p. 130). The first is mimetic forces. Organizations in the same field will often, "mimic, copy, or imitate on another" (Renauer, 2007, p. 130). Normative forces are the second, and with this force/process, organizations in the same field often create standards for themselves (Renauer, 2007, p. 131). The last force/process is coercive. The coercive process regulates the institutionalizing elements. It involves an organization's capacity to create rules and laws, monitor others' conformity, officer incentives, and impose sanctions when needed (Renauer, 2007, p. 131). An example of this is when organizations that are attempting to stimulate change and conformity toward new or old operations exert coercive forces upon other organizations in the hopes that they will adopt or adhere to such operations (Renauer, 2007, p. 131).

Renauer (2007) offers ten ideas or propositions that he argues will determine whether or not and to what extent a police department will adopt community policing. His propositions conclude that intense police community building is more likely to occur in liberal growth cities, where the neighborhoods are organized, and concerned about community building, and support from police chiefs and the internal police culture (Renauer, 2007, p. 148). He argues that the causes of police-community building will be primarily caused by local level influences that are within a police department's immediate environment (Renauer, 2007, p. 148). He also states that local level and internal police department influences are more powerful because they have the most severe impacts on the department's resources and organizational flexibility, also certain local forces are more experienced with community building (Renauer, 2007, p. 149).

General Research Questions

A police agencies goal's has a direct effect on its daily activities (Zhao, He, & Lovrich, 2003, p. 700). A LEMAS survey from 1999 found that 90% of local police departments serving populations of 25,000 or more had some type of community policing plan in place (Renauer, 2007, p. 121). Since 1999, the community oriented policing model has gained popularity. Research Question 1: It is expected that more police departments will be participating in community oriented policing than in 1999.

Community oriented policing stresses the importance of mobilizing residents and establishing partnerships with them to address the community issues (Reisig & Giacomazzi, 1998, p. 547). The study conducted by Reisig and Giacomazzi (1998) found that residential areas where the residents live long term, have a higher income, are white, highly educated, and owned their homes were more likely to rate police performance higher than residents in areas that had a more transient, lower income, and younger population (p. 556-557). It may be easier for police in more affluent areas to participate in community oriented policing thus improving their legitimacy with residents, because they are more likely to have a higher budget in the more well off areas. Research Question 2: Police departments that actively engage in partnerships with resident focused groups such as neighborhood associations, senior citizen groups, and faith-based groups will be more likely to participate in community problem analysis than departments that do not interact with these types of groups.

Data collection and analysis is an example of community oriented policing (Rohe, Adam, & Arcury, 2001, p. 80). Willis (2010) gives three recommendations for how to integrate community policing: systematic reporting of community policing, community

involvement in problem solving efforts, and data should be used to increase community

involvement; strengthening perceptions of fairness in police decision making (p. 661-
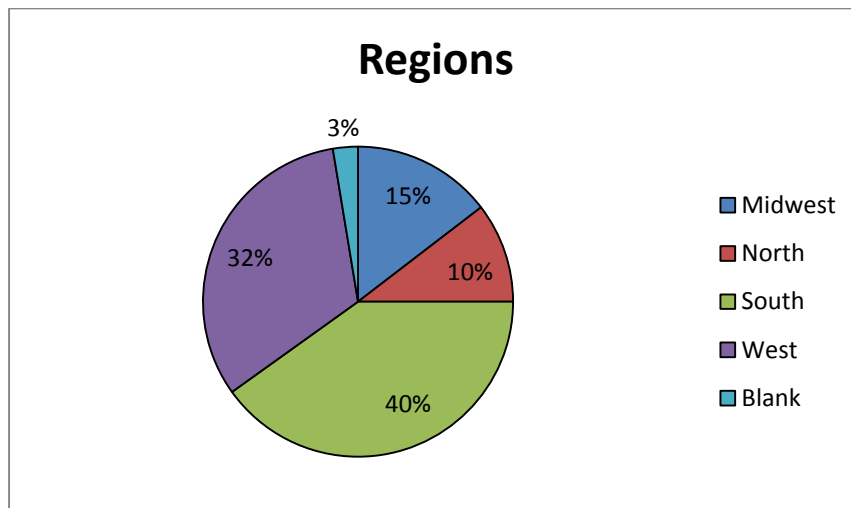
665).

Preliminary Analysis

The International Association of Crime Analysts (IACA) was founded in 1990.

They are a non-profit professional association made up of over 2,200 criminal justice

professionals from over 48 countries. The IACA offers training, literature, support, and

other services to their members. The IACA and members communicate through an email

listserv. The results below reflect a snapshot of the IACA email listserv. Every email

from October 1st, 2013 to December 31st, 2013 were recorded into an excel spreadsheet, a

total of 235 emails. From each email the researcher recorded the date the email came

through, the position of the sender, and the location of the sender. The researcher

classified each email with a theme and then a topic within that theme. There were a total

of twelve themes. The researcher also recorded a summary of each email. The point of

this research was to get a better understanding of what crime analysts are talking about;

are they asking for help, technical support, are they sharing research, is training a priority

etc.

Geographic Characteristics

In this three month snapshot of the IACA email listserv, six countries were

represented. The countries were Australia, Canada, Ireland, Netherlands, Switzerland,

and the United States. Out of the 235 emails, 192 or 82% were criminal justice

professionals from the United States, the other top countries were Canada with 5% and

the Netherlands with 2%. For 25 or 11% of the emails, the researcher was unable to

determine the country of origin.

The researcher chose to focus on the geographic information of IACA members of the United States. The below graph gives an in-depth look at which US region the emails were being sent from.

The researcher also chose to look specifically at email senders from New York State. Only six emails came from criminal justice professionals in New York State. Out of those six, three emails were from Queens County, one was from Westchester County, one was from Erie County, and one worked for a Sheriff's department that covers the five boroughs in New York City. The emails from the New York State analysts will be discussed more in-depth later in this paper.

LEMAS Analysis

Current Study

The current study uses 2007 LEMAS survey data. LEMAS stands for the Law Enforcement Management and Administrative Statistics Survey. It is conducted every three years by the US Department of Justice and the Bureau of Justice Statistics. The first LEMAS survey was conducted in 1987. Originally, the survey included 3,224 state and

local law enforcement agencies, however, agencies that served special jurisdictions such as airports and schools, and those that had special responsibility such as enforcing hunting and fishing, or alcohol laws were eliminated. Also, a few of the small local police agencies had closed since 2004. The final sample size was 3,095 agencies. Out of these agencies, 950 had 100 or more sworn personnel, and 2,145 had less than 100 sworn personnel. Of these agencies, 591 were local police departments, 310 were sheriff departments, and 49 were state departments (Hawaii does not have a state law enforcement agency).

The study examines the effect of six independent variables on the dependent variable. The dependent variable is community policing performed by local police departments with 100 to 1200 fulltime sworn officers and a crime analysis unit, a sample size total of 343 agencies. There are 525 total local police departments with 100 to 1200 full time sworn officers, meaning that 65.3% have a crime analysis unit. This study will be focusing on that 65.3% or 343 local police agencies with a crime analysis unit. A department is considered to perform community policing when they use computers for community problem solving and when they have partnered with citizen groups and included their feedback in development neighborhood/community policing strategies.

Variables

Table 1. Variable List (n=525)					
Variable	Description	n	Min/Max	Mean	SD
Control					
Population Served	Population served according to the UCR for Local Police and County Population (Census Bureau) for Sheriff's Office	525	3,165-666,189	121,345.20	95,663.26
Independent					
Region	Region in United States (1=Northeast, 2=Midwest, 3=South, 4=West)	525	1-4	2.63	1.06
Northeast		112			
Midwest		91			
South		199			
West		123			
Budget	Total Operating Budget for 12-month period (Natural Log)	525	$296,425-$192,000,000	$30,331,344.97	$25,730,215.07
Community Partnership	Number of community problem-solving partnerships or written agreements an agency has	502	0-7	4.58	2.33
Neighborhood Associations	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.81	0.39
Senior Citizen Groups	Problem-solving partnership or written agreement? (0=No, 1= Yes, 9= Don't Know)	502	0-1	0.53	0.50
Faith-Based Organizations	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.52	0.50
Advocacy Groups	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.63	0.48
Business Groups	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.66	0.47
School Groups	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.77	0.42
Youth Services Organizations	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.65	0.48
Government Partnership	Number of government problem-solving partnerships or written agreements an agency has	502	0-2	1.61	0.68
Local Government Agencies	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.77	0.42
Other Local Law Enforcement Agencies	Problem-solving partnership or written agreement? (0=No, 1= Yes)	502	0-1	0.85	0.36
Dependent					
Crime Analysis Unit	Crime analysis unit? (0=No, 1=Yes)	502	0-1	0.68	0.47
Community Problem Analysis	Uses a computer for community problem-solving? (0=No, 1=Yes)	520	0-1	0.69	0.46

Neighborhood Association Group

The neighborhood association group variable (NEIGHASC) asks whether or not a department has a problem-solving partnership or written agreement with a neighborhood association. The above chart looks at the sample of 525 local police agencies. Out of those, 502 answered either yes or no to a partnership, with 81% answering yes.

Senior Citizen Group

The senior citizen group variable (SENIORGRP) asks whether or not a department has a problem-solving partnership or written agreement with a senior citizen group. The above chart looks at the sample of 525 local police agencies. Out of those, 502 answered either yes or no to a partnership, with 53% answering yes.

Faith-Based Organization

The faith-based organization variable (FAITHORG) asks where or not a department has a problem-solving partnership or written agreement with a faith-based organization. The above chart looks at the sample of 525 local police agencies. Out of those, 502 answered either yes or no to a partnership, with 52% answering yes.

