4-2012

A Behavioral Approach to Modus Operandi: Incident Form Completion and its Effect on Predictive Analysis

Sarah Elizabeth Casella
Western Michigan University, scasella07@yahoo.com

A BEHAVIORAL APPROACH TO MODUS OPERANDI: INCIDENT FORM COMPLETION AND ITS EFFECT ON PREDICTIVE ANALYSIS

by

Sarah Elizabeth Casella

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology
Advisor: Dr. Ron Van Houten

Western Michigan University
Kalamazoo, Michigan
April 2012

THE GRADUATE COLLEGE
WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MICHIGAN

Date March 16, 2012

WE HEREBY APPROVE THE DISSERTATION SUBMITTED BY

Sarah Elizabeth Casella

ENTITLED A Behavioral Approach to Modus Operandi:

Incident Form Completion and Its Effect on Predictive Analysis

AS PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

DEGREE OF Doctor of Philosophy

Psychology
(Department)

Behavior Analysis
(Program)

Ron Van Houten, Ph.D.
Dissertation Review Committee Chair

John Austin, Ph.D.
Dissertation Review Committee Member

Heather McGee, Ph.D.
Dissertation Review Committee Member

Marco Tomasi, Ph.D.
Dissertation Review Committee Member

APPROVED

Dean of The Graduate College

Date April 2012

A BEHAVIORAL APPROACH TO MODUS OPERANDI: INCIDENT FORM COMPLETION AND ITS EFFECT ON PREDICTIVE ANALYSIS

Sarah Elizabeth Casella, Ph.D.

Western Michigan University, 2012

This study examined the effects of task clarification, group feedback, and policy change on incident form completion by police officers. Participants included all sworn officers employed in the Operations Division by the Kalamazoo Department of Public Safety. The task consisted of completing the modus operandi (MO) section of the incident reports for burglary, robbery and aggravated assault. The main dependent variable was the percentage of incident reports with MO form completion. The secondary dependent variable was quality of the MOs completed in the reports; more specifically the completeness of the MO section compared to the narrative and discrepancies between the narrative and the MO section.

A multiple baseline design across crime type and shift (day, night, and power) was used. During baseline, across shifts, MO reporting for burglary was 27%, robbery was 6%, and aggravated assault was 5%. After task clarification and officer and sergeant group feedback were implemented for day and night shift, MO reporting for burglary increased to 70%, robbery increased to 27%, and aggravated assault increased to 12%. The sergeant report rejections only phase continued to maintain similar results for burglary and robbery, however aggravated assault MO form completion increased to

21%. During the general order condition, MO reporting continued to increase across all crime types with burglary MO reporting increasing to 79%, robbery increasing to 70% and aggravated assault increasing to 29%.

Visual inspection of the data suggested that task clarification and group feedback, and sergeant report rejections are effective interventions to assist with increasing report writing. Also, as new policies are preparing to go into place, such interventions could be used to help employees with upcoming organizational changes. A case study presented along with this experiment also investigated the impact of the MOs reported by using them to track a certain crime pattern.

ACKNOWLEDGMENTS

I would like to extend my appreciation to my graduate committee chair, Dr. Ron Van Houten, who spent countless hours reviewing my work and in meetings to ensure the best research possible. Thank you for encouraging me to research that I enjoy.

I would also like to extend my gratitude to my dissertation committee members, Dr. John Austin, Dr. Heather McGee, and Dr. Marco Tomasi. Thank you for your guidance, valuable feedback, and time. You are all truly great mentors.

I must also thank my research assistants, Daniel Flack and Joshua Murphy for their hard work and patience while reading numerous incident reports.

I'd also like to especially thank Captain Jon Uribe, Ex. Lt. Scott Merlo, Ex. Lt Kevin Lenkart, Chris Rand and Rick Shaink for allowing me to complete my study at Kalamazoo Department of Public Safety. Without your assistance and guidance throughout the process, the study would not have been possible.

To all officers at Kalamazoo Department of Public Safety: It was truly an honor working with all of you. I have a great respect for your work. Thank you for your dedication to public service.

Finally, I would like to give thanks to my family and friends for their support during this process. Thank you all for your patience and understanding. Especially thank you for encouraging me to forge ahead when the journey seemed impossible.

Sarah Elizabeth Casella

TABLE OF CONTENTS

Table of Contents-Continued

Table of Contents-Continued

APPENDICES

LIST OF FIGURES

List of Figures—Continued

CHAPTER I

INTRODUCTION

Reporting of national crime rates is important for law enforcement agencies if they are to have a broad understanding of various crime trends across the country. According to the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR), in 2009 violent crimes that occurred against individuals decreased by 5.3% from that of the crime reported to law enforcement agencies in the previous year. In 2009, the estimated number of violent offenses has decreased by 5.3% since the 2008 estimate (Investigation, 2010). Although the national crime trend for violent crimes appears to be declining, the crime rates for the state of Michigan convey a different trend. In 2009, the overall incidents reported for crimes against another person (e.g., homicide, aggravated assault, sexual assault) showed no change from the 2008 report, however, burglary did increase by 3% (Police, 2009). In the city of Kalamazoo, Michigan, the overall serious crimes against society reported in 2009 increased by 1%. The comparative increase from previous years was not staggering and likely not significant, however when analyzed individually, many serious crimes showed a larger increase. For example: homicide/murder increased by 66.5%, rape increased by 8.93%, and burglary increased by 19.7% (Kalamazoo Public Safety, 2009). Although it is possible from a national standpoint that the national crime rate is decreasing, another possible explanation for the discrepancy could be method and quality of report data entry that produces these crime report statistics.

Over the years, there have been differing views regarding which policing method is the most effective in terms of structure and overall crime rate reduction. One of the most effective methods during its first years of implementation was the Computer-Driven Crime Statistics Method (CompStat), which, in 1990, was an experimental program that was implemented by the New York Transit Police because of increasingly high crime rates. After employing the use of CompStat for the Transit Police, crime rates decreased by 75% in the subway system after five years. When this model was adopted in 1993 across the entire New York City Police Department (NYPD), ridership in the subway system increased (McDonald, 2002) and crime rates in the City of New York decreased by 50% in seven years, causing the city to drop from 114 to 163 (out of 200) on the list of most dangerous cities to live with a population above 100,000 (Walsh, 2001). Although there are several variables that could have contributed to the improvement in crime rates during this time, it is possible CompStat could have had an impact.

The keys to the success of CompStat are managerial accountability and information gathering and processing. By definition, CompStat is a "goal-orientated strategic management process that uses technology, operational strategy and managerial accountability to structure the delivery of police services and provide safety to communities" (Walsh, 2001, p. 352). The model is designed to improve the core dissemination of information between management and deployment personnel and involves the following steps. 1) Weekly crime data are pulled from the computer system and analyzed for crime trends by the management team. 2) The management team decides where to best focus deployment of personnel and resources based on the

information in their current system. 3) Precinct managers meet monthly to discuss various crime trend data and see if additional focus is needed in certain locations across multiple jurisdictions (Walsh, 2001).

Given that the information gathering and analysis component of CompStat is what makes this model effective (Goldstein & Susmilch, 1981; Ratcliffe & Guidetti, 2008), it is important to identify and understand the data input and analysis process. CompStat and other models typically employ some form of geographic information systems (GIS) mapping in their analysis. The most commonly used forecasting approach in policing is the "hot spot" method. This approach extracts location information from the crimes that have already occurred and inputs a point to represent the incident on a map; certain types of crimes (e.g., murder, burglary, rape) are typically categorically mapped together to gain a better representation of the points or dots on the map. Although this is the most widely used method across policing agencies, it can be the least predictive method depending on its use. The premise that GIS crime mapping attempts to address is that the crime frequency and offender (see *near repeat hypothesis*) are linked. In theory this conceptualization is plausable, however it has been suggested that a minimum of one year's worth of data are needed before any predictive results are accurate (Groff & La Vigne, 2002).

The use of crime analysis as a tool for crime pattern detection is widely employed across numerous law enforcement and goverment agencies. One of the earliest defintions of crime analysis states that crime analysis:

> studies daily reports of serious crimes in order to determine the location, time, and special characteristics, similarities to other criminal attacks, and various significant facts that might help to identify either a criminal or the existence of a pattern of criminal activity. (Bruce, 2008, pp. 10)

Although this definition is quite broad, the beginning stages of crime analysis identifies more with a tactical analysis classiciation. The tactical approach to analysis incorporates a) the notion of identifying crime patterns by focusing on commonalities (i.e., who, what, where, when, why, and how) across incidents, b) analyzing the patterns, c) notifying agency administrators of potential crime patterns, and d) assist with the development of the best tactics to address the crime patterns. In addition to the "here and now" analysis of a tactical crime analysis approach, a strategic approach evaluates long term crime patterns of interest to the community of interest. By gathering a larger amount of data over time, the use of crime analysis allows for an understanding of various trends, whether positive, negative or neutral. By having an understanding of trends across time in a general location (i.e., increasing crime in a certain area), than a more objective form of police force reallocation can be utilized (Bruce, 2008).

Another widely used method that address crime frequency and offender would be the *repeat victimization method*, also known as the *near repeat hypothesis*. The basis of this method is that data showing that "individuals or places that have been victimized once are likely to be victimized again, and the time course to subsequent victimization in a few short months," (Groff & La Vigne, 2002, p. 36). In 2004, Bowers and Johnson conducted an analysis on the spatial location and the "priori predictions…regarding the

way in which repeat incidents are committed" (p.13); or modus operandi (MO), to enhance their findings of distinguishing information between offenders and occurrence of incidents. The authors compiled point of entry, means of entry, distance of occurrence and time of occurrence for 3,562 burgularies between April 1997 and March 1998, in Merseyside, England. Results indicated that the incidents that occurred in closer proximity (<400m), had similar MO patterns, and dissimilar MOs when the crimes were committed in a further range of area (>400m). Furthermore, not only did the crimes that were committed in similar proximity share similar MO patterns, but the incidents also occurred within the same time period as the previous victim's incident (Bowers & Johnson, 2004).

The repeat victimization method is slightly more complex than the hotspot because it's attempting to take the dots on the map and analyze them one step further; the goal is to see if the dots on the map are linked to any other crimes in the law enforecement database. There are other more advanced GIS mapping models that use multivariate statistical designs or employ advanced neural networks computing power (Groff & La Vigne, 2002), but where they exceed in computational prowess, they may lack in simple data input. What are the key informational components to accurately predicting criminal activity? Adderely and Musgrove (2003) demonstrated that after adding MO component information to an advanced neural network of offenders/offenses, offense accuracy increased from 10-15% to 55%. Given these figures, what are the critical elements of MO deliniation that enhances predictive analysis computing capabilities?

Modus Operandi

According to Douglas and Munn (1992), the MO is commonly referred to as a specific signature of a crime that is often prevalent as the offenders' progress in the criminal process. The MO may change slightly from case to case, however the basic fundamentals of the MO are the common factors that link cases together (Douglas & Munn, 1992). In other words, behaviors that succeed in the past are likely to be repeated in the future (i.e., reinforcement) (Miltenberger, 2008), which explains why the foundational portions of the MOs are consistent across repeat offenders. Even behavior that is not instrumental to the success of the crime can be adventitiously reinforced by the crime succeeding and are therefore more likely to be repeated.

After a crime occurs it is important for the reporting officer to enter the data accurately into the system. This produces an extensive database of clues that provides information that can be electronically linked to other databases to assist in solving crimes. Computer analysis provides the "brute force" power to identify correlations that would take a large number of man-hours to identify using traditional analysis methods.

The ability of a department to move toward predictive policing relies heavily on the data collected from police officers in the field. Predictive policing involves taking data from various sources "analyzing them, and using results to anticipate, prevent and respond more effectively to future crime (Pearsall, 2010, p. 16)." This method takes the policing from a reactive mode to a proactive mode, which assists officers in identifying potential high-risk areas for crime (it's essentially the proverbial "heads-up" model for policing). This information allows police to saturate the areas where they think the next

crime(s) may occur with more officers, as well as communicate this information to the residents.

Uniformed Crime Report

While it is important to distinguish the MO for criminal behavior in a police report, it is also important to denote which types of crime signify an MO backing. The Uniformed Crime Report (UCR) is a "collective effort on the city, county state tribal, and federal law enforcement agencies to present a nationalwide view of crime (p. 1)." In 1927, the International Association of Chiefs of Police (IACP) commissioned a committee to develop, collect and review police statistics, which helped shape the current categories in use today. Of the crimes that were reviewed, those that were discovered to be based on their "seriousness, frequency of occurrence, pervasiveness in all geographic areas of the country, and likelihood of being reported to law enforcement", otherwise known as Part I crimes are listed as the follows: felonious homicide, forcible rape, robbery, aggrevated assault, burglary-breaking or entering, larceny-theft, auto theft, and arson (Uniformed Crime Reports, 2004, p. 2).