Region

The region variable (Region) was created by the researcher and classifies the states into one of four regions; Northeast, Midwest, South, and West. The researcher conducted a study from October 1st 2013 to December 31st 2013 that looked at the International Association of Crime Analysts (IACA) email listserv usage. Forty percent of the emails sent out to the IACA email list serv were from crime analysts in the Southern US region. The Western region was second with 32% of the IACA listserv emails.
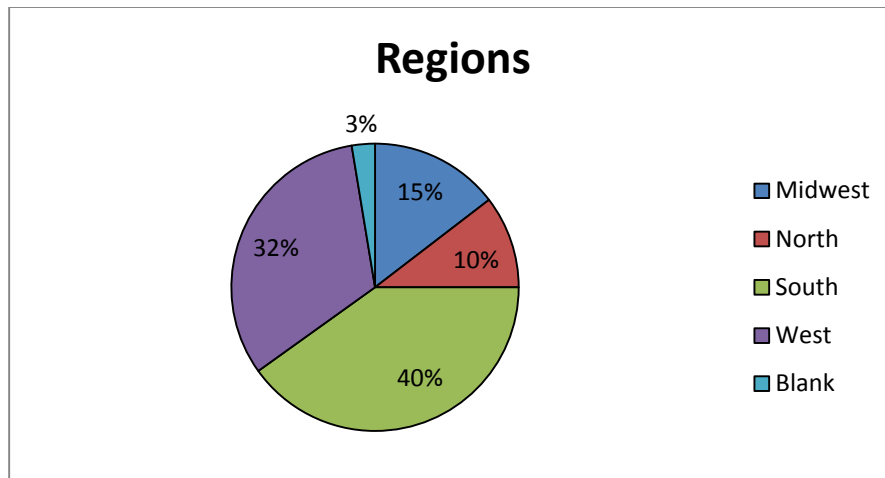
Regions

The variable chart above shows the LEMAS data on regions. The south and west had the highest percents when it came to representing local police departments. Of the 343 local police departments in this study, 44.3% were located in the South, and 25.7% were located in the West.

Population Served

Looking at the sample of 525 police agencies. The smallest population served was 3,165, with the maximum being 666,189. The average population was 121,345.

Budget

The budget variable (OPBUDGET) is the police department's total operating budget for the twelve month period that includes September 30, 2007.

Hypotheses

Hypothesis 1: Higher budgets can lead to more specialized units such as crime analysis and community policing units.

The researcher hypothesizes that since these 343 local police departments have a budget that supports a crime analysis unit, they will also have the budget to support more community oriented policing strategies, such as partnerships with community groups.

Hypothesis 2: Police departments that actively engage in partnerships with resident

focused groups such as neighborhood associations, senior citizen groups, and faith-based

groups will integrate more elements of the community policing model into their activities

than departments that do not interact with these types of groups.

It is hypothesized that community partnerships will lead to the integration of more

community policing strategies. Those in community partnerships will be an outside force

that will push law enforcement agencies to change goals to have a more community

oriented focus, these groups will also push for feedback and evaluation of strategies. This

will lead to an increased interaction between police and residents, as well as the

implementation of more community oriented programs. Also, the more partnerships an

agency has, the greater the external force will be on the department to adopt community

oriented policing and its strategies

Other

Although not addressed in previous literature, the researcher holds that location of

these local police departments will play a role in whether or not they perform community

problem analysis. It is hypothesized that agencies in the Southern and Western regions

will perform more community oriented policing than their Northern and Midwest

counterparts.

Another belief of the researcher is that police agencies in this sample that serve a

population between 0-200,000 will be more likely to participate in community oriented

policing and to a greater extent than the agencies that serve a population over 200,000.

Budget will also play a role in the amount of community policing performed. If a

department has an inadequate budget then it will be less likely to participate in

community oriented policing than a department with an adequate budget.

Results

Research Question 1: What predicts whether or not a local police department reports

having a crime analysis unit?

Table 2. Hypothesis 1 (n=502)				
Variable	Min	Max	Mean	SD
Dependent Variable				
Is there a crime analysis unit?	0	1	0.68	0.47
Independent Variables				
Midwest	0	1	0.18	0.38
South	0	1	0.38	0.49
West	0	1	0.23	0.42
Population Served	3,165	666,189	121,345	95,663
Operational Budget (natural log)	12.6	19.07	16.97	0.77
Government Partnership	0	2	1.61	0.68
Community Partnership	0	7	4.58	2.33

The above table shows that 68% of the 502 local police agencies with between

100 and 1000 sworn officers have a crime analysis unit. Fifty-nine percent of police

agencies in the Midwest, 76% in the south, and 72% in the West have a crime analysis

unit this contrasts with the Northeast, where 44% of agencies report having an analysis

unit (results not shown in table). The typical local police department with 100 to 1000

sworn officers serves a population of 121,345 residents. Annual budget is the natural log

of the police budget in dollars and ranges from 12.6 to 19.07. Actual dollar amounts

range from $296,425 to $192,000,000. Local police departments on average partnered

with 1.6 government agencies out of a possible 2. Departments also had on average with

4.58 community partnerships which were assessed by examining 7 different types of

partnerships: advocacy groups, business groups, faith based organizations, neighborhood

associations, senior citizen groups, school groups, and youth service organizations.

Table 3. Hypothesis 1 (n=502)			
Variable	B	S.E.	Exp(B)
Midwest	0.3	0.31	1.35
South	1.32***	0.29	3.74
West	0.59*	0.33	1.8
Population Served (Range)	0.95*	0.56	2.58
Operational Budget (natural log)	0.96***	0.22	2.61
Government Partnership	0.22	0.19	1.25
Community Partnership	0.06	0.06	1.06
Constant	-17.64	3.43	0
p<.1 *p<.05 **p<.01 ***p<.001			
Nagelkerke R2		0.27	
*Chi-Square 105.5, df=8, sig=.000			

Understanding an organization's choice to adopt crime analysis functions as part

of operations, as mentioned, could be dependent upon the financial capacity and size of

an agency, it could also depend upon the external forces and their expectations for that

capacity. Table 3 presents a multivariate logistic regression model that examines the

effect of variables from those domains (capacity, expectation) on predicting whether an

agency reported having a designated crime analysis unit in 2007. The overall model is

significant as evidenced by the χ^2 (8df, N=502)=105.5, p<.001 and the Nagelkerke

R^2=.266. This indicates that the independent variables have a statistically reliable effect

on departments' adoption of crime analysis units. With regard to specific variables it is

clear that Southern departments, holding constant other variables in the models, are

approximately 3.7 times more likely to have crime analysis units when compared with

their northern counterparts. One unit increases in population category and budget increase

the odds of reporting a crime analysis unit by about 2.5 times. Interestingly partnerships

exert no statistically reliable impact on the likelihood that a department will report having

a crime analysis unit.

Research Question 2: What predicts to what extent a crime analysis unit will perform

community problem analysis?

Table 4 Hypothesis 2 (n=343)	Min.	Max.	Mean	St. Dev.
Dependent Variable				
Community Problem Analysis	0	1	0.68	0.47
Independent Variable				
Midwest	0	1	0.16	0.36
South	0	1	0.44	0.50
West	0	1	0.26	0.44
Population Served (Range)	1	4	1.25	0.54
Operational Budget (natural log)	12.69	19.07	17.15	0.73
Government Partnership	0	2	1.68	0.63
Community Partnership	0	7	4.82	2.26

Table 4 shows that 68% of the local police agencies that have a crime analysis

unit also perform community problem analysis. Sixty-one percent of Midwestern

agencies, 72% of Southern agencies, 71.6% of Western agencies, and 61% of Northern

agencies that have a crime analysis unit also participate in community problem analysis

(results not shown in table). The majority of police agencies that have a crime analysis

unit and participate in community problem analysis serve a population of 200,000 to

250,000. Annual budget is the natural log of the police budget in dollars and ranges from

12.6 to 19.07. Actual dollar amounts range from $296,425 to $192,000,000. Of the 343

agencies with crime analysis, on average these agencies had 1.68 government

partnerships out of two possible partnerships, and an average of 4.82 community

partnerships out of a possible seven partnerships.

Table 5 Hypothesis 2 (n=343)			
	B	S.E.	Exp(B)
Midwest	0.27	0.45	1.32
South	0.03	0.36	1.03
West	0.13	0.41	1.14
Population Served (Range)	0.08	0.31	1.08
Operational Budget (natural log)	0.35	0.22	1.42
Government Partnerships	0.41[a]	0.22	1.51
Community Partnerships	0.15**	0.06	1.16
Constant	-6.72	3.56	0.001
Model χ^2 (7.d.f.)		29.16***	
Nagelkerke R^2		0.14	
[a] p<.1 *p<.05 **p<.01 ***p<.001			

Table 5 shows that when it comes to predicting if a crime analysis unit will participate in community problem analysis, having community partnerships is statistically significant.

Understanding an organization's choice to adopt community problem analysis as part of a community policing model could be dependent upon the financial capacity, size, and location of an agency; it could also depend upon the external forces and their expectations for that capacity. Table 5 presents a multivariate logistic regression model that examines the effect of variables from those domains (capacity, expectation) on predicting whether an agency reported having a designated crime analysis unit in 2007. The overall model is significant as evidenced by the χ^2 (7df, N=502)=29.157, p<.001 and the Nagelkerke R^2=.114. This indicates that the independent variables have a statistically reliable effect on departments' adoption of crime analysis units. The model indicates that partnerships are important determinants for explaining the adoption of community problem analysis. For every community partnership reported, the odds increase by 16%

that the department will be involved in community analysis. Government partnerships could be considered marginally significant (with a one tailed test, they would be significant at p=.03) and indicates that for every 1 unit increase in this variable the odds of having community analysis increase by 50%.   No other variables in the model are statistically significant.

Discussion

The results demonstrate a difference in predictors of crime analysis and community analysis. Crime analysis is the use of data to reduce crime; community analysis is the use of data to reduce crime with an emphasis on improving community and law enforcement relations. An interesting finding from these results is that a southern location is a significant predictor of a law enforcement agency having a crime analysis unit, but it does not predict if the unit will participate in community analysis. Crime analysis and community analysis while performing the same function (reducing crime) have different predictors. While financial capacity and the region the agency is located in are predictors of the development of a crime analysis unit, whether or not that unit participates in community analysis is largely dependent on external community forces. For every community partnership reported, the odds increase by 16% that the department will be involved in community analysis. Government partnerships could be considered marginally significant (with a one tailed test, they would be significant at p=.03) and indicates that for every 1 unit increase in this variable the odds of having community analysis increase by 50%.

Hypothesis 1: Budget is statistically significant in terms of predicting whether an agency has a crime analysis unit. More specifically, for every 1 unit increase in the natural log of

budget dollars spent increases the odds of having a crime analysis unit by 2.6 times.

However, among those agencies with crime analysis unit, budget does not increase the

likelihood of community analysis

Hypothesis 2: Police departments that actively engage in partnerships with resident

focused groups such as neighborhood associations, senior citizen groups, and faith-based

groups integrate more elements of the community policing model into their activities than

departments that do not interact with these types of groups. The results show a

statistically significant relationship between partnerships and the adoption of community

analysis. For every community partnership reported, the odds increase by 16% that the

department will be involved in community analysis. Community partnerships are not a

significant predictor when it comes to the adoption of crime analysis units.

Conclusion

It was originally believed by the researcher that community analysis was a

function performed by the crime analysis unit, and they were controlled by the same

variables. This research has found that the development of crime analysis unit is

predicted largely by region and financial capacity of an agency. Community analysis is

determined more by the amount of external community forces on an agency. Future

research should be conducted to determine with more certainty the predictors of

community analysis as well as how it is related to the crime analysis unit. Is it a sub-

function of crime analysis or is it a type of analysis that can stand alone from crime

analysis?

Chapter 4: The International Association of Crime Analysts

Crime analysis is an emerging field. Crime analysts aid law enforcement in solving and preventing crime, as well as increasing efficiency in the use of their resources. For crime analysis to become a nationally recognized field of law enforcement instead of a policing strategy, training and certification need to be effective, and bring uniformity to the skills and capabilities of analysts.

Criminal behavior does not change, but the techniques and technology used to solve crime are constantly changing. Crime analysts are involved in solving and preventing crime and must stay up to date with these advancements (Matthews, 2008). Part of the reason for changes in techniques has been many departments are facing limited resources. Historically, the response to an increase in crime was to increase patrol, look for witnesses, conduct surveillance using dozens of officers in the hope of catching the suspect(s) (Matthews, 2008). Few agencies today can afford this technique of policing. Today, crime analysis is used to offer police direction in their daily functions. Analysts using various tools can inform police on where crime is likely to occur, patterns in crime, as well as keep tabs on suspects and gang members (Matthews, 2008).

Analysts should constantly be seeking out training to keep up on new technology and techniques. Unfortunately they find excuses to not attend training. Analysts feel that since they were trained once, they do not need to continue their training, they feel they do their job well enough that there is no point to try to improve (Matthews, 2008). Training can be costly and time consuming. However, there are many free training classes out there that are just as informative as trainings that cost. Also, many agencies are willing to pay for training for their analysts. Trainings do not have to be time consuming either. A

lot of training is done online now through webinars, these can last up to two hours and

the analyst can attend them from their desk.

Looking back one hundred years, and up until the 1980s and 1990s police officers

stuck pins into paper maps to track crime locations (Ratcliffe, 2004, p. 66). Since the

1980s the cost of digital storage has decreased, allowing for a multitude of new

computerized crime fighting technologies to enter the marketplace (Ratcliffe, 2004, p.

65). Geographic information science related to policing blended old crime fighting

techniques with new technology. The police were the first criminal justice agency to take

an interest in using geographic information system (GIS) software for crime mapping and

they still remain its main supporter today (Ratcliffe, 2004, p. 68).

Many options of spatial analytical technology like GIS have opened up for crime

analysts (Ratcliffe, 2004, p. 75). This flood of technology while beneficial to crime

reduction strategies comes with training implications for the members of the criminal

justice system. Crime analysts are under continual pressure to be familiar with the latest

techniques and to know how to apply them in crime analysis situations (Ratcliffe, 2004,

p. 75).

The crime analysis field is making more progress in training and educating crime

analysts. The International Association of Crime Analysts (IACA) has a certification

program. The International Association of Law Enforcement Analysts (IALEIA) now

offers crime mapping training sessions (Ratcliffe, 2004, p. 75). This training however

seems to be self motivated. Ratcliffe (2004) states, "The desire to professionalize and

provide analytics utility is therefore driving the law enforcement crime analysis field to

train itself in spatial crime analysis (p. 77). Ratcliffe (2004) supported this statement

with the finding that the International Association of Chiefs of Police, which is the

leading police chiefs organization in the US has only one of sixty-eight programs

dedicated to general crime prevention, and only three courses that address crime

reduction in specific situations (p. 78). From this comes the belief that police leadership

in the US does not perceive that is should be aware of crime analysis, or understand how

to apply criminal intelligence and crime analysis to crime reduction and problem solving

(Ratcliffe, 2004, p. 78).

Crime mapping appears to be on the verge of becoming a fundamental tool for the

criminal justice system, law enforcement in particular. Crime and intelligence

practitioners and a few academics are realizing the training needed, and have been

developing programs in their organizations to provide this training so that the benefits of

crime mapping and technology like it, can be realized (Ratcliffe, 2004, p. 80). In order for

GIS technology to show a return on investment, crime analysis has to influence the

decision making and thinking at the police administrator level, since they are the ones

who can drive the change in the criminal environment (Ratcliffe, 2004, p. 80).

Crime analysis is a growing field, with many officers and civilians seeking

education and training for crime analysis positions (International, 2012, p. 2). The

International Association of Crime Analysts (IACA) wrote a paper in 2012 that analyzed

the current conditions of crime analysis education. Another purpose of the paper was to

help in developing and improving crime analysis courses, as well as establishing

minimum standards for colleges and universities to follow in their crime analysis

program, if they would like a business relationship with the IACA (p. 2). The research for

the paper was conducted in the summer of 2012 (International, 2012). The IACA found

that 22 schools offered 24 different crime analysis certifications, concentrations, or

emphases within undergraduate and graduation programs (International, 2012, p. 4). No

schools offered an undergraduate major in crime analysis, and only one school had a

master's degree program that was specifically crime and intelligence analysis

(International, 2012, p.4). The programs offered at theses school varied from requiring

two to twenty-six courses to complete a crime analysis program. The content of these

courses focused on practical, hands on learning, instead of theoretical content

(International, 2012, p. 4). More than half of the programs required a computer or

research methods course.

      After reviewing what types of education and training are being offered to

students, crime analysts, and law enforcement personnel, the IACA made suggestions for

improvement. Undergraduate and graduate level crime analysis programs should cover

current theory, tools, techniques, and best practices. This should be accomplished through

research of the literature as well as through the experience of working analysts

(International, 2012, p. 5). The IACA recommends colleges and universities follow six

guidelines as well as a five course sequence for undergraduate studies if they seek to

form a formal partnership with IACA. The six guidelines are:

1. Programs should hire individuals with crime analysis experience as advisors.

   These advisors can then assist with developing agency partnerships and teach

   courses.

2. The program's coordinator and instructors of the core curriculum should be

   members of the IACA. Students should also be encouraged to join IACA to have

   access to their resources.

3. Students should be shown techniques and examples from the field by those who have practiced it.

4. The program coordinator and other representatives of the program should attend the IACA's annual training conference at least every other year.

5. Relationships should be developed between the program coordinator and instructors and local and county police agencies. These relationships will supply data, lecturers, and internship opportunities, as well as increase the student's understanding of current practices and provide them with employment opportunities upon graduation.

6. The program should offer a field study component in which students under faculty supervision work with analysts on problems that are a concern to local police and other government agencies.

   The five course sequence:

1. Introduction to Crime Analysis

2. Crime Mapping Techniques

3. Crime Analysis Techniques

4. Advanced Concepts of Crime Analysis

5. Capstone: Crime Analysis Application

The IACA feels that if colleges and universities follow these guidelines and the course sequence, then students will be offered a learning experience that teaches theories, concepts, crime analysis methods, as well as offering extensive application of learned skills (International, 2012, p. 6). Also, the course sequence can serve as a certificate program, or concentration, or emphasis in a criminal justice related undergraduate or

graduate program. The IACA is interested in increasing the number of trained and skilled crime analysts as well as the number of law enforcement who can utilize crime analysis (International, 2012, p. 6).

Methods

Rochester Institute of Technology Surveys

This paper sought to get a better understanding of the training of New York State crime analysts. As well as comparing certification data on NYS analysts and analysts that are members of the IACA email list serve. Two surveys were conducted at the Rochester Institute of Technology that examined crime analysis training in NYS.

Surveys at the Rochester Institute of Technology were conducted by Carolyn Cassidy, the director of training of crime analysis for New York State. Cassidy's goal was to assess the training of the analysts, determining in what areas they had sufficient training, and in what areas they were lacking. The survey asked analysts about what training they would like to receive and in what style it should be offered. There were also questions that asked about the certification status of the crime analysts. Cassidy sent out an initial survey on August 22nd 2013 and the survey was open until September 13th 2013. The survey was sent out to all upstate crime analysts. It was realized after the survey had been conducted that information was missing on downstate analysts, and the survey was sent out again and that survey was open from November 6th 2013 until November 27th 2013.

The first survey that went out from the Rochester Institute of Technology (R.I.T.) was sent to seventy-eight analysts from upstate New York. The second survey was sent out to thirty-eight analysts from downstate New York. The two surveys were the same,

and were comprised of eleven questions and a comment section. The surveys questions

are listed below.

1. How long have you been working with your current Crime Analysis Center?

2. Is this your first position as a crime analyst?

3. If not, where did you work previously and for how long?

4. Are you a certified analyst?

5. If so, when and where were you certified?

6. When, where, and what type of training did you last receive? (Please include webinars,

labs, and in-person lectures)

7. What skills do you feel most proficient in?

8. Out of the above skills, are there any you would feel comfortable teaching or being

available as support for other analysts?

9. In what areas would you like to receive more training?

10. Please list your desired training methods (from most to least preferred).

11. What types of training would you like to see offered at your Crime Analysis Center?

12. Comments

Wyoming Certification Survey

On October 31st 2013, Sandra Erickson a criminal intelligence analyst who works out of the Wyoming Division of Criminal Investigation in Cheyenne, Wyoming sent out a survey to the International Association of Crime Analysts email list serve. The department Sandra works for was considering the preference for certification for analysts in their agency. The survey was optional and anonymous and asked seven questions. The questions are listed below.