Given the severity of Part I crimes, those agencies participating in the UCR program report their incident records and arrest records regarding these crimes to the FBI at monthly intervals. These data are then combined into aggregate data to form crime trends across the nation. Since these data are placed into a national database, it is important for the incident information entering the database to contain behavioral crime components in the event that the offender moves across multiple jurisdictions. Crimes with similar MOs can later be analyzed, and in theory, traced back to the original

offender—as explained by the earlier theories of the near repeat hypothesis, repeat victimisation, and components of CompStat. However, in order for the earlier explained theories to work, the MO related to the crime would need to be included in the report.

Improving Modus Operandi Reporting

As previously described, MO(s) related to a crime are an important component to an incident report, as those are data that can later be used to predict the future likelihood of a crime by a repeat offender. Given the importance of recording these data, there are several ways in which organizational behavior management (OBM) techniques can be employed to increase MO reporting methods (Wilder, Austin, & Casella, 2009). One method would be to deliver performance feedback, which as noted by Alvero, Bucklin, and Austin (2001), has been defined differently by various authors:

> (a) information that is given to persons regarding the quantity or quality of their past performance (Prue & Fairbank, 1981), (b) information transmitted back to the responder following a particular performance (Sulzer-Azaroff & Mayer, 1991), (c) information that tells performers what and how well they are doing (Rummler & Brache, 1995), and (d) information about performance that allows an individual to adjust his or her performance. (Daniels, 1994, pp. 4-5)

The lack of consensus regarding the definition of performance feedback has led some to suggest that it's a discriminative stimulus evoking control over performance in certain environmental contingencies (Balcazar, Hopkins, & Suarez, 1986); others have stated it functions as a reinforcer. Yet those that do not prescribe to either side of the

behavioral contingency say that performance feedback serves multiple functions, either a reinforcer/or punisher, depending on the learning history of the individual and can also be influenced by establishing operations and rule-governed behavior (Alvero, Bucklin, & Austin, 2001).

The findings of these two comprehensive reviews of performance feedback differ in their results. Balcazar et al. (1986) found that graphic, daily, feedback combined with another form of consequence to be the most effective method. In a later review, Alvero et al. (2001) found weekly, written, feedback plus a form of antecedent intervention to be the most effective method of delivery. Aside from the controlling variable of feedback, it has been found to be a valuable tool, compared to no feedback. Feedback has been shown to increase performance across an array of different individuals across various settings such as: driver behavior (Ludwig, Biggs, Wagner, & Geller, 2002; Nau, Van Houten, Rolider, & Jonah, 1993; Van Houten & Nau, 1983), nurse universal precaution compliance (Stephens & Ludwig, 2005), retail settings regarding cashier suggestive selling (Lowey & Bailey, 2007; Ralis & O'Brien, 1987), cashier register accountability (Rohn, Austin, & Lutrey, 2003), restaurant employee performance (Amigo, Smith, & Ludwig, 2008), and hotel employee performance (LaFleur & Hyten, 1995).

In addition to its many applications, feedback has been used as a behavioral intervention to increase desired performance in organizational settings. According to a review of performance feedback in organizational settings by Nordstrom, Lorenzi, and Hall (1991), the authors agreed with the previously mentioned reviews on feedback in that the definition and procedure of delivery of performance feedback is somewhat vague

across studies. Because of the vague details across studies, the authors mentioned that the "relative effectiveness of the various components of the feedback intervention does not lend itself to clear statements" (p. 119). However, the authors do mention that the research compiled within the review suggests that feedback in combination with a form of a package intervention is most effective at achieving desired levels of performance for target behaviors in an organization.

In 1977, Kreitner, Reif, and Morris reported one of the first case studies of its kind on the use feedback in an applied setting. This study was conducted on mental health technician (MHT) target performance across three target areas: conducting and completing group therapy sessions, conducting and completing individual therapy sessions, and completing individual assignments. During the feedback condition, the experimenters posted interoffice memos for each target behavior with the individual MHT's name on the memo. The authors reported that the three target behaviors improved after the feedback condition was implemented (i.e., increases in level were observed across all three behaviors). Also, the shift supervisor reported that conflict during therapy sessions between MHTs and patients appeared to decrease, possibly due to increased effectiveness of therapy sessions. By having the knowledege of their current performance levels during therapy, the therapists were able to improve their in-therapy performance, which allowed for them to host higher quality sessions with their clients.

Jones, Morris, and Barnard (1985) evaluated the effects of a feedback package intervention on civil commitment form accuracy completion and timeliness completion. Civil commitment is a process by which a judge decides if a person should be required to

undergo psychiatric or mental health treatment. The package intervention consisted of instructional meetings with staff members to review the civil commitment form process, the data necessary for the form and the time commitment necessary on the form. Group graphic performance feedback on correctly completed civil commitment forms was then provided to the staff in the intervention package. Results indicated a 41% increase in rights forms completed correctly, 18% increase in applications completed correctly, and a 21% increase in witness lists completed correctly. Application forms and witness list baseline levels were already arguably higher compared to rights forms, therefore there was a greater opportunity for improvement in the completion of rights forms. The authors noted that the package intervention across all forms did increase correct completion, and completion maintained during the follow-up time period. One interesting result was that as correct form completions increased, the number of forms completed per week decreased slightly, which could have been due to the increase in accuracy. This research suggests that a package intervention across similar behaviors can be an effective intervention strategy to increase MO reporting in the present study, without a major impact on the quality of the reported information.

Although performance feedback alone has been shown to be an effective intervention for increasing target performance in organizations, goal setting might be added to the intervention package. A goal, or a specific standard of proficiency on a task to be completed within a predetermined time limit (Locke, Shaw, Saari, & Latham, 1981), can enhance the effectiveness feedback if desired levels are not achieved initially. For instance, Calpin, Edelstein, and Redmon (1988) compared the use of self monitoring,

a form of feedback, and self-monitoring plus goal setting on therapists' direct contact work hours spent with clients. The experimenters found that compared to baseline levels, the proportion of work hours spent increased during the self-monitoring phase for groups one and two. However, a slightly higher proportion of allocated work hours spent with clients were observed during the self-monitoring plus goal setting phase across all three groups. The authors reported that there was a possibility that the individual goals assigned to the therapists were too hard to achieve due to the fact that the therapists across all groups reached productivity levels approximately 15% of the weeks during the self-monitor and goal setting phases. In this particular study goal setting did increase overall productivity, however the increases that were observed did not increase to socially significant levels given that goals were not consistantly met.

Package feedback interventions have been shown to be effective interventions on customer service related behaviors in an organization setting (Crowell, Abel, & Sergio, 1988; Slowiak, Madden, & Mathews, 2006; Tittelbach, Deangelis, Sturmey, & Alvero, 2007). In 1988, Crowell, Abel, and Sergio observed several customer service performance behaviors at a bank. The experimenters were interested in improving employee customer interactions while customers were in the bank. The behavioral targets of interest were time to service, greeting, expression of concern, using customer's name, talking only to customer, additional assistace, minimizing small talk, responding to customer inquiries, expression of appreciation, closing and voice tone. Each target behavior was assigned a weighted point value, referred to as "quality points." For example, the expression of appreciation category was worth a total of 10 points,

compared to the closing category which was valued at 5 points. The bank managers decided that an overall standard measure of 85 points throughout the entire customer exchange was equivalent to acceptable performance. The interventions delivered in this study were task clarification, feedback, praise, and later feedback plus praise. The results of the study indicated a mean increase of 10.6 average points from baseline to task clarification from 61.4 to 72 points. Further increases were observed after the feedback phase was implented with average quality points increasing to 81.4 points, with an average of 78 points. The minimum point average during the praise condition was 85 points, which met management's standards of acceptable performance. After a second baseline was introduced, similar increases in quality points were observed across feedback and praise. The authors indicated that due to the immediate increase in responding followed by a slight decline during task clarification, it is likely that task clarification served as an antecedent. Also, the authors further noted that feedback more likely served as a consequence due to the fact that there was an increased level of responding followed by stablilization. In the present study, task clarification and group feedback will be presented as a combined intervention given that the above research has demonstrated the individual effectiveness of these interventions, and it is further likely that by combining these two that more desired performance will be achieved.

In 2006, Slowiak, Madden, and Mathews, focused on telephone customer service behaviors of staff in a medical clinic. The behaviors of interest were greating, friendly voice tone, and closing. The package intervention of task clarification, feedback, goal setting, and contingent consequences was delivered across an ABAB reversal design for

all three target behaviors. Task clarification consisted of a handout of the clinic's customer service standards, along with defined components of what constituted a correct greeting, voice tone, and closing. A job aid that provided a list of examples of appropriate greetings was placed next to the participant's computer. Goal setting was establised for the overall group for each behavior, while performance feedback was delivered twice a week to each participant at the beginning of their shift. Feedback consisted of an email with an attached bar graph displaying their individual feedback relative to their goal performance for the week. Written feedback was also provided as an explanation of the values presented in the graphic feedback. Performance contingent consequences, or incentives, were given to those participants that met their weekly goals. This extensive package intervention yielded higher levels of telephone customer service behaviors compared to both baseline conditions across two of the three behaviors. Although the package being proposed in the present study is much less extensive, the methods of feedback delivery used in Slowiak et al. may be an effective medium of delievery, if modified for group implementation rather than on an individual basis. Tittelbach, Deangelis, Sturmey, and Alvero (2007) also evaluted a package intervention of task clarification, feedback, and goal setting to improve customer service behaviors of student advisors at a university. The feedback package was successful at improving the overall results of customer service behaviors.

Wilk and Redmon (1990) improved the productivity of university admissions staff via a package intervention of feedback and goal setting. The authors developed an intervention system in which the employees of a university's admissions office received

daily feedback based on their performance the previous day. In addition to feedback, each employee was given an individual application processing goal for the day, based on the previous day's task completion. The frequency of adjusted goals allowed for the goals to be difficult, yet attainable, and also to meet the seasonal processing demands within the department. Results of this study indicated that during baseline on average across all three admissions processors, approximately 33 applications were completed per week. After the package intervention was implemented, approximately 126 applications on average were completed per week. The authors reported that the intervention also reduced the amount of money spent in overtime costs reduced from the previous year $10,835.55 to $6,131.50 the year the intervention was implemented.

Interventions such as these have also shown to be effective in producing increasing results in manufacturing environments. Jessup and Stahelski (1999) analyzed the production of aluminum baked anodes in a large manufacturing plant. During an extended baseline period, the experimenters noted that the employees were disposing of over 300 rejected anodes per week, which accounted for roughly 8.6 percent of their 3500 minimum anode production requirement. The experimenters focused on assisting organizations in producing a higher quality product and reducing waste. This was achieved by providing the employees with a combination of feedback on rejected anodes, setting a goal of 50 rejected nodes less than baseline levels and a group lunch incentive if the goal was met. This first intervention worked after several weeks of implementation. The next two subsequent interventions used the same process, except the goal was reduced significantly, until it was down to less than 60 rejected anodes per week. The

overall results indicated that the rejected nodes continued to decrease along with the interventions. Although node rejects appear to have increased during the follow-up period, the average did not return to baseline levels. The authors also indicated that the average cost savings per week for the increase in quality of the nodes was roughly $11,200 to $16,900, and the organization was able to meet customer demand while decreasing defects.

Changes in an organization's work policies can be another effective strategy for producing desired behavior change, especially if budgetary constraints restrict an organization from other means of increasing desired behavior (i.e., adding employee incentives). Andrasik, McNamara, and Abbott (1978) evaluated the institution of a staff policy change relating to unexcused absences and the managerial action taken to correct for future occurrence of this undesirable behavior. During baseline, 15% of absences resulted in follow-up action to prevent the unexcused absence in the future. During the policy revision condition where employees were required to fill out a form explaining why the unexcused absence occurred. During the policy revision condition, results of the policy 80.5% of absences required follow-up action. One limitation of this study was that the authors were unable to complete a follow-up condition due to the facility closing. The results did show that something as minimal as a policy change can produce a marked change in behavior. However, if other interventions were used in conjunction with policy change, it is possible that the follow-up compliance might have increased to even higher levels.