1. Are you a certified analyst?

2. Are you certified through IACA, IALEIA, CCIA, etc.?

3. Is there one you think may be better than the other?

4. Has your certification been beneficial? How?

5. Did your agency require certification?

6. Does your agency pay/ reimburse the cost of your training and certification?

7. Is there anything else you would add?

Results

First Rochester Institute of Technology Survey

Of the seventy eight upstate analysts, thirty-three "completed" the survey. Thirty-two of the thirty-three participants answered the majority of the questions. Participant number 31 answered the first six questions. Looking more in-depth at participant 31 (s)he has been an analyst for four plus years, they are still working in their first crime analyst position, they are not a certified analyst, and the last training they had received was in June of 2008. The training was on the fundamentals of crime analysis and was through the IACA.

Question one which looked at employment time was answered by the thirty three participants. The analysts had a combined total of 1,358 months on the job or 113.17 years. The average time for employment was 41.15 months or 3.43 years. Participant 2 was the longest employed analyst and had 156 months on the job or 13 years. Questions two and three were also answered by thirty three participants and examined if the analysts still worked in their original place of hire as an analyst, and if they had worked as an analyst elsewhere. If they had worked as an analyst elsewhere, it asked them to identify that location. Thirty of the participants were still working in their original place of hire as an analyst. Three participants (11, 26, and 27) had worked elsewhere. Participants 11 and 26 had worked at other agencies in NYS; participant 27 had worked out of state.

Questions four and five were answered by thirty-three participants, and covered certification. Twenty-eight of the participants were certified, participant 23 and 28 each held two certifications, the 28 analysts that were certified held a total of 30 certifications. Out of the 30 certifications, 86.67% were NYS certifications, and was the most common certification. 6.67% of the certifications were through IACA, 3.33% were through the military, and 3.33% of the certifications were from California. Participant 2 was not sure if they were certified, and participant 8 responded N/A when asked if they were certified. Three participants (4,30, and 31) were not certified.

Question six examined what was the last type of training the analyst had received. Thirty-three participants responded to this question. The three most common trainings the analysts had attended recently were social media, VeriTracks, and Intro SQL. Sixteen participants or 48.49% had received training in ten other areas. One participant listed having attended multiple trainings recently, and two others said to refer to the MCAC

database or to see the original file. Question seven which 30 participants answered asked

what skills the analysts felt they were most proficient in. The top three skills were

ArcGIS, Excel, and Social Media. The analysts listed 77 other areas of skills they felt

proficient in. Question eight asked what skills analysts would feel comfortable teaching

and/or supporting other analysts with. Social media and ArcGis were the most common

skills analysts felt comfortable teaching and supporting. Participants answered that they

felt comfortable teaching and supporting in 25 other areas, other than the top two listed

above. Three participants responded that they felt they were not the most qualified to be

teaching others, two of three did say they felt they could support others but not teach.

Two participants responded "no" to the question that they would not be willing to teach

or support analysts. One analyst responded "maybe," and another analyst responded that

because they are military personnel and have not been certified by the military to teach,

that they would not be allowed to do so.

Question nine asked analysts in which areas would they like to receive more

training. Thirty-one respondents participated in this question. 33.33% of the participants

responded that they would like to receive training in IBM's i2 analyst notebook. 29.03%

of participants responded that they would like more training in Microsoft Access, and the

third most common response was ArcGIS with 16.12% saying they would like more help

with it. There were 43 other areas listed, that participants would like more training in

other than the three most common. One analyst responded that they were unsure at this

time in what areas they would like more training, and two analysts responded that they

would like training in every area.

Thirty-two participants responded to question ten. This question asked analysts to

rank what style of training they most preferred to least preferred. 50% of the responding

participants ranked B. Labs as their first choice of training. In-person lectures ranked the

highest as the second choice with 34.38%, and webinars ranked highest as being least

preferred with 46.88%. The analysts were then asked in question eleven, what types of

training they would like to see held at their center. Thirty participants responded to this

question. Nine or 30% responded that they would like to see training for i2 analyst

notebook held at their center. Seven or 23.33% responded that they would like Microsoft

Access held at their center, and five participants or 16.67% said they would like to see

advanced crime mapping classes held, specifically in ArcGIS.

Second Rochester Institute of Technology Survey

Of the thirty eight downstate analysts that received this survey, nineteen

completed it. All participants that responded answered the majority of the questions.

Question one which looked at employment time was answered by the nineteen

participants. The analysts had a combined total of 698 months on the job or 57.42 years.

The average time for employment was 36.26 months or 3.02 years. Participant 1 was the

longest employed analysts and had 102 months on the job or 8.5 years. Questions two

and three were also answered by all nineteen participants. These questions examined if

the analysts still worked in their original place of hire as an analyst, or if they had worked

as an analyst elsewhere, and if so it asked them to identified other places they had worked

as an analyst. Sixteen of the participants were still working in their original place of hire

as an analyst. Three participants (3, 5, and 13) had worked elsewhere. All three

participants had worked at other agencies in New York State.

Questions four and five were answered by nineteen participants, and covered

certification. Twelve of the participants were certified; the 12 analysts that were certified held a total of 12 certifications. Out of the 12 certifications, 75% were New York State certifications, which was the most common certification. 25% listed they were certified but did not specify what certification they held. Seven participants were not certified.

Question six examined what was the last type of training the analysts had received. Seventeen of the nineteen participants responded to this question. The three most common trainings the analysts had attended recently were shotspotter, lexis nexus, and social media. Eight other areas of training were also given by the participants. The majority of the analysts listed that they had recently received multiple types of training. Three analysts gave a response to the question, but that response did not adequately answer the question; two stated they had college educations but no training, one participant said this was their first day on the job and had received no training. Two participants left the question blank. Question seven which 15 participants answered asked what skills the analysts felt they were most proficient in. The top three skills were GIS, Microsoft Office, and i2. The analysts listed 21 other areas of skills they felt proficient in. Question eight asked what skills analysts would feel comfortable teaching and/or supporting other analysts with. Microsoft office and i2 were the most common skills analysts felt comfortable teaching and supporting. Two analysts only felt comfortable supporting; one analyst said they could offer support with ArcGIS, the other could offer support with spreadsheets. Nine other areas were listed by participants that they felt comfortable teaching and supporting. Two participants responded that they were brand new analysts and were not qualified to be teaching others. Two participants responded "no" to the question that they would not be willing to teach or support analysts. One

analyst gave a response that did not adequately answer the question; they discussed training provided by their agency. Six analysts left the question blank.

Question nine asked analysts in which areas they would they like to receive more training; seventeen respondents participated in this question. 41.6% responded that they would like training related to mapping and GIS software. 23.5% of the participants responded that they would like to receive training in IBM's i2 analyst notebook. 12% of participants responded that they would like more training in penlink, another 12% responded they would like training in phone analysis and again 12% responded they would like training in financial analysis. There were 13 other areas listed that participants would like more training in other than the above most common. One analyst responded that they would like a list of trainings to choose from, and one analyst responded that they would like more training in general in the Long Island/ New York City area.

Nineteen participants responded to question ten. This question asked analysts to rank what style of training they most preferred to least preferred; 58% of the responding participants ranked "In person lectures" as their first choice of training. "Webinars and labs" ranked the highest as the second choice with 32%, and "Webinars" ranked highest as being least preferred with 32%. The analysts were then asked in question eleven, what types of training they would like to see held at their center. Fifteen participants responded to this question. Three or 20% responded that they would like to see training for financial/fraud analysis held at their center. Three or 20% also responded that they would like mapping/ArcGIS training held at their center. Eleven other trainings were also listed that analysts would like to receive training at their center. Two analysts would like to receive training in anything and everything, and one analyst wanted a list of trainings to

choose from. Four analysts did not answer this question.

In the comments section it was interesting to note that one analyst had worked in both upstate and downstate centers and felt there was no uniformity when it came to how the two locations operated. One analyst also repeatedly asked throughout the survey for training to be held for the New York State Crime Analyst Level 1 Certification exam.

Wyoming Certification Survey

Thirty-six participants responded to the Wyoming certification survey. The majority of the participants answered all of the questions, ten participants skipped question three, and seven participants skipped question four. The first question asked if the analysts were certified. Twenty-four analysts or 66.7% of the thirty-six that responded were certified. Twelve of the respondents or 33.3% were not certified.

The second question asked who the certification was through. The most popular certifications were the California Department of Justice Crime and Intelligence Analysis Certificate (CCIA), the Florida Department of Law Enforcement (FDLE) analyst academy certification, and the International Association of Crime Analysts (IACA) certification. Of the twenty-four certified analysts, ten analysts or 34.78% held the CCIA certification, six analysts or 25% held the FDLE certification, six analysts also held the IACA certification. The least common certifications included the DEA intelligence certification, the International Association of Law Enforcement Intelligence Analysts (IALEIA) certification, the Chandler-Gilbert Community College certification, and the Sacramento State College certification. Of the twenty-three certified analysts, five held more than one certification. Of the five respondents with multiple certifications, they all held certification with IACA, three also held certifications with CCIA. One respondent

held certifications with IACA and IALEIA, the other held certifications with IACA,

ECRI, and Chandler- Gilbert Community College.

The third question asked if the analysts felt a certain certification was preferred

over the others. Ten respondents did not answer this question. Of the twenty-six

respondents that did answer the question, eleven or 42.23% preferred the certification

offered by the IACA, six or 23.07% did not believe there was a preference. The next

highest preferred certification was the analyst certification from the FDLE, five

respondents or 19.23% preferred this certification.

The fourth question asked if analysts had felt that their certification had been

beneficial to their agency and how. Seven respondents skipped this question. Out of the

twenty-nine respondents that had answered this question, twenty or 70% believed their

certification was beneficial, four or 14% of the respondents answered no. Other answers

included did not specify whether it was beneficial or not, with three answering that it was

required, one participant answering N/A. Those that listed certification as beneficial

mentioned that they were able to develop skills they would not have through certification

programs, and that certification was beneficial for promotion, as well as bringing

legitimacy to the agency.

The fifth question examined if agencies required certification. All thirty-six

respondents answered this question. Twenty-seven or 75% said certification was not

required by their agency, seven or 19.4% said certification was required, one participant

said it was not required to be hired but it was expected to be attained at some point.

Another respondent said certification was not required but was preferred. The sixth

question looked at if departments reimbursed the participants for training and

certification. All thirty- six participants answered the question. Twenty participants or 55.6% answered that training and certification costs were reimbursed by their agencies. Twelve participants or 33.3% said training and certification costs were not reimbursed. Two participants said they did not know if costs would be reimbursed, one participant said the department would cover some of the costs, and one participant said that training was reimbursed but certification was not.

The seventh question of the Wyoming Certification survey was an open question allowing for comments. Twenty-five of the thirty-six participants offered a comment related to the survey. Common responses included that certification was hard to obtain if not already working in the field. Also, experience was valued more than certification when it came to day to day functions. Certification was seen as a tool for career development; for those seeking a promotion. It was also stated that while certification did not mean that a person had the skills to perform well in the position; certification did offer the field of crime analysis legitimacy, national recognition, credibility, professionalization, and standardization.

Discussion

R.I.T Surveys

Out of the two surveys conducted by Carolyn Cassidy through the Rochester Institute of Technology, Cassidy was able to develop an action plan. Cassidy has put together a technology group that meets to discuss DIG issues and resolve the issues that the crime analysis centers and police departments are having. She is currently in the process of developing a training schedule for the year (2014) that will provide training in the fundamentals. This training schedule will be for those who need refreshers, as well as

those who have recently been hired. Cassidy is also going to create a study guide for the

New York State Crime Analyst Level 1 certification exam. This study guide will

hopefully make certification attainable for all analysts. A common theme in the responses

from the downstate analysts was that they would like to see the processes and operation

techniques of the upstate analysts. A training conference is being held at R.I.T in January

for upstate and downstate analysts, at this conference they will be able to meet and share

ideas and strategies.

This was the first survey conducted by Cassidy through R.I.T reaching the New

York State crime analysts. Out of these surveys came a list of improvements for future

surveys. Future surveys need to stress anonymity. In the survey that looked at training of

the upstate crime analysts, two analysts when asked about their recent training answered

either to refer to the MCAC database or see the original file. At the same time that this

survey was conducted, Cassidy was putting together a database of the training analysts

had received. The analysts that took the survey did not realize the anonymity of the

survey and asked Cassidy to see the information she had on them in the training database

she had created.

Other future improvements that came from this survey, was the need to run a

second separate survey on certification. This survey would examine more in depth the

certification analysts hold, if they feel certification is beneficial, and what prevents them

from seeking certification, and also what would encourage them to seek certification. To

improve the response rate for this survey as well as other future surveys, the action plan

and a summary of the training survey will be sent out. It is believed that if the analysts

see that these surveys are to benefit and support them, that they will be more likely to

participate.

Wyoming Survey

The certification survey conducted by Sandra Erickson a criminal intelligence

analyst who works out of the Wyoming Division of Criminal Investigation in Cheyenne,

Wyoming found that the majority of agencies do not require certification and value

experience over certification. It also found that analysts are more likely to seek

certification from their individual state. State certification is often free. Certification

offered by the IACA while in-depth requires a certain level of experience and could be

considered costly.

The IACA certification was considered to be the most preferred certification,

although it was noted that this certification was unattainable without a certain level of

experience. Certification like the IACA's was considered beneficial to agencies, since

these certifications aided in the development of skills since they were more in-depth than

an exam based certification. In the comments section it was expressed that certification

does not necessarily mean the analyst has the skills to perform well in their position.

Completing certification was considered beneficial for promotion and career

development. It was also felt that certification brings legitimacy, national recognition,

credibility, professionalization, and standardization to the field.

Conclusion

In order for crime analysis to be recognized as a separate field in law

enforcement, uniform training and certification needs to be achieved. Out of this study

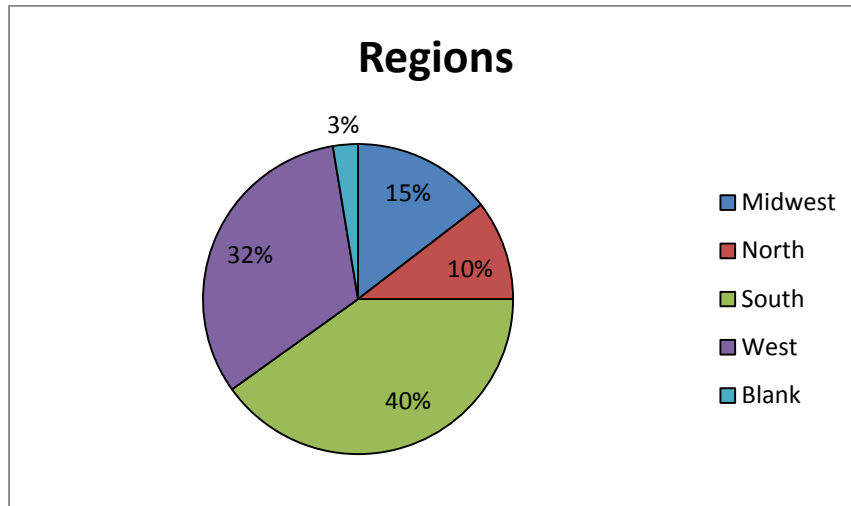came the realization of the disparity of training between the New York State upstate

analysts and downstate analysts. This disparity of training continues throughout the crime

analysis field, across the country. Leaders in the field like Carolyn Cassidy are trying to

standardize training, to bring uniformity and legitimacy to crime analysis.

The International Association of Crime Analysts (IACA) was founded in 1990.

They are a non-profit professional association made up of over 2,200 criminal justice

professionals from over 48 countries. The IACA offers training, literature, support, and

other services to their members. The IACA and members communicate through an email

listserv. The results below reflect a snapshot of the IACA email listserv. Every email

from October 1st, 2013 to December 31st, 2013 were recorded into an excel spreadsheet, a

total of 235 emails. From each email the researcher recorded the date the email came

through, the job title of the sender, and the location of the sender. The researcher

classified each email with a theme and then a topic within that theme. There were a total

of twelve themes. The researcher also recorded a summary of each email. The point of

this research was to get a better understanding of what crime analysts are talking about;

are they asking for help, technical support, are they sharing research, is training a priority

etc.

Geographic Characteristics

In this three month snapshot of the IACA email listserv, six countries were

represented. The countries were Australia, Canada, Ireland, Netherlands, Switzerland,

and the United States. Out of the 235 emails, 192 or 82% were criminal justice

professionals from the United States, the other top countries were Canada with 5% and

the Netherlands with 2%. For 25 or 11% of the emails, the researcher was unable to

determine the country of origin.

The researcher chose to focus on the geographic information of IACA members of the United States. The below graph gives an in-depth look at which US region the emails were being sent from.

Regions

3%

15%

32%

10%

40%

- Midwest
- North
- South
- West
- Blank

The researcher also chose to look specifically at email senders from New York State. Only six emails came from criminal justice professionals in New York State. Out of those six, three emails were from Queens County, one was from Westchester County, one was from Erie County, and one worked for a Sheriff's department that covers the five boroughs in New York City. The emails from the New York State analysts will be discussed more in-depth later in this paper.
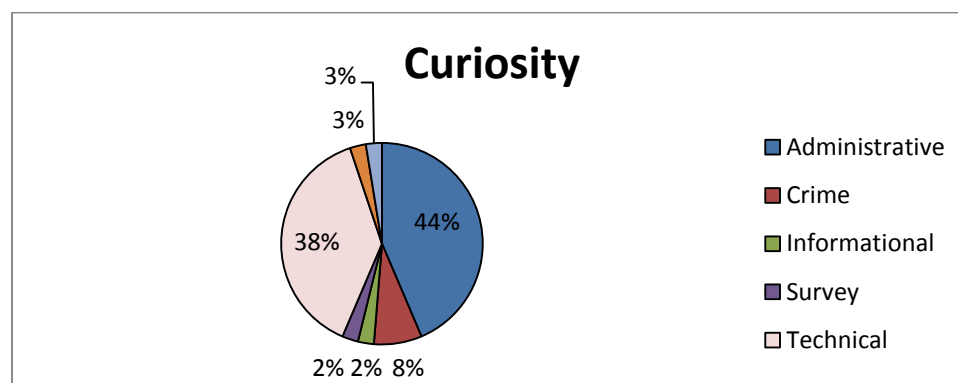
Themes and Sub Topics

The top three themes brought up by analysts were assistance, curiosity, and training. The assistance themes covered any email where the analysts were asking for help or support from the IACA members. Sub topics of this theme include administrative, crime, technical, survey, or other. The curiosity theme covered emails where the sender was inquiring about an issue but not requiring help or support. The sub topics of this theme were administrative, crime, informational, survey, technical, theory, and training.

The third top theme was training. The sub topics for this theme included training being offered, asked for, interested in, and material. The curiosity theme also has a sub topic of training, in that email the sender was inquiring, "What is the best unconventional course (major or minor) that you have taken to support your career as a crime/intelligence analyst that has unexpectedly proven to be one of the most useful?"

Out of the 235 emails, 113 of them or 48% were assistance related. The graph below shows the breakdown of the emails by sub topic.

Assistance

- 1%
- 1%
- 28% Administrative
- 28% Crime
- 42% Technical
- Survey
- Other
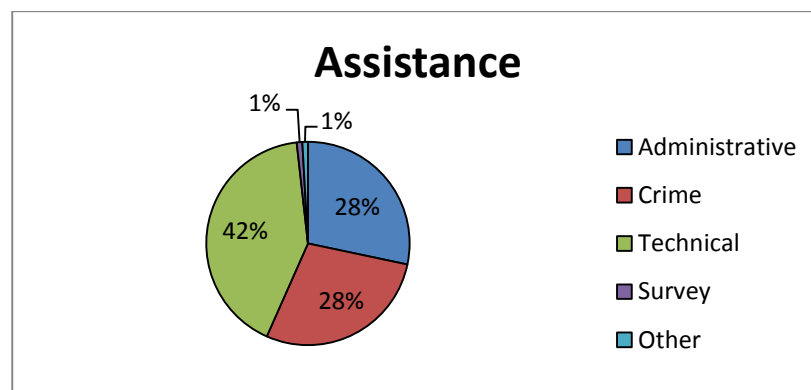
The next highest category was curiosity, with 17% or 39 out of 235 emails falling into this category. The graph below shows the breakdown of the curiosity category by sub topic.