Organizational policies relating to safe driving behavior have shown to be effective when explicitly stated. Ludwig and Geller (1999) analyzed driving behavior of pizza drivers at two stores. Both stores received driving policy notices at two separate times with their paychecks stating that all drivers must use their turn signal to indicate a change in driving direction while on delivery. The participants were observed for both their turning signal usage and their seat belt usage. After receiving both policy notices, turning signal usage increased at Site A from 70% to 78% after the first policy and then to 84% after the second policy; Site B signal usage increased from 46% to 51% after the first policy, then to 59% after the second policy. The authors also examined whether receiving a policy for one driving behavior would generalize to other driving behaviors. The authors reported that seat belt usage at Site A decreased from78% to 65% and Site B from 74% to 59%. It is possible that due to the different response classes of the behaviors, the policy change would not have been effective on seat-belt usage regardless. However, this does suggest that in an organization while trying to institute a new policy, the changes need to be explicit and need to be directly written for the behavior of interest.

Although organizational leaders might argue that starting with a policy change initially might be the most efficient and effective way to get employees to complete the desired behavior that might not be the best strategy. Using techniques, such as task clarification, feedback, and possibly goal setting prior to an abrupt policy change will help facilitate the change and lessen the negative administrative aspects that might result from an abrupt change in the system. If a policy change is used in immediately following

other behavior change techniques, it may be better accepted and lead to a larger change in behavior.

The results of a number of studies across a wide range of applications and contexts suggest that task clarification, feedback and policy change can be effective interventions to increase employee performance. It has been reported by Kalamazoo Department of Public Safety administration that MO form completion in incident reports is an issue related to efficiency that needs to be addressed in order to improve the efficacy of the current predictive crime models. Although many OBM studies have evaluated the use of these interventions, no studies have examined them as it pertains to increasing MO reporting as an attempt to help an organization improve criminal behavior modeling. The purpose of this study was to examine the effects of task clarification, group feedback, and policy change on MO form completion and accuracy by police officers. Additionally, this study assisted the department in the use of the MO data as a means of moving toward predictive analysis.

CHAPTER II

METHOD

Setting

The Kalamazoo Department of Public Safety (KDPS) is located in Kalamazoo, Michigan, and is an organization that combines both law enforcement and fire services into one unified organization. In other words, every KDPS law enforcement officer is cross-trained as a fire fighter. Within KDPS, there are several divisions and special units: Administration, Criminal Investigations, Fire Marshal, Kalamazoo Valley Enforcement Team (KVET), Operations, Service, and Special Units (e.g., Bomb Squad, Canine Unit, Community Policing Office, Explorers, Field Training Officer Program, Honor Guard, Special Weapons and Tactics Team) and Traffic Enforcement (Divisions, 2011). The division of focus for the study, the Operations Division, is responsible for all initial responses to police, fire and emergency medical calls for local citizens. Regardless of whether the response needed is an immediate emergency or to fill out a report, a member of Operation's Public Safety's first responders unit attend to the needs of the citizens (Operations Division, 2011).

All members of the Operations division enter incident reports in ILeads, the data management system. See the Instrumentation section of this document for more information about the ILeads system. The reports can be completed in multiple locations; for instance reports can be completed at a computer terminal in the officer's patrol car or the officer report writing room located within all of the eight sub-stations across the city

and headquarters. All patrol cars contain a single Dell Semi-Rugged E-6400 Laptop computer that is located to the right of the steering wheel, above the radio console. The laptop is pre-installed with the ILeads program, which is necessary for the officers to complete reports from the vehicle. Another feature of the laptop inside the vehicle is the universal serial bus (USB) extension; this allows for uploading of narrative recordings of incident files—KDPS civilian staff later transcribes those recordings. All vehicles are equipped for officers to be able to complete their reports from their patrol cars so that they can be visible on the streets and still working rather than in the station completing paperwork (see Figure 1).

Figure 1. Computer Located Inside Police Patrol Vehicle

Certain incidents require officers to come into the stations to complete incident reports (e.g., drug case, arrest, and evidence logs); therefore they will opt to use the report writing rooms at those times to complete their reports. Each room has a minimum of four

computers, all of which contain the data management system necessary to access and complete incident reports, and a USB extension for their narrative recording uploads, similar to that found in the patrol vehicle. At three of the stations, including headquarters, there is an additional computer that is used for the sole purpose of transferring and uploading the digital video recording (DVR) information from patrol cars via the COBAN Technologies© system to their data-base at headquarters. The COBAN Technologies© system used is an encrypted digital video management solution (DVMS) that protects potential evidence available on the patrol car cameras (see Figure 2).

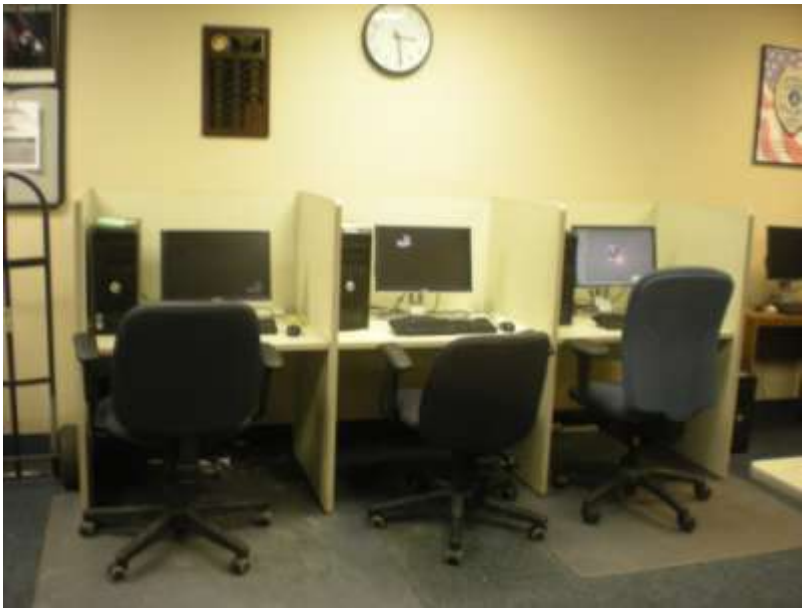

Figure 2. Report Writing Room Located at Headquarters

Participants

At the beginning of the study, the workforce at KDPS was comprised of 242 sworn officers within the Operations Division; at the end of the study there were a total of

239 officers. The average age of the participants was 32, with a range of 22-55 years. Officers work on average 42 hours per week. Ten percent (10%) of the workforce are female and 90% male. The average tenure for service of officers in this division is 12 years, with a range of employment of one year to 32 years. The education of the officers ranges from associates degree to graduate degrees. This division was chosen as the primary focus of the study because the Operations Division employs more sworn Public Safety Officers (PSO) than any other division in the organization, and PSOs are required to complete incident report forms after they respond to calls for service.

In the Operations Division, there are three main shifts of which PSOs are assigned: The day shift is comprised of 49 officers with a shift time ranging from 7:00am -to-7:00pm., the night shift is comprised of 47 officers with a shift range time of 7:00pm-to-7:00am, the power shift is composed of 16 officers with a shift time ranging from 3:00pm-to-3:00am. Within each shift there are four platoons: Platoon A, Platoon B, Platoon C, and Platoon D. Platoon assignment essentially dictates which day the PSOs work, as that is dependent on the department's schedule. On February 13, 2011 the Operations division completed an annual bid change; during the bid change officers had the opportunity to change shifts and or platoon assignment. The new assignments remained in effect until February 13, 2012.

Throughout the duration of the study, there were a few notable changes in participation. One officer was killed in the line of duty whose data was included in group baseline results, however was not included in treatment results. Another note worthy mention was that due to city budget constraints, a few officer positions were cut and

others were re-organized from different divisions across the organization. Constraints with participant attrition will be assessed further in the discussion section.

Participants involved in the experiment were all sworn officers of KDPS's Operations Division who regularly complete incident reports in ILeads. Given that KDPS administration regularly collect data on their employees, voluntary participation was not possible for the participants. However, all participants were over the age of 18 and reviewed an Informed Consent Form found in Appendix A, which was approved by Western Michigan University's (WMU) Human Subjects Institution Review Board (HSIRB). The consent document explained to participants that all data that were collected would remain confidential and no individual's data would be shared with administration for punitive purposes. The approval letters from WMU's HSIRB are found in Appendix B. A copy of the approval letter from the Chief of Police can be found in Appendix C.

Before and after the study, all sworn officers of KDPS were asked to complete a survey regarding MO form completion. The participants involved in both surveys viewed an informed consent along with their survey document, which can be found in Appendix D. In addition to turning in the survey, if participants selected the option of "Yes" for agreeing to have their survey data included in future research by WMU, the data were recorded and analyzed. If the participant selected "No", the survey was set to the side and not reviewed. A copy of the approval letter from WMU's HSIRB for the two survey's can be found in Appendix E. A copy of both surveys can be found in Appendices F-G.

Instrumentation

The public safety office uses a $2 million data management system developed by Intergraph known as ILeads. This system allows officers to create incident forms electronically, and attach all of the necessary information related to the specific case to that single case identification number. For instance, if an officer needs to fill in information related to a burglary, the victim's information, evidence, the responding officer's narrative, witness statements, and other relevant information related to the case would be filled in as an attachment to the incident report. Figures 3-6 display screen shots from the ILeads records management system. ILeads also allows for easy records management; the reports filed have searchable fields and can be easily compiled into Microsoft Excel© via a compilation of a string of programming in the back end of the system (Integraph, 2009). The data that were analyzed were automatically recorded and downloaded from the ILeads data management system.

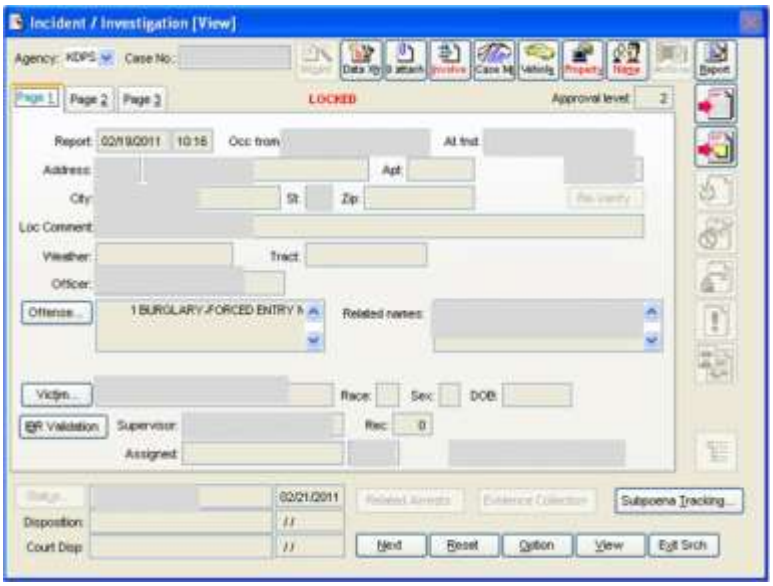

Figure 3. ILeads Incident Report Main Screen

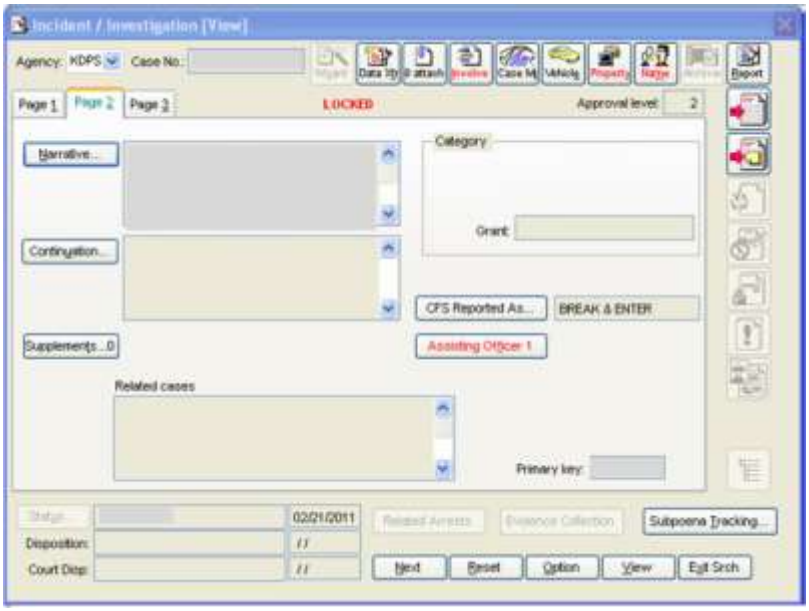

Figure 4. ILeads Page 2 Narrative Screen

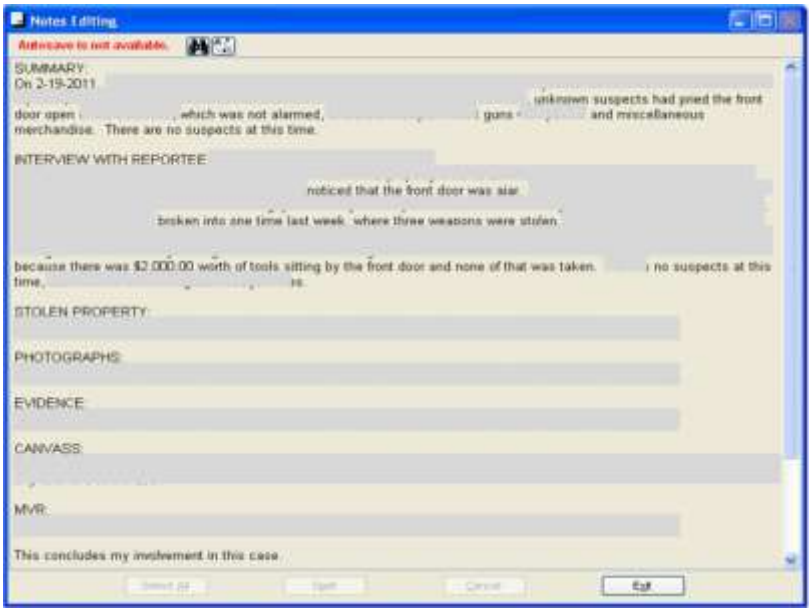

Figure 5. ILeads Narrative Pop-up Window

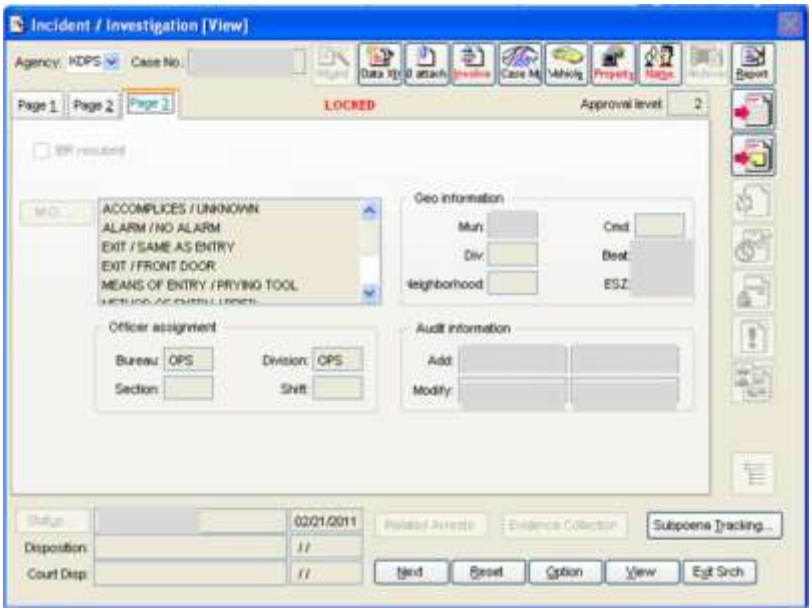

Figure 6. ILeads Incident Report Display Page 3

Dependent Variables

The primary dependent variable for this study was MO form completion. The quality of the MO data reported in the MO section was also examined; these data reported were further broken down into *completeness* of the report and *discrepancies* between the MO report on page 3 for a specific crime and the narrative filed as an attachment to the incident report.

MO form completion. MO form completion is defined by the presence of a MO notation on page 3 of the incident report in ILeads for the following Part I crimes: burglary (breaking or entering), robbery, and aggravated assault. A list of all MOs in ILeads are found in Appendix H. When an officer completes an incident report, the case

is then approved at the officer level and then sent to the sergeant level for review. Sergeants review the incidents to ensure all necessary information pertaining to the case is included in the report (e.g., victim information, suspect information, narrative information is complete, etc). The case goes through several other levels of review before the case is sent over to records management, however if incorrect information is found at this level, it's easier and faster for a sergeant to request that an officer make changes at the first level of review.

A separate case study evaluating the impact of MO form completion on the predictive capabilities in the department was conducted once the interventions were in place for all shifts. Although there are no formal objective data to report regarding the use of MO after the data were captured, a case study is presented in Appendix I illustrating the use of MO to help the Criminal Investigations Division (CID) work toward solving a pattern of copper theft crime across the city.

Completeness of MO section. The overall completeness of an incident report was assessed by the following example: If an officer indicates in the narrative that the point of entry for a burglary was the window, but the MO "Point of Entry/Window" was not selected so that it appeared on page 3, then that would be considered a missing item for completeness. However, selected if "Point of Entry/Window" as an MO, but was not mentioned in the narrative, was not considered a discrepancy because in viewing a drop-down menu of MOs could have prompted the officer to select the necessary item(s). The completeness measure of these reports was recorded as an indicator of consistency between the two reports. It was also reviewed to determine if the officers were taking

time to complete the MO section carefully. For the incident reports that had a recorded MO, a sample of those reports were reviewed weekly for quality. The reports were read and scored by both the experimenter and the research assistants.

Discrepancy between narrative and MO section. The overall discrepancy between the narrative report and the completed MO section was assessed by the following example: If the MO "Point of Entry/Front Door" was selected, then this would be considered a discrepancy; If "Point of Entry/Window" was indicated in the narrative report. However, it must be noted that in the latter instance, the narrative was always viewed as correct; since an objective observer could not be present during the report writing process, a selection as to which source was correct had to be determined at the beginning of the study.

Independent Variables

The independent variables used in this study were the use of various package interventions. The interventions used were (a) task clarification and PSO group feedback on MO form completion; (b) PSO group feedback plus sergeant group feedback on report rejections; (c) and a policy change (from this point forward the policy change will be referred to as a general order). Procedural details for each intervention are provided below in the Procedures section.

Experimental Design

A multiple baseline design (Bailey & Burch, 2002) across shift and crime time was used to analyze the effects of task clarification, group feedback and the general order on MO form completion. The interventions were implemented across shifts (day and night shifts) and crime type concurrently. The crime types of interest to KDPS were burglary, robbery, and aggravated assault. Each intervention was introduced first for day shift and related to burglary crime type, then night shift with burglary crime type. Burglary was the first crime type of focus because this crime type occurred more frequently, therefore the participants had a higher likelihood of coming into contact with the intervention(s). The next implementation focused on the remaining crime types, robbery and aggravated assault across the day and night shifts. The power shift never received an intervention across all crime types, other than the organizational wide general order that was conducted at the end. Each data point represented the percentage of one week's worth of completed MO reports.

Procedures

Recruitment

Administration regularly collects data via the ILeads system as a result of the officer's report writing. Given that all participants are employed by KDPS, voluntary participation was not possible for the participants. Regardless of the presence of the experimenter, KDPS would have implemented extraneous report writing procedures.

However, all participants were over the age of 18 and reviewed an Informed Consent Form regarding their participation in a research study with WMU. The consent document explained to participants that all data that were collected would be coded and kept confidential so that no individual's data would be shared with administration for punitive purposes.

Surveys

During the duration of the study, there were two organizational surveys that were administered to all officers. Prior to the beginning of the study, officers completed a survey asking questions such as; "What is modus operandi?", "When you complete your reports, how often do you use the MO section?", "If you complete the MO section, what happens after?". Questions such as these were asked initially to a) determine if the officers were familiar with MO in terms of its meaning, b) get a sense of how often they feel they complete the section, and c) if officers receive feedback from their supervisor if they do complete the MO section.

The survey administered at the end of the study was intended to assess officer awareness of the MO section and their perception of time consumption and usefulness of completing the MO section. An example of questions asked in this survey were; "How much more time did it take you to complete the incident reports when you completed the MO section?", "What do you think in terms of the usefulness of the MO section of the incident report?", "Do you think the requirement to complete the MO section has added more functionality to ILeads to help solve crime?" Although the surveys were

anonymous, both surveys asked participants for their permission to allow their responses to be included in a research study with WMU.

Baseline

Baseline data that were collected were archival data from the ILeads data management system. The data that were collected were all-electronic and in reference to the MO sections completed. The KDPS Senior Systems Analyst downloaded baseline data, and all subsequent data, weekly. The 11 weeks of archival data were downloaded into weekly sets. A unique code sequence that pulls information from ILeads was written at the beginning of the experiment and used throughout the study; the only regular change in the coding were the dates reported. The dates for each week always ranged from Sunday-Saturday of the previous week. The downloaded information included the following: Agency, incident report number, incident date reported, incident time reported, UCR crime type code and description, neighborhood/zone of occurrence, MO group 1, MO group 2, geographic x-coordinate, geographic y-coordinate. The downloaded raw data did not include any individual identifiers with a specific employee. This data set was compiled for all crime types, then uploaded into a Microsoft Excel© spread sheet. Next, the experimenter compared each incident report from the downloaded list to a printed hard copy of employees per shift document provided by administration. A comparison of the reporting officer and the list was used to verify under which shift the report was completed (i.e., day, night, or power). The data were then coded per shift; no employee identifiers were added to the raw data. The list was only used as a comparison for coding purposes, and when not in use was kept separate from all raw data.

Task Clarification and PSO Group Feedback on MO Completion

Participants received task clarification and feedback on MO form completion for the proceeding week at the start of this condition. During subsequent weeks they only received weekly feedback on the previous weeks MO completion. The instruction was delivered in the form of a memorandum sent via email by the Executive Lieutenant of the Operations Division. The memoranda consisted of an explanation of where the MO section can be found in the incident report, what information needs to be included in the report drop-down menus, and why it is important to complete the reports correctly. The memorandum was first delivered to the day shift in relation to the burglary crime type. The night shift was next to receive the same memorandum, but this occurred seven weeks after day shift received their document. The power shift did not receive a copy of the memorandum, as this shift was the control group. A copy of the memorandum delivered to officers can be found in Appendix J.

In conjunction with task clarification, group feedback was provided to the PSOs on both the day and night shifts regarding their MO form completion. Figure 7 is an example of the graphic feedback provided to the PSOs. The graphs consisted of a display of percentage of incident reports with MO completed for the week. The graphs also contained a description indicating the date range of performance and if MO form completion increased or decreased compared to the previous week.

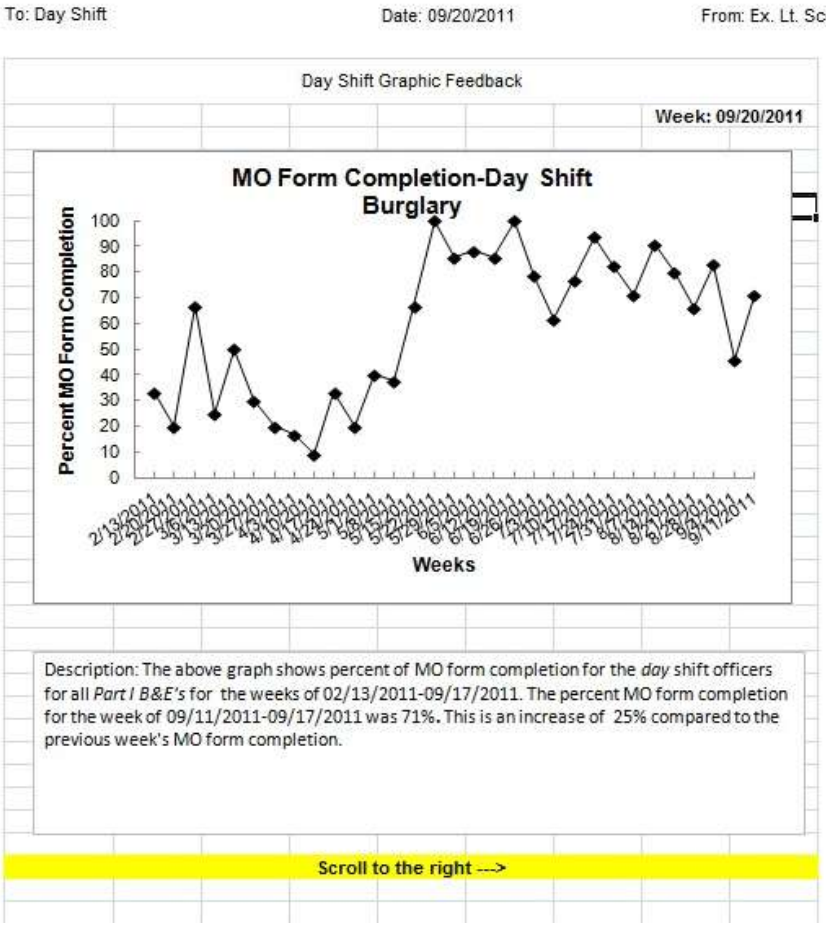

Figure 7. Day Shift PSO Group Graphic Feedback

The graphs were created by the experimenter weekly and were emailed to the appropriate shift officers via the Executive Lieutenant; the experimenter was blind carbon copied on all emails to the shifts to ensure the feedback was delivered. Email was the chosen medium of delivery because the debrief meetings prior to each shift departure were only long enough to include crime related issues for the day. The shift lieutenants met once a month to discuss administrative and community issues; this meeting occurred too infrequent to pass along performance information related to officers. Day shift was

the first to receive group feedback on MO form completion along with the task clarification memorandum explained above.