Curiosity

- 3%
- 3%
- 44% Administrative
- 38% Crime
- 2% 2% 8% Informational
- Survey
- Technical

The third highest category was training, with 27 out of 235 or 11% of emails falling into this theme. The graph below shows the breakdown of the training category by sub topic.
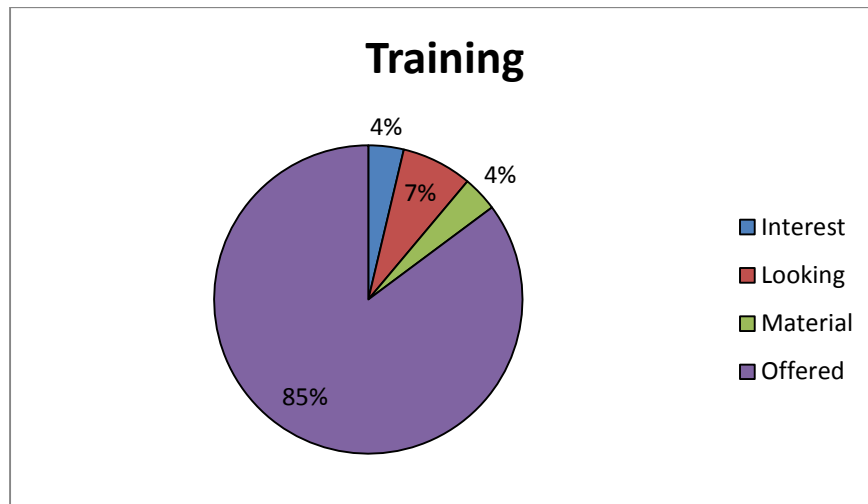
The other themes addressed by the IACA email listserv include employment, FYI, update, education, IACA, vendor, social, miscellaneous, and conference. The employment theme's sub topics included job openings and questions related to crime analysis positions. The chart below shows the percentage for the response of these themes as well as the three top themes.
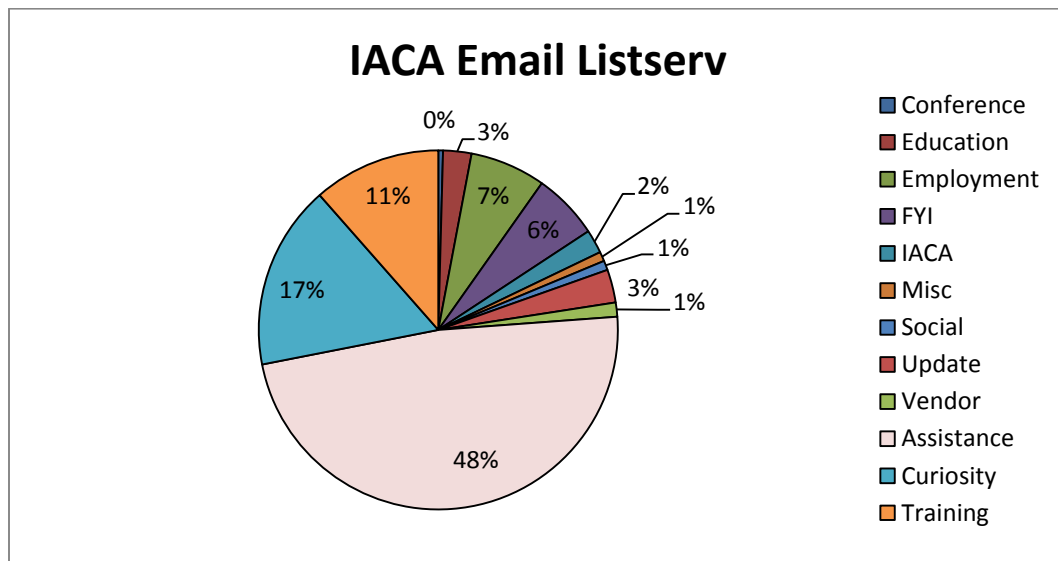
New York State

Looking more in-depth at the emails sent by criminal justice professionals from New York State, five of the six criminal justice professionals or 83% were asking for assistance. The one email that did not ask for assistance was categorized as an education email. The email came from an Investigative Analyst from Erie County and was looking for analysts to complete a survey being conducted by the University of Oklahoma.

Out of the five emails asking for assistance, three were crime related and two were technical. Out of the three crime related emails, two were asking for help related to phones. The first was trying to trace phone numbers through magic jack after several bomb threats, and the second was looking to obtain subscriber information on an international cell phone. The third crime related email was an investigator looking for a customs/border control liaison to help in a criminal investigation.

There were two emails that were looking for technical assistance. The first email was looking for technology that allows you to run a phone number look up. The second email was looking for free technology that allowed for easy look up zip codes for multiple addresses.

Future Research

Three of the six emails or 50% from New York State were criminal justice professionals with questions regarding phones. This is an area of possible further research. Possible future research questions include; Do New York State criminal justice professionals need more training when it comes to phone related technology? Is phone related crime on the rise in New York State?

This study was conducted over three months by one researcher. Since only one

researcher looked at the data, the data was subject to only one interpretation. Future

research would need the study to cover a longer time period, as well as have multiple

researchers looking at the data as a validity check.

# Chapter 5: Police Reaction to Crime Analysis Locally

In March 2013, Monroe County Crime Analysts, Glenn Grana and Daniel DiGaspari conducted a survey on 219 sworn deputies and investigators of the Monroe County Sheriff's office. Of the 219 sworn deputies and investigators, 172 responded to the survey. The goal of the survey was to understand how the Monroe County Sheriff's Office uses the Monroe Crime Analysis Center (MCAC), how often, and if the Sheriff's Office felt the service offered by MCAC was beneficial.

The first part of the survey looked at the characteristics of the respondents such as current rank and time sworn, as well examining the perceptions about MCAC. Of the 172 respondents, 152 (88%) were deputies and 18 (10%) were investigators. See below graph.
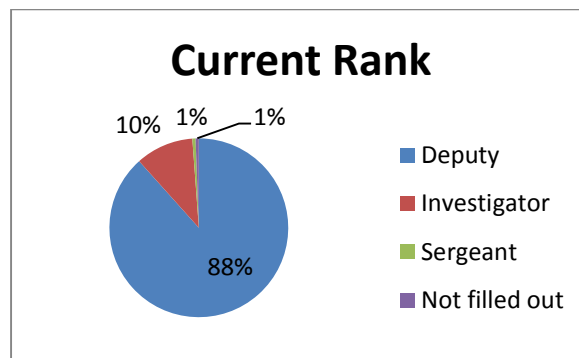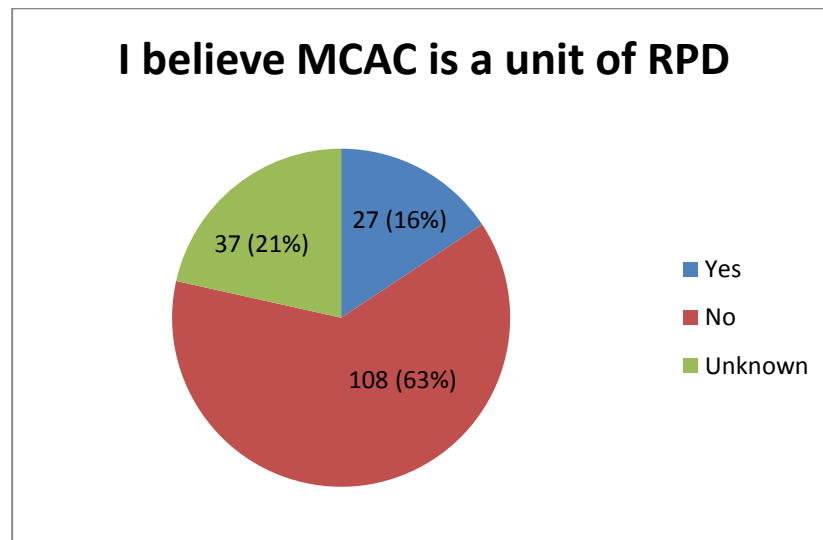