PSO Group Feedback Plus Sergeant Group Feedback on Report Rejection

PSO group feedback was provided as described in the previous condition. In addition to PSO group feedback, shift sergeants were given the option of rejecting reports if the PSO officers did not complete the MO section. This was not specified as a requirement but only as a suggestion. When a sergeant rejects a report, a comment is included in the report rejection notes section. This allows for sergeants to specify what information needs to be revised in the report. In addition, shift sergeants also received group graphic feedback on the percentage of reports accepted without form completion during the previous week. Figure 8 is an example of the graphic feedback graphs the shift sergeants received each week. As with the officer graphs, a description of report approvals without MO completion was provided along with an indication of whether the performance decreased or increased compared to the previous week.

The day shift received this combination of interventions first. Then, the night shift received the entire combination of PSO and sergeant group feedback plus sergeant report rejections intervention six weeks after day shift. This intervention was implemented across all crime types, first for burglary, then for robbery and aggravated assault. The power shift was not directly exposed to this intervention across all crime types.

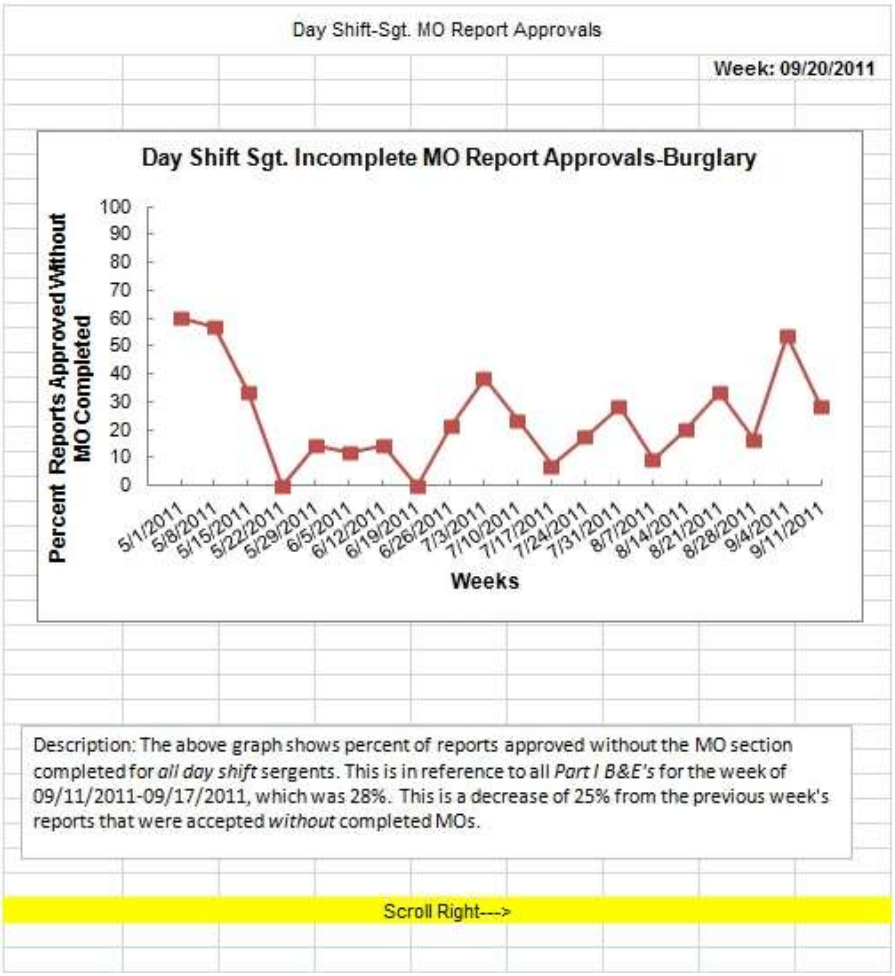

Figure 8. Day Shift Sergeant Group Graphic Feedback

Partial Reversal

Group graphic feedback to both the officers and the sergeants was no longer delivered during this phase. Although the purpose of this phase was to remove the interventions prior to the next phase, the general order, two of the components could not be removed. Task clarification was a type of training that cannot be removed from the officer's repertoire. The option of sergeant rejecting reports without an MO section

completed was also not removed as the administration wanted to keep this component in place.

General Order

The policy change, known as the general order in this study, was the final intervention component that was implemented. The purpose of the general order is to enforce policies and procedures that are unique to the organization. The general order document provides a purpose and detailed description of the necessary actions required for compliance. For KDPS, general order (G-65) pertaining to Investigations and Report Writing, was revised to include MO form completion as a requirement. A copy of the general order that was sent to the entire organization can be found in Appendix K.

Data Analysis

Since single-subject design methodology was used as the main design in this study, visual analysis was utilized as the primary means of data analysis. According to Kazdin (1982), if a study's results are not compelling enough to meet the necessary criteria of level, trend, and variability once displayed graphically, then there is a high likelihood that statistical analysis would be well. In addition, Bailey and Burch (2002) note that if statistical analysis are used in single-subject designs to show significant results, often-times the results are merely that and not socially significant to the behaviors of interest being analyzed.

After each incident report was coded for each week, a percentage of MO form completion for each week was determined. First, the overall total number of incident reports that were written per shift were determined. Then, the total number of reports per shift (per crime type) with an MO for the incident was determined. The total number of reports with an MO completed per shift (per crime type) was divided by the total number of incident reports per shift, then that value was multiplied by 100 to yield a percentage for the week. For each phase, visual inspection was used to determine if the data levels changed when anticipated, were stable and if the data points were trending in either a positive or negative direction. If at any time the data appeared to be unstable based on the above criteria, the phase was extended until the data stabilized.

Inter-observer Agreement (IOA)

Since the primary dependent variable of MO form completion was recorded and coded electronically, inter-observer agreement (IOA) data were not recorded. Agreement on the quality of MO reports, however, was completed. Prior to the beginning of the experiment, the experimenter was trained by the Executive Lieutenant of the Operations Division on reporting reading and MO entering. The main purpose of this training to ensure that the experimenter was able to decipher which MOs were explicitly read in the narrative and which MOs were missing from the report that were stated in the narrative (referred to as completeness). After the experimenter and the Executive Lieutenant independently received 100% reliability on eight incident reports, the experimenter then trained the research assistant to complete the same process.

Inter-observer agreement for the overall quality of reports were completed for 49% of burglary reports, 45% of robberies, and 55% of aggravated assaults. This was above the minimum 30% of observations recommended by Bailey and Burch (2002). There were two separate forms of IOA that were conducted relating to the completeness of the reports. These data that were recorded were automatically downloaded from the ILeads data management system, but the MO selections that were indicated were reviewed. For the MO items that were indicated by the officers in the report, two independent observers recorded an "x" in the "yes" column if the indicated MO's were listed in the officer's narrative, and "x" in the "no" column if the recorded MO was not listed in the narrative. IOA for reported burglary MO items was 93% (range, 66%-100%), robbery was 98% (range, 87%-100%), and aggravated assault was 95% (range, 67%-100%).

The other form of IOA recorded was on the completeness. An item was scored as incomplete if an incident had missing MOs that were mentioned in the narrative but were not captured in the MO section by the officer. Two independent observers reviewed each incident narrative and listed MOs that were indicated in the narrative but were not listed by the officer. Due to the wide variety of MO options, the missing MO component had to be re-reviewed by the observers. Not all narrative reports contained a specific section header of "method of operation," which would have made it easier for the experimenter and research assistant to pull information. Retraining of the experimenter and the research assistant was necessary to ensure both independent observers were reviewing all cases under the same parameters. After retraining occurred, entire narratives had to be

reevaluated. Each observer recorded his or her results independently and IOA was re-recorded. IOA for completeness of missing items for burglary was 94% (range, 75%-100%), robbery was 92% (range, 66%-100), and aggravated assault was 96% (range, 66-100%). IOA for discrepancies for burglary, robbery and aggravated assault items was 100%.

IOA for both completeness measures were calculated by taking the number of agreements divided by the number of disagreements plus the number of disagreements. The resulting value was then multiplied by the number 100 to yield a percentage value. An overall IOA average for each week was obtained for both IOA completeness values. The IOA averages are results of those averages.

Independent Variable Integrity

To ensure the delivery of the treatments, the Executive Lieutenant and the experimenter communicated via electronic mail (email) to track the progress of the study. The experimenter would send an email of the necessary graphs and email wording to the Executive Lieutenant every week; the email also included instructions if a new phase was being implemented. The Executive Lieutenant then sent the experimenter a blind carbon copy of each email distribution to the officers as insurance that the treatment went into effect.

CHAPTER III

RESULTS

Surveys

The first survey was distributed prior to the beginning of the study, and had a 42% response rate. Of the responses received, officers indicated that most likely, on average, when writing an incident report, the MO section is completed 0% (M=25%), or 10% (M=18%) of the time. When the MO section is complete, it was reported that it was completed because they were asked to do so (M=52%), however officers were in high agreement about never receiving feedback from a supervisor after completing the MO section (M=96%). When asked how often they believed that MO information has lead to solving crime, the most frequently selected option was 10% (M=33%), with 0% as a close second (M=26%). Based on a sample of general comments provided at the end of the survey, it appears that the officers are not reporting MO simply because either they forget to include the information in the report or they feel that the MO information is only relevant to certain types of crimes (i.e., burglaries or robberies) rather than all types of crimes. Given the lack of compliance with the MO form completion to date, on the survey officers agreed (M=77%) that by completing the necessary information that ILeads functionality would be increased, which could potentially help solve future crime.

The second survey that was distributed at the end of the study had a response rate of 25%. Due to the low number of surveys that were received, no formal analysis or conclusions could be drawn from the post-study survey.

MO Form Completion

Figure 9 displays the percentage of MO form completion for burglary crime type across the day shift (top panel), night shift (middle panel), and power shift (bottom panel). The day and night shift increased their MO form completion over baseline levels after task clarification, both group feedback forms and the general order were implemented systematically. The power shift's MO form completion data were highly variable during baseline, however the form completion levels stabilized more after the general order was implemented. Ideally, it would have been more desirable to implement the first treatment when the data were in a downward trend, as shown from week's seven to nine in the graph. While waiting for the final data point for a downward trend, shown in week 10, an officer in the department was killed in the line of duty. At that point in time, due to the constraints on department resources and other extenuating circumstances not related to the data, it appeared that waiting a few more weeks was necessary before any treatment could be implemented.

On average across shifts, officers had an opportunity to complete approximately 21 burglary incident reports per week. Baseline levels for burglary across all shifts were somewhat variable, more so for the power shift (M=39%, SD=32.3) compared to the day (M=29%, SD=16) and night shift (M=27%, SD=22.68), possibly due to the smaller number of officers on the power shift compared to the other shifts. Although day shift burglary showed less variability during baseline compared to the other shifts, the range was still somewhat large between 9% to 66%. After task clarification and PSO group feedback was implemented for day shift, the level changed only slightly (M=39%,

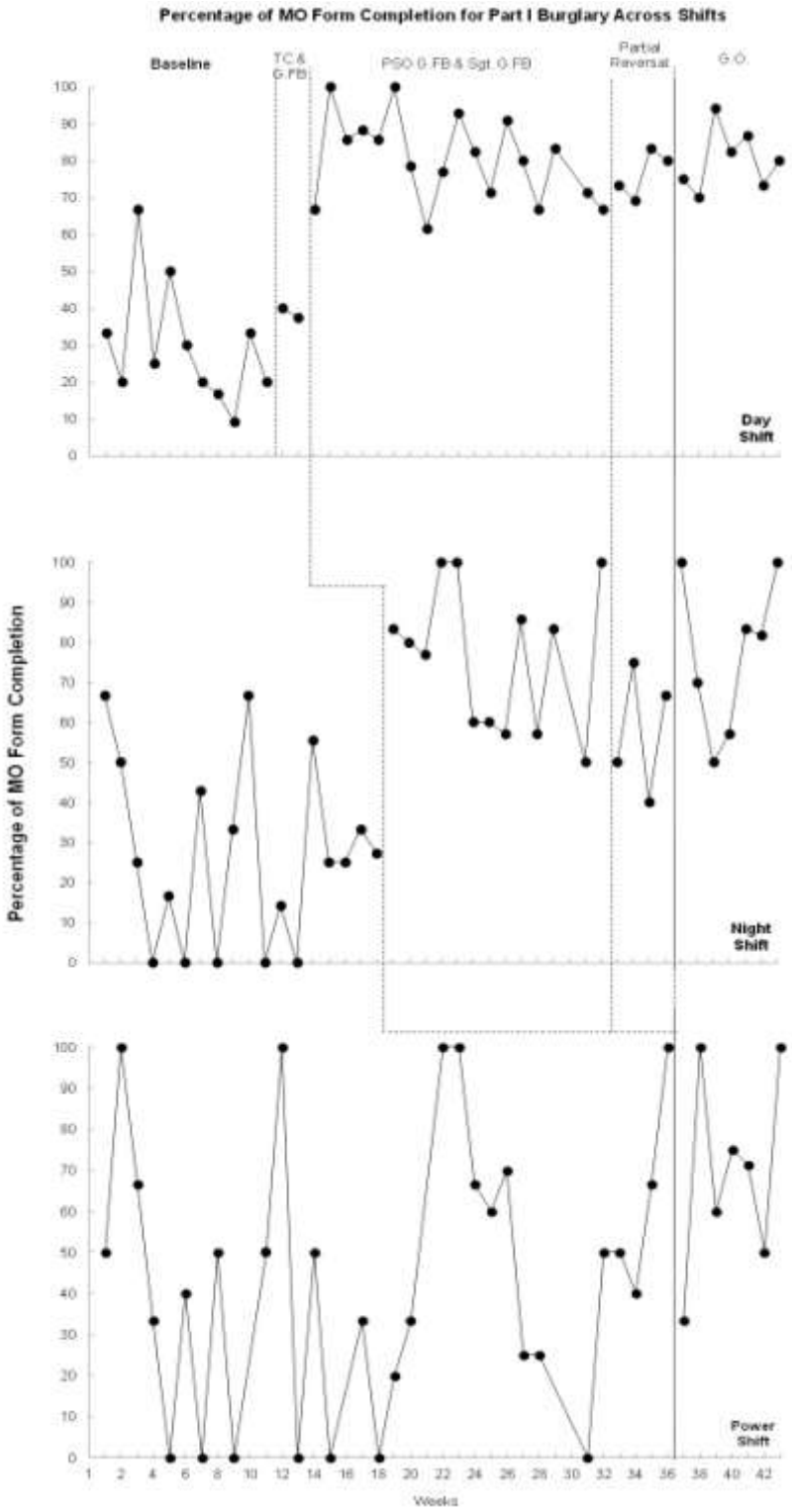

Figure 9. Percentage of MO Form Completion for Part I Burglary

SD=1.8); it appeared that this the introduction of this intervention had little effect on behavior change. This then led to the addition of sergeant group feedback plus the option to reject reports. Once the sergeants were given the option to reject reports and given feedback on incident reports accepted without MO form completion, larger gains in level changes and stability were observed (M=81%, SD=11.5). During the partial reversal phase, the MO form completion maintained (M=76%, SD=6.3). The next phase, the general order phase, did not show much of an improvement compared to the previous phases (M=80%, SD=8.4). Figure 10 shows the mean percentages for each of the phases for the burglary crime type across all shifts.

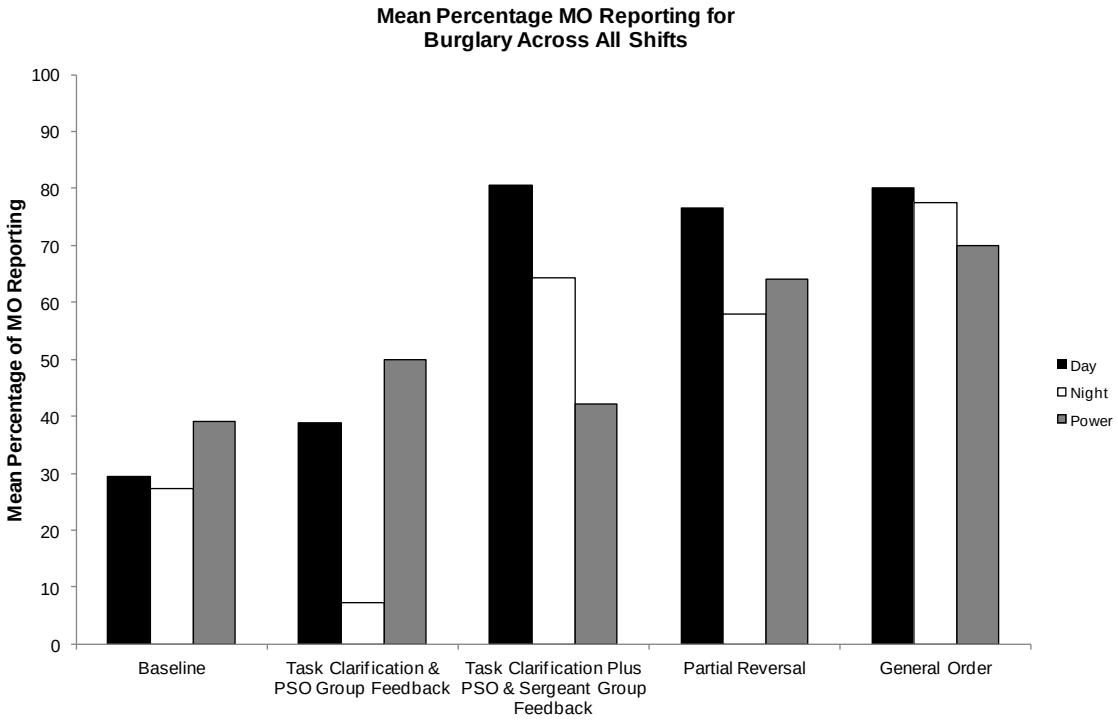

Figure 10. Mean Percentage MO Reporting for Burglary for All Phases

After the night shift received the first intervention package of task clarification, PSO group feedback and sergeant group feedback, MO form completion increased by 37% (M=64%, SD=25). This was a slightly larger increase compared to day shift, although followed by a downward trend in this phase of the intervention that later stabilized at lower levels. During the partial reversal, MO form completion decreased to 58% (SD=15.8), and then increased again during the general order phase to similar levels of the previous condition (M=77%, SD=19.5).

The power shift remained in baseline throughout the study, except at the end when the general order was released organization-wide. This shift is considered a support shift that helps the day and night shifts during peak hours. Although this shift completes reports, they complete on average 3 reports a week due to the nature of their function, somewhat decreased (SD=24.7, range 33%-100%). Power shift's MO form completion never decreased to 0% levels during this phase. Overall, according to the results for MO form completion for burglary, the shifts that received the task clarification and both forms of group feedback resulted in higher and more stable levels of MO form completion compared to the shift that only received that general order.

Figure 11 displays the pooled data for percentage of MO form completion for both robbery and aggravated assault crime type across the day shift (top panel), night shift (middle panel), and power shift (bottom panel). Figures 12-13 shows the mean percentages for each of the phases for both robbery and aggravated assault crime types across all shifts. Appendix L contains the non-pooled data for percentage of MO form completion for robbery and aggravated assault crime types across all shifts.

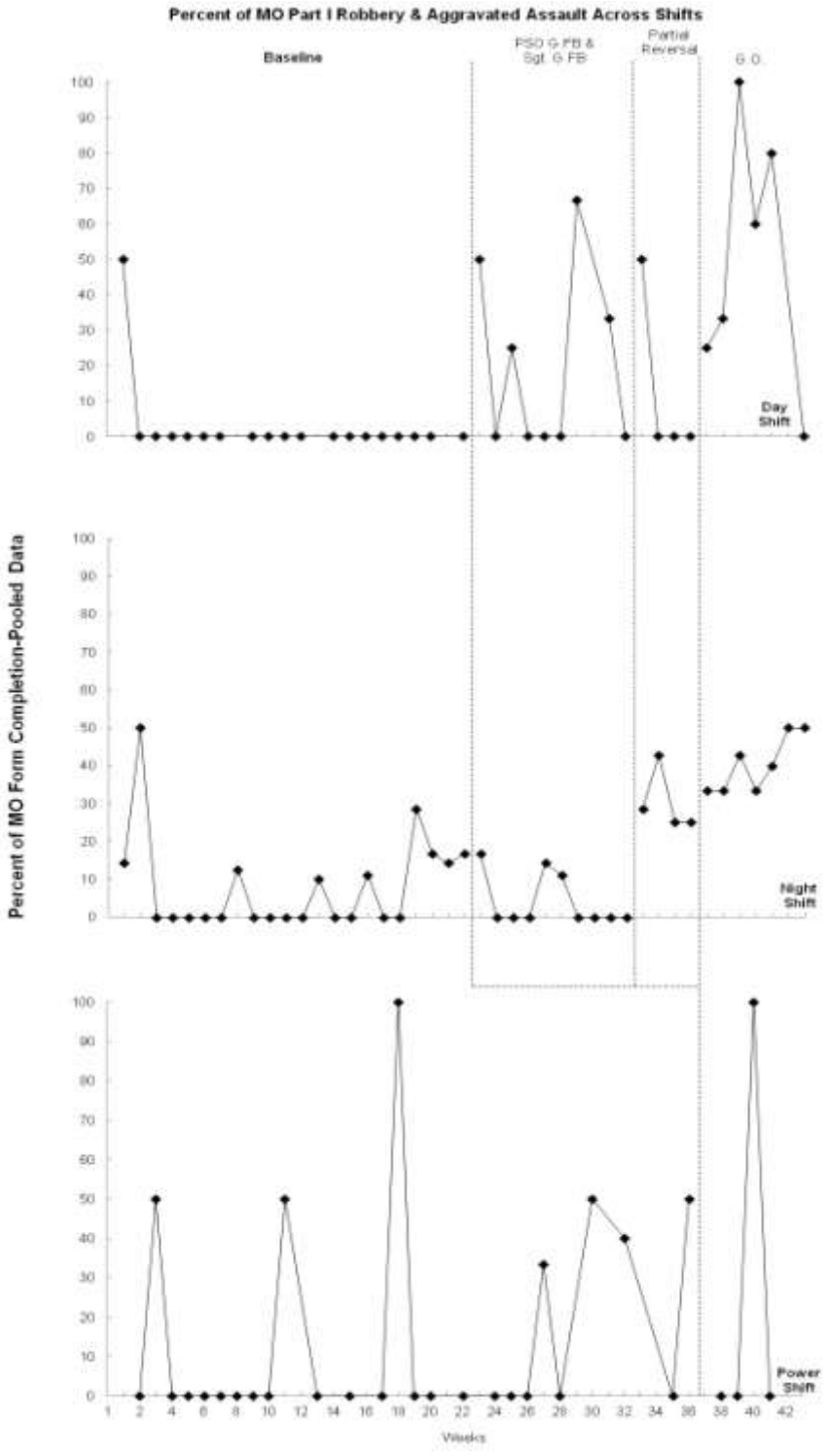

Figure 11. Percentage of MO Form Completion for Part I Robbery and Aggravated Assault Pooled Data

Officers on average, across shifts, had an opportunity to complete three incident reports for robbery and six incident reports for aggravated assault. Baseline levels for MO form completion for day shift was stable at zero levels for robbery (M=17%, SD=41) with the exception of two data points that indicated 100% MO form completion. However MOs were never completed for aggravated assault (M=0, SD=0) for day shift during baseline. After the day shift received task clarification and PSO and sergeant group feedback, MO form completion increased for robbery (M=25%, SD=38), and aggravated assault (M=11%, SD=18). During the partial reversal phase, only robbery decreased slightly (M=17%, SD=24), while aggravated assault increased (M=15%, SD=30). The largest increases for day shift were observed during the general order phase for both robbery and aggravated assault respectively (M=60%, SD=55), (M=44%, SD=39).

Baseline levels for the night shift MO form completion were more stable for robbery (M=3%, SD=10.5), than for aggravated assault (M=12%, SD=31). After the PSO group feedback and sergeant group feedback plus report rejections was introduced, MO form completion increased for robbery (M=18%, SD=33.4), but decreased to 0% for aggravated assault. During the partial reversal phase, MO form completion for both robbery (M=25%, SD=29), and aggravated assault (M=26%, SD=18) saw an increase. However, the largest increase was observed during the general order phase with robbery increasing to 80% (SD=27), and aggravated assault showing a slight increase to 28% (SD=15).

Once again, the power shift remained in baseline throughout most of the study for both robbery (M=32%, SD=46) and aggravated assault (M=4%, SD=13). Baseline trends for both crime types were highly variable during baseline, ranging from 0% to 100% for robbery and 0% to 50% for aggravated assault. During the general order phase, robbery increased (M=50%, SD=46), while aggravated assault decreased to 0%, and remained at 0% for the remainder of the study. Similar to the results for burglary, MO form completion for robbery and aggravated assault are completed at higher levels when task clarification and both forms of group feedback are implemented compared to only the general order.