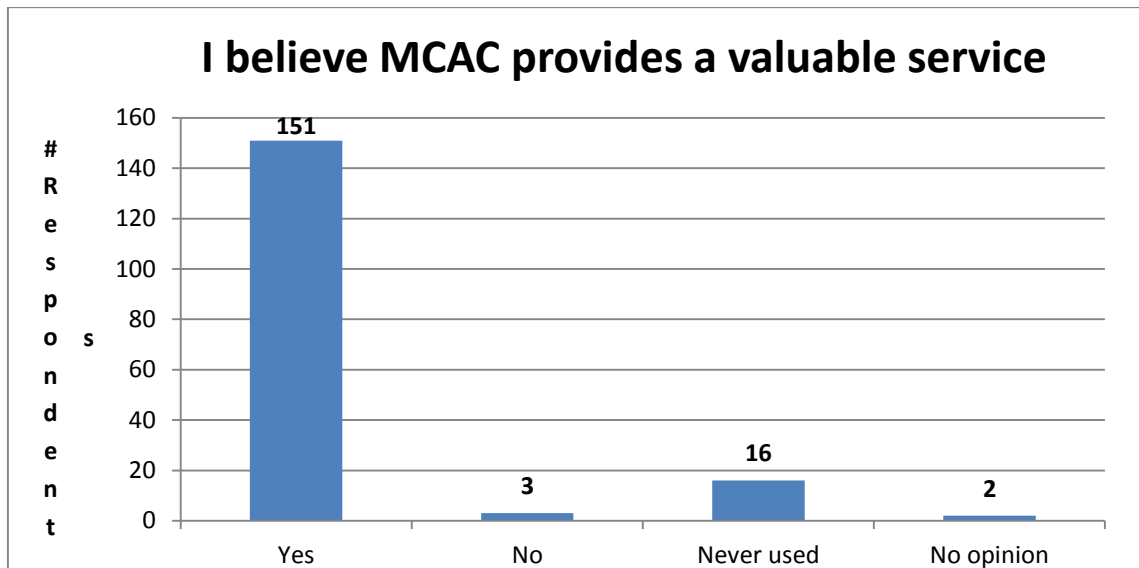The majority of the deputies and investigators had been on the job for five to ten years. However, the respondent's time sworn was near equal. See below graph.
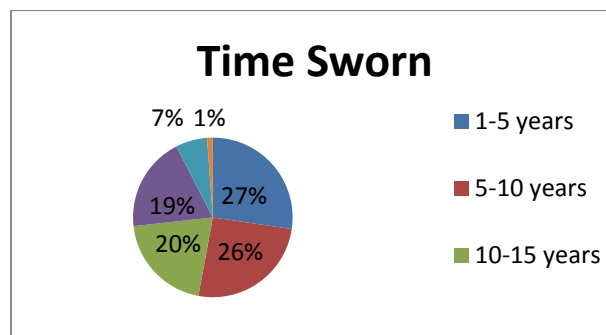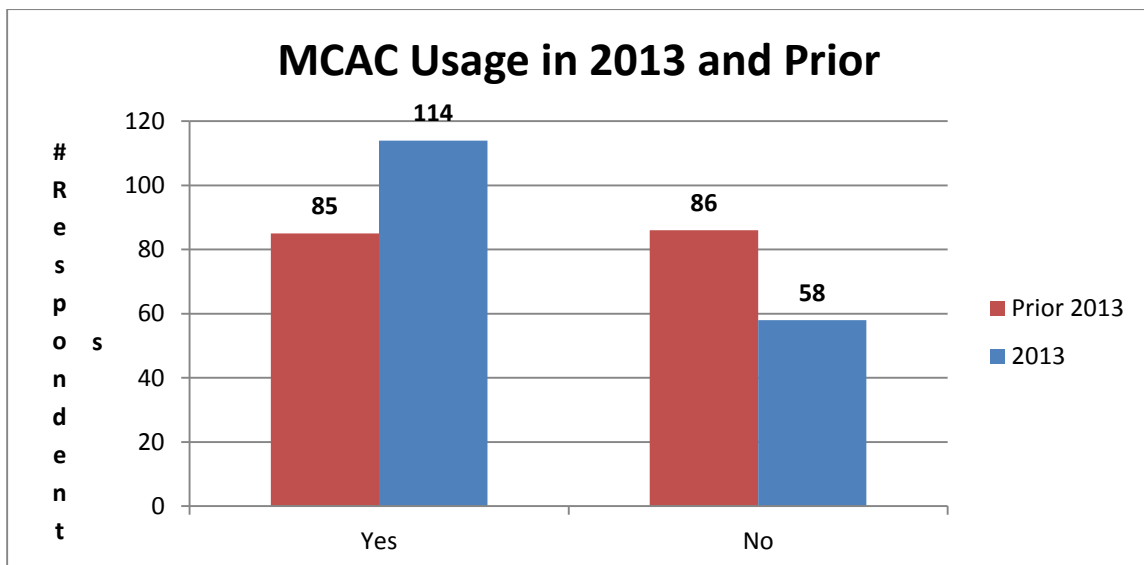
The majority of deputies and investigators were familiar with MCAC; only seven respondents said they were not. A key question of the survey was to understand to what extent deputies and investigators felt that MCAC was a unit of the Rochester Police Department. MCAC, while serving RPD is not a unit of RPD and offers services to all law enforcement agencies in Monroe County. The below table demonstrates the deputies and investigators responses to whether or not they believed MCAC was a unit of the Rochester Police Department.

I believe MCAC is a unit of RPD

27 (16%)

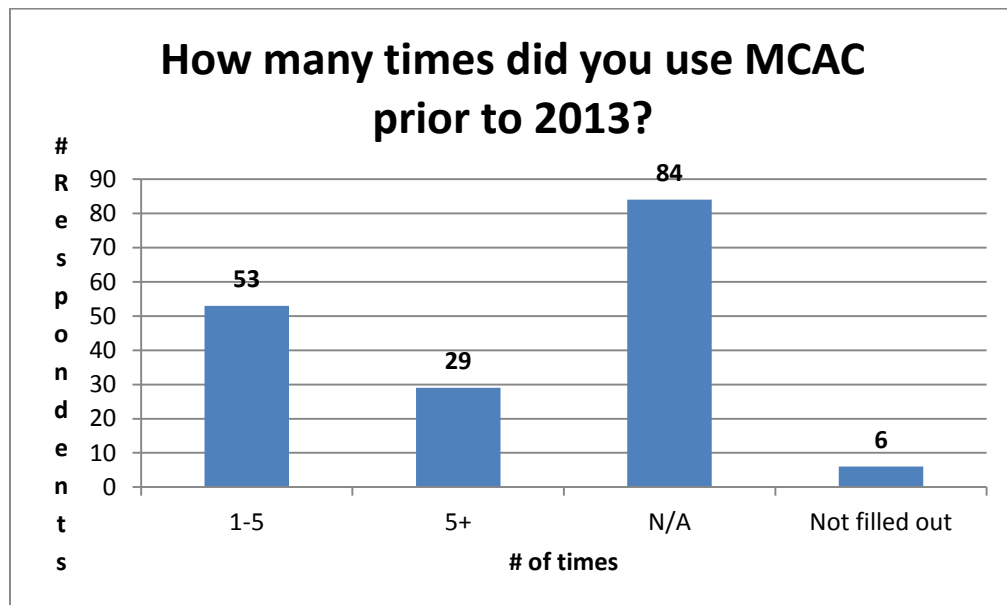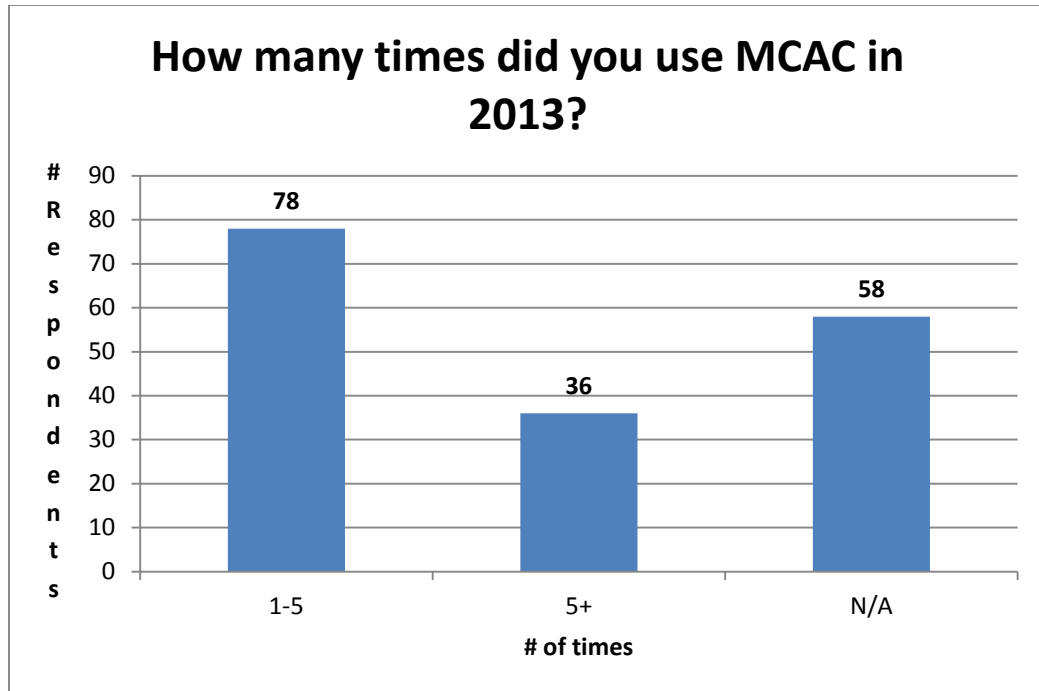37 (21%)

108 (63%)

- Yes
- No
- Unknown

The majority of deputies and investigators at the Monroe County Sheriff's Office felt that MCAC was providing a valuable service. See below table.

I believe MCAC provides a valuable service

Bar chart showing # Respondents by response category:
- Yes: 151
- No: 3
- Never used: 16
- No opinion: 2

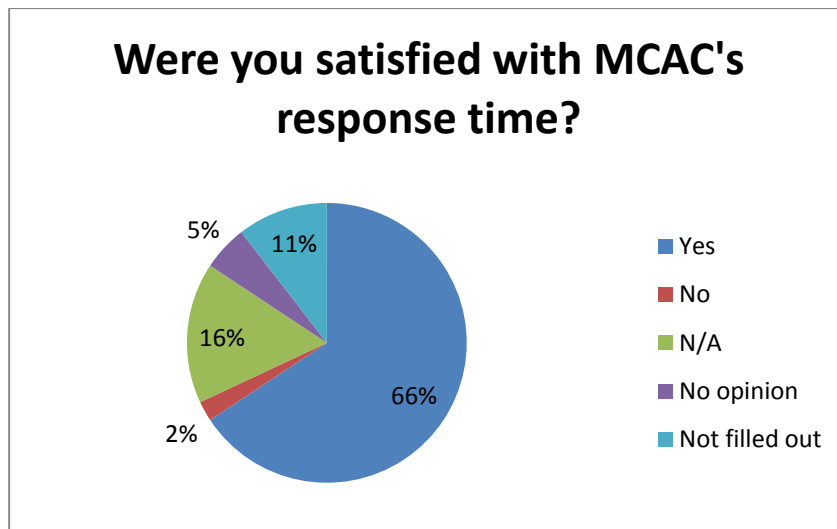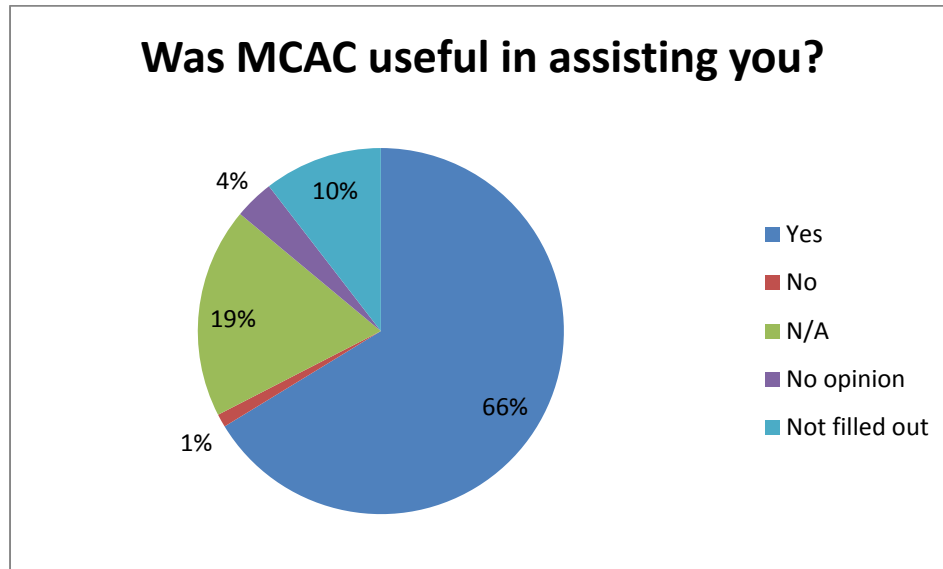The second half of the survey was to understand how often MCAC was being used currently, compared to how it had been used in the past, and to have the sworn staff rate their personal experiences working with MCAC. The below tables demonstrate the survey's findings on MCAC usage.

MCAC Usage in 2013 and Prior

Grouped bar chart showing # Respondents:
- Yes: Prior 2013 = 85, 2013 = 114
- No: Prior 2013 = 86, 2013 = 58

How many times did you use MCAC in 2013?

Bar chart showing # Respondents on the y-axis (0 to 90) and # of times on the x-axis:
- 1-5: 78
- 5+: 36
- N/A: 58

How many times did you use MCAC prior to 2013?

Bar chart showing # Respondents on the y-axis (0 to 90) and # of times on the x-axis:
- 1-5: 53
- 5+: 29
- N/A: 84
- Not filled out: 6

The deputies and investigators of the Monroe County Sheriff's Office that responded to this survey offered positive ratings on their experience working with the Monroe Crime Analysis Center. The results are demonstrated below in a series of graphs.

Was MCAC useful in assisting you?

Response	Percentage
Yes	66%
No	1%
N/A	19%
No opinion	4%
Not filled out	10%

Were you satisfied with MCAC's response time?

Response	Percentage
Yes	66%
No	2%
N/A	16%
No opinion	5%
Not filled out	11%

The last question of the survey asked if the deputies and investigators would like to know more about the services offered by MCAC. The results again were positive, and are demonstrated below in a graph.
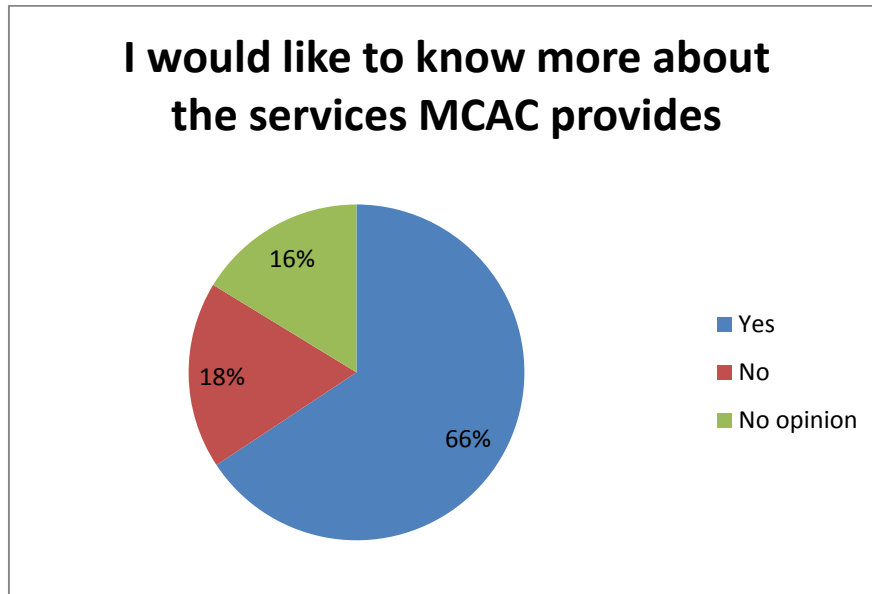
The Monroe Crime Analysis Center will use the results of this survey to better understand the population of officers they are serving, and as a tool to understand in what areas of service they can approve on. Another survey is also in the works to get a better understanding of the smaller, town police departments that are served by MCAC. The Monroe Crime Analysis Center would like to be able to interact more with all law enforcement agencies in the county and break through the misconception that MCAC is a unit of the Rochester Police Department.

Chapter 6: Conclusion and Future Directions

The crime analysis profession has changed over time and this is likely to persist. Previously, crime analysis has been a tool used by law enforcement on a case to case basis. Slowly, crime analysis emerged into a standalone profession; one often dedicated to a separate unit in the police department. Crime analysts performed a multitude of functions from determining the best ways to allocate resources, figuring out where the high crime locations are in a jurisdiction and how to lower crime rate there. They have also tackled more individual level crimes, such as specific homicides and serial killer cases; making links between people and places and documenting investigative strategies.

What is clear from the preceding analyses is that crime analysis is still an emerging profession and how it is used in police departments varies by jurisdiction. Looking locally at the crime analysis center in Rochester, NY, the crime analysis center started as a crime research center. They looked long term at crime and how to lower crime rates in the City of Rochester. The center however changed and with a higher demand placed on them from police departments made the switch which might be characterized as going from a proactive center to a reactive center. Thus the main function of a Crime Analyst based in Rochester, NY became no longer proactive but reactive. More precisely, crime analysts spent most of their time aiding police officers and investigators in solving individual crimes. Performing long term analyses no longer was a primary job function but something analysts performed if they had spare time. The Monroe Crime Analysis Center is currently adopting approaches to move away from an almost exclusive emphasis on reactive analysis. In the current restructuring of the center, longer term strategic approaches are being supported with designated analyst positions

and specific resources. At the same time, other analysts are designated as conducting

work in connection to real time analysis that involves work with police on addressing

crime as it occurs and using resources including cameras in neighborhoods and following

dispatches through the 911 center.

Looking forward to the future, there is clear evidence that the crime analysis

profession is attempting to gain legitimacy and standardization. In Rochester, NY, for

example, they have made big steps toward legitimacy by gaining the support of local law

enforcement. However, the support of law enforcement caused them to turn more into a

tool used by law enforcement than a distinct profession. With the pressure put on them by

law enforcement they began working to solve cases instead of focusing on lowering

crime rates in general. This is understandable, given the relationship with the more

established policing organizations and the particular resources available (and usable)

from the perspective of those organizations.

The lack of clarity regarding the question: "What is crime analysis?" adds to the

use of crime analysis to achieve organizational goals. For example, the aforementioned

research studies represent the many definitions of crime analysis, as well as the

expectations of the crime analyst from their local jurisdiction.

Looking at those studies, one can see how the crime analysis profession varies in

each state and regionally. Looking at the study of the IACA list serve the majority of

emails (82%) came from either the south (40%) or the west (32%) regions of the United

States. The Midwest (15%) and North (10%) regions accounted for 25% of the emails

from the United States.

The researcher also analyzed region in the LEMAS 2007 study finding that being

in the Southern Region of the United States was a statistically significant predictor that

the law enforcement agency would have a crime analysis unit, but that being a crime

analysis unit in the south was not a predictor as to whether or not the unit would

participate in community problem analysis. Overall, what this picture paints is a widely

adopted concept (crime analysis) but a variety of implementation strategies that run the

gamut from reactive to proactive and strategic to tactical.

Variation in the United States

The 2007 LEMAS data showed that location and budget of a police department

are statistically significant in the formation of a crime analysis unit, but do not play a role

in whether or not the unit performs community problem analysis. External forces such as

community partnerships play a statistically significant role on whether a crime analysis

unit performs community problem analysis.

Comparing the Upstate and Downstate, NY crime analysis centers one can see a

discrepancy in training, certification, and needs. There is currently an effort to

standardize the centers throughout New York making sure all analysts have sufficient

training. Both Upstate and Downstate analysts have asked for more training in I2. I2 is

case management software used by investigators. This demonstrates the change in crime

analysis in New York State from strategic to tactical.

Throughout the United States and internationally there are a multitude of

certifications an analyst can receive. Some certifications only require a recommendation

from a police department and the passing of a written exam; other certifications are more

in-depth and require a certain amount of time working as a crime analyst, specific classes,

and a written exam. Most police departments do not require an analyst to be certified when they are hired, but they do require the analyst to seek it later on. Certification is also sometimes viewed as a promotion tool. To legitimize the career of crime analysis, certification needs to become more standardized.

It is difficult to predict the future of crime analysis. It will not go away, but it is likely to remain unstandardized nationally for some time as different police departments and communities value it for different reasons. Since no two communities are alike neither will be the expectations of the analysts that work for those communities

New Criminal Justice

The New criminal justice theory builds off of previous theories such as Wilson (1974), Maguire and Uchida (2007) and Manning (2001). The New Criminal Justice theory suggests that the criminal justice system is best understood as locally based (Klofas, 2010).

This theory directly relates to crime analysis in that crime analysts use strategic problem solving to identify crime problems and to reduce them. The problem solving technique laid out by McGarrell (2010) suggests that this technique should include not just crime analysts and the police department but also the involvement of prosecutors, judges, probation officers, and the external environment made up of community members, community groups etc.

Rochester, NY faces a high homicide rate which has likely led to the switch of crime analysis as a strategic tool to a tactical tool. It will be interesting to see if overtime if crime analysis as a tactical tool, also works strategically lowering homicide rates.

Moving Forward

When the larger profession of policing emerged it was characterized by multiple eras of change (e.g., Kelling and Moore, 1988). Police departments were also stylized based on their internal and external environments, as represented in Wilson's *Varieties of Police Behavior*. It should not be surprising that crime analysis as a career field has gone in multiple directions, has changed, and is continuing to change in how it is defined. If crime analysts seek to legitimize and standardize their career their main focus may be on crime prevention; short and long term. However, without standardization, it could also move back toward being a tool used by investigators to solve individual crimes. As technology becomes more advanced, there will always be a need for those with special training to utilize the technology to the police department and community's benefit. Crime analysis as a career will not go away, however how the career is defined is likely to change multiple times, or go through multiple "eras" consistent with the idea of this thesis regarding continuity and change.

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