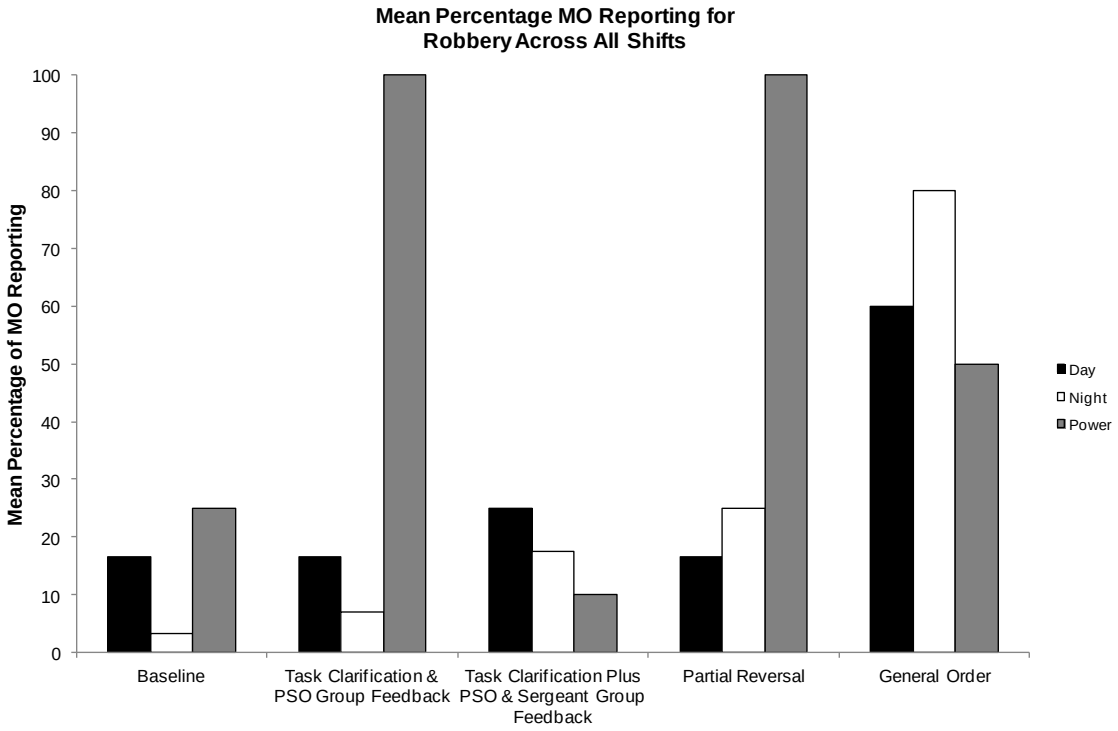

Figure 12. Mean Percentage MO Reporting for Robbery for All Phases

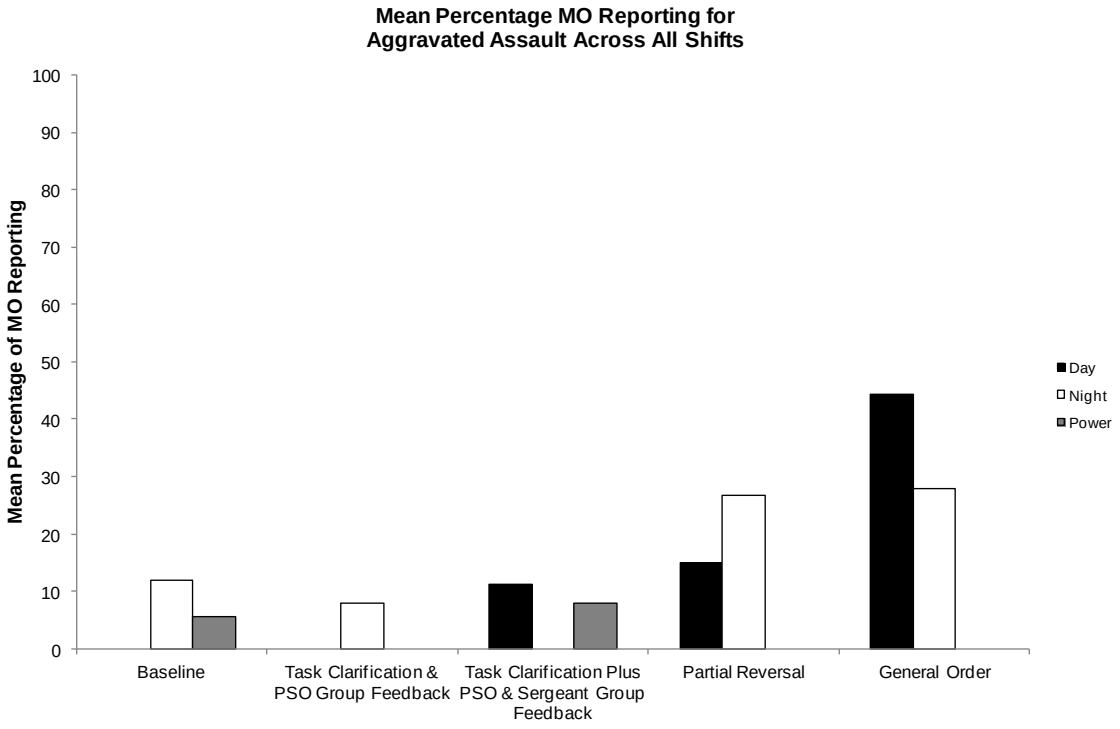

Figure 13. Mean Percentage MO Reporting for Aggravated Assault for All Phases

Sergeant Option to Reject Reports

After task clarification and PSO group feedback was implemented for the day shift, it was apparent that an additional intervention component was necessary to achieve higher results for MO form completion. The next step was to add sergeant option to reject reports without MO form completion and group graphic feedback to sergeants on reports accepted without MO form completion. Figures 14 and 15 displays the percentages of reports accepted by sergeants without MO form completion across all phases for burglary, then robbery and aggravated assault pooled, respectively. During baseline, reports were being accepted without MO form completion for day shift at 70% (SD=16)

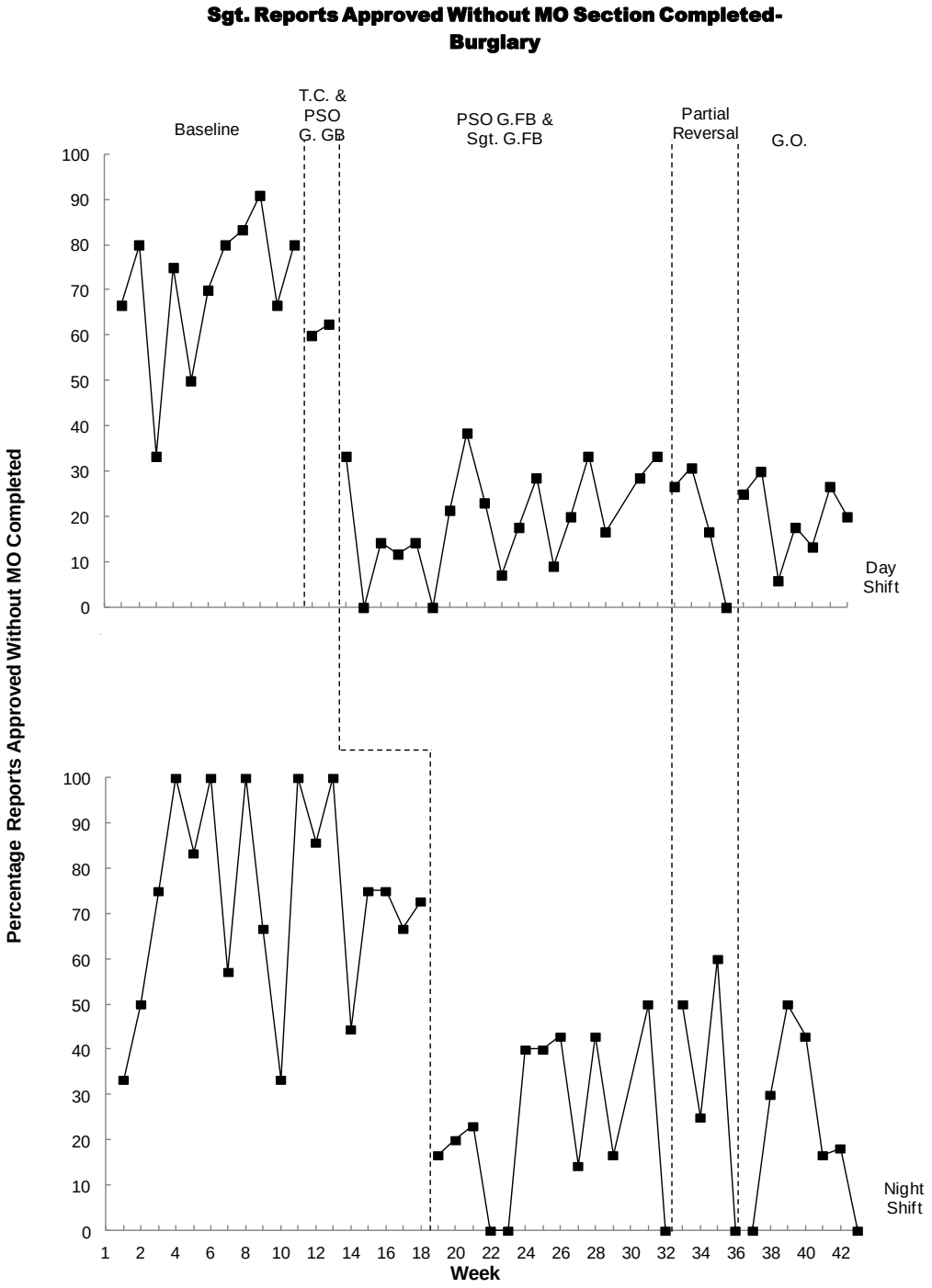

Figure 14. Percentage of Burglary Reports Sergeants Accept Without MOs

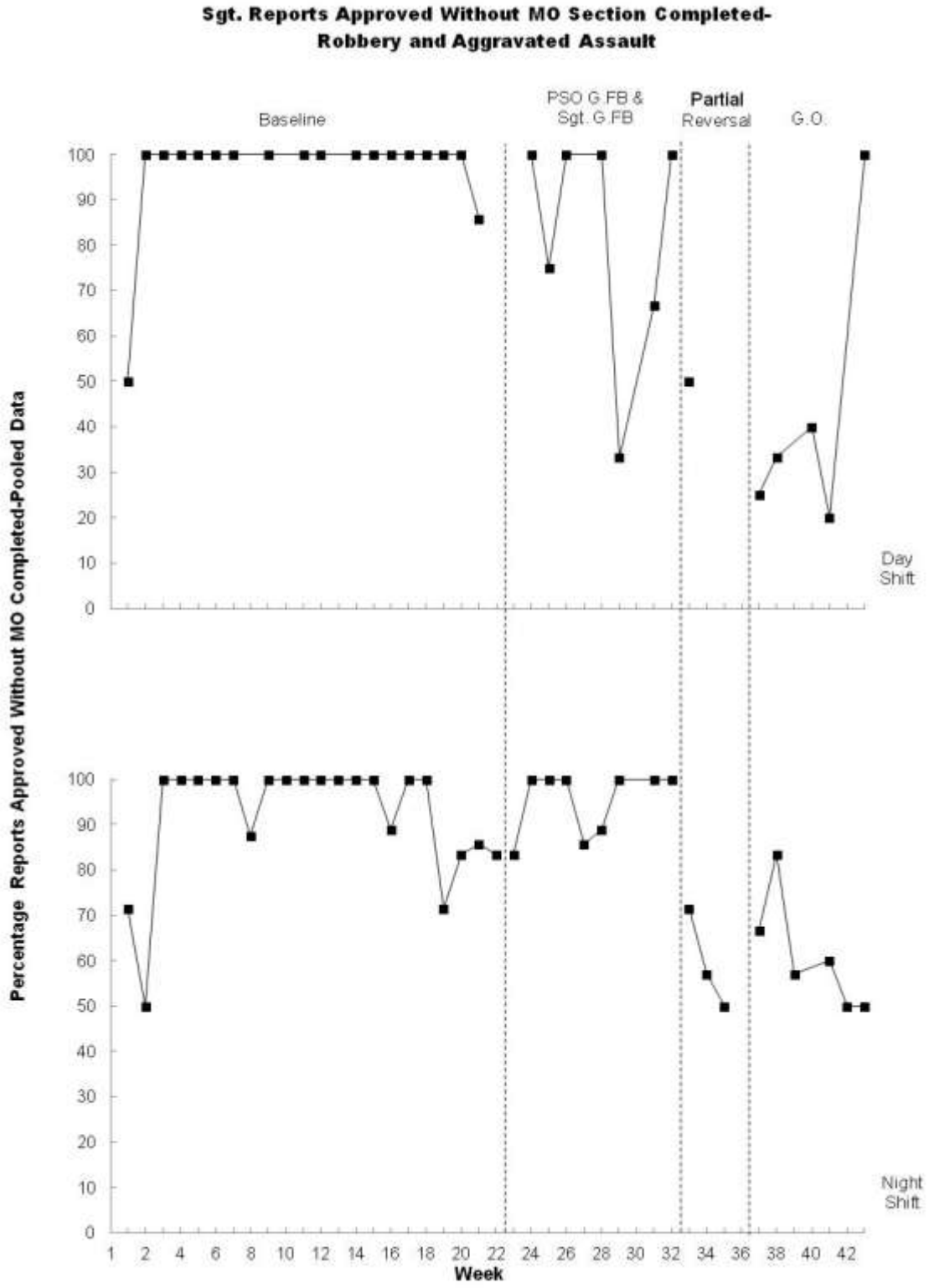

Figure 15. Percentage of Robbery and Aggravated Assault Reports Sergeants Accept Without MOs Pooled Data

and during task clarification and PSO group feedback at 61% (SD=1.8). When sergeant feedback on percent of reports rejected without MO was implemented for the day shift there was an immediate decrease in sergeants accepting reports without MO form completion (M=19%, SD=11.5). During the partial reversal condition, sergeants continued to accept reports without MO form completion (M=19%, SD=13.7) in the absence of feedback. When the general order was implemented, which would allow the sergeants to formally reject reports due to incomplete MO sections, sergeants continued to accept reports without completed MO sections on average of 19% (SD=8.4).

During baseline, night shift sergeants were accepting incomplete MO section reports on average 72% (SD=26). The night shift was the first to receive the full package intervention of task clarification, PSO group feedback, sergeant group feedback on reports accepted without MO form completion and sergeant option to reject reports. Once this intervention was implemented, accepting of incomplete MO reports decreased to 35% (SD=25.8), however there did appear to be a slight upward trend. When feedback was removed during the partial reversal condition, accepting of incomplete reports continued at similar levels and upward trend (M=33%, SD=26.9). The general order phase saw slightly further reductions in accepting of incomplete reports overall (M=23%, SD=19.5), but according to visual analysis there was not a significant difference between the general order phase and the previous phases when the sergeants were given the option to reject the reports. The power shift did not receive this intervention, therefore there are no data to report.

During baseline for both day and night shift, sergeants were accepting reports without completed MO sections for robbery (M=83%, SD=40.1; M=93%, SD=21.1) and aggravated assault (M=100%, SD=0; M=88%, SD=31.6) at a higher level compared to the burglary crime type across day and night shift respectively. For the day shift, after the package intervention was implemented, sergeants accepting reports without MO form completion decreased for both robbery (M=75%, SD=38) and aggravated assault (M=88, SD=18). During the partial reversal phase, there was only one week where reports had an opportunity to be rejected if no MO was included; therefore no trend could be established. However, for the single data point probe that is available during this condition (M=46%), it remains at a much lower acceptance rate compared to the previous condition when the sergeants were receiving feedback. When the general order was introduced, overall acceptance of reports without completed MO sections for robbery (M=40%, SD=54.8) and aggravated assault (M=44%, SD=38.9) was the lowest across all conditions-it appeared that for these two crime types, for the day shift, the general order condition was the most effective intervention, with sergeant option to reject reports as the next best intervention option.

The night shift followed a very similar trend overall in sergeants accepting reports without MO form completion. When the first combined intervention was implemented, overall the acceptance of MO reports by sergeants remained the same, but had more of an effect for robbery (M=82%, 33.4) then aggravated assault (M=100, SD=0), which actually increased. Similar to the day shift, during the partial reversal phase, there was a drastic decrease in the acceptance of incomplete reports for both robbery (M=50%,

SD=40) and aggravated assault (M=64%, SD=3.9). After the general order was implemented, no further overall decreases in level were observed for robbery (M=40, SD=41.8) or aggravated assault (M=72, SD=15.4). These results are consistent with the MO form completion results for robbery and aggravated assault in that sergeants began to accept less incomplete MO reports during the partial reversal phases and general order phase compared to the previous phase in which feedback was implemented.

When analyzed separately, the number of reports rejected by sergeants throughout the study varied as the various phases were implemented. Figure 16 shows the number of reports that sergeants rejected across all conditions and shifts throughout the study. During baseline, sergeants were rejecting 1 report per week (range, 0-4). When the interventions were implemented across all shifts and crime types, sergeants rejected on average 3 reports per week (range, 0-9). However an increasing trend is evident when all interventions were implemented. When feedback was removed during the partial reversal phase, sergeants continued to reject reports (M=6, range, 5-8), but at a higher rate than the previous phases. During the general order phase, report rejections overall decreased to levels similar to when the interventions were implemented (M=3, range, 1-7), which further emphasizes that when the sergeant option to reject reports appeared to have a greater effect on form completion than feedback.

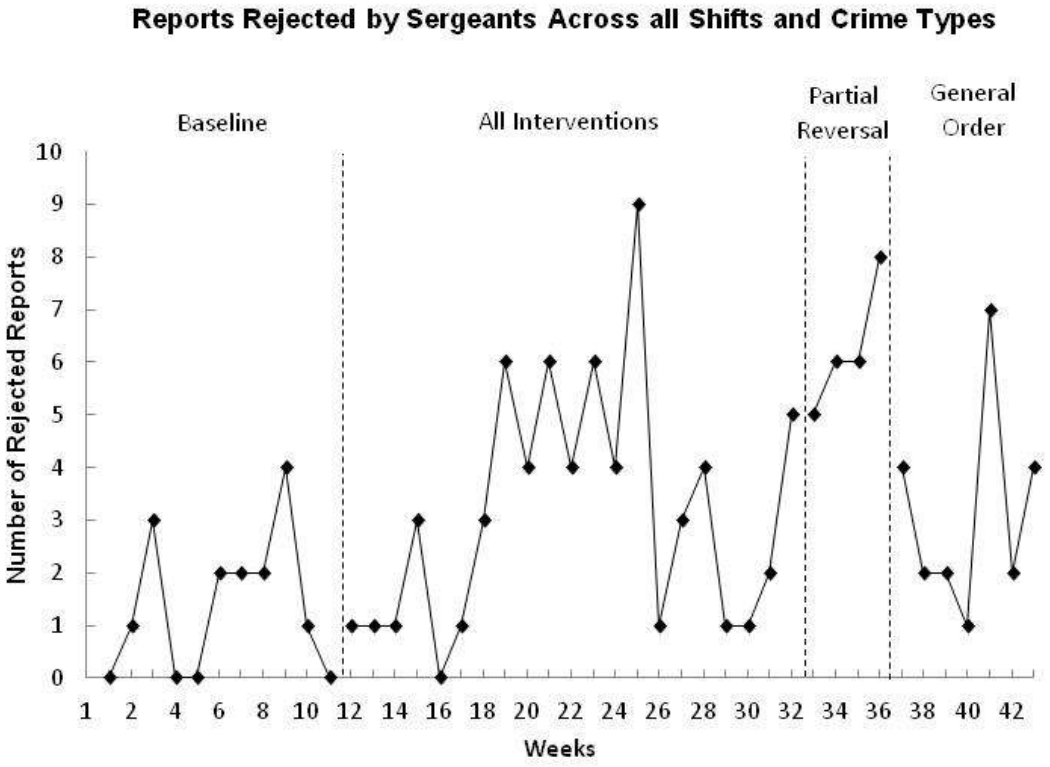

Figure 16. Number of Reports Rejected by Sergeants Across All Shifts and Crime Types

Completeness Data

When officers completed the MO section, the MO information provided were also analyzed for completeness. Figures 17-19 display the percentage of completeness of the MO section for across all conditions and crime types. For the MO items that were indicated by the officers in the report, two independent observers recorded an "x" in the "yes" column if the indicated MO's were listed in the officer's narrative, and "x" in the "no" column if the recorded MO was not listed in the narrative. MO items that were indicated as "no" were not counted as discrepancies. During baseline, the burglary MO reports were fully completed on average 80% (range, 56%-100%) of the time. When all

interventions were in implemented for day and night shift, MO incident reports were fully completed 71% (range, 50%-93%) of the time. The partial reversal phase on average reported an overall increase in completeness (M=76%, range, 70%-83%), however the data path was within range compared to the previous phase. The general order phase showed less variability, but also resulted in the lowest level of completeness (M=67%, range, 62%-74%). Visual inspection appears to show that while the task clarification and both group feedback interventions were in place, MO incident form completeness occurred at similar levels compared to when the interventions were not implemented. Furthermore, when the general order was enacted, completeness decreased, possibly due to the officers no longer receiving group feedback.

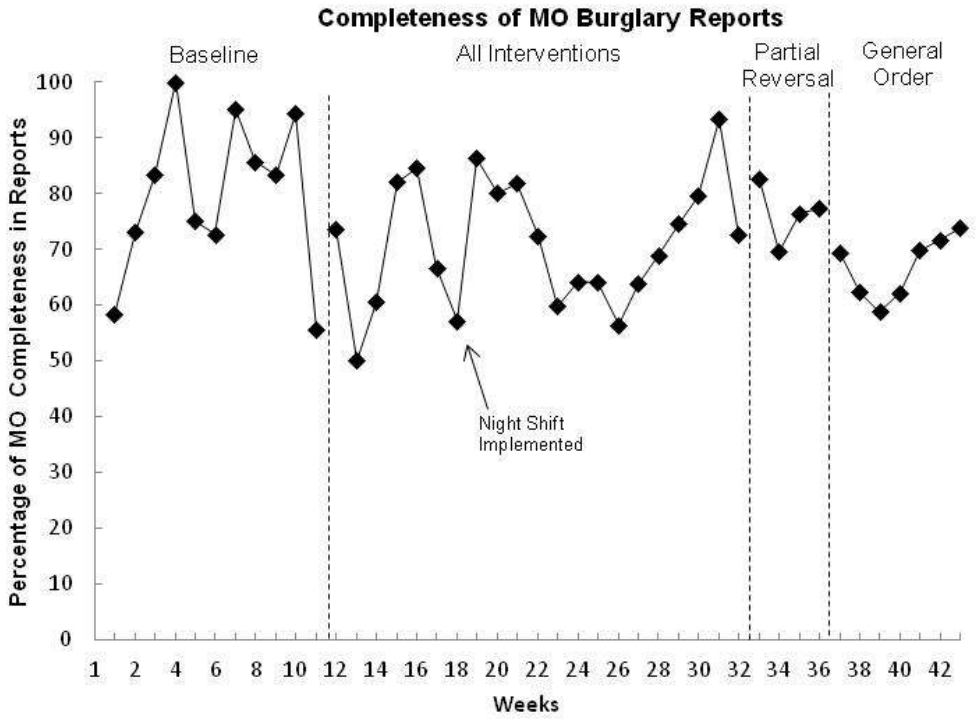

Figure 17. Percentage of Completeness of MO Section for Burglary Reports

During baseline, MO incident form completeness for robbery and aggravated assault was highly variable. For robbery, completeness occurred at 56% (range, 27%-94%), while for aggravated assault completeness occurred at 61% (range, 0%-100%). When all interventions were implemented, the overall averages for both robbery (M=57%, range, 27%-85%) and aggravated assault (M=57%, range, 22%-83%) remained relatively the same, as did variability. The partial reversal phase for robbery showed a higher level of completeness (M=72%, range, 60%-84%), although firm conclusions could not be determined based on two data points in this phase. Aggravated assault reports were fully completed on average 35% of the time (range, 30%-50%), however, there was a slight increase in trend after an initial phase change. The general order phase again provided more variability for both robbery (M=70%, range, 44%-100%) and aggravated assault (M=62%, range, 30%-80%), however the range was not as prominent as the previous phases.

Discrepancy Data

While completeness data were reviewed, discrepancy data were also recorded. Discrepant MOs resulted when an MO was indicated in a report, but the listing did not match the information provided in the narrative (i.e., method of entry-forced door selected as an MO, but the narrative stated method of entry-no force). Figure 20 represents the percentage of discrepancies found in the 49% of reviewed burglary incidents. During baseline, discrepancies occurred infrequently, except during one week (M=1%, range, 0%-10%). When task clarification and PSO and sergeant group feedback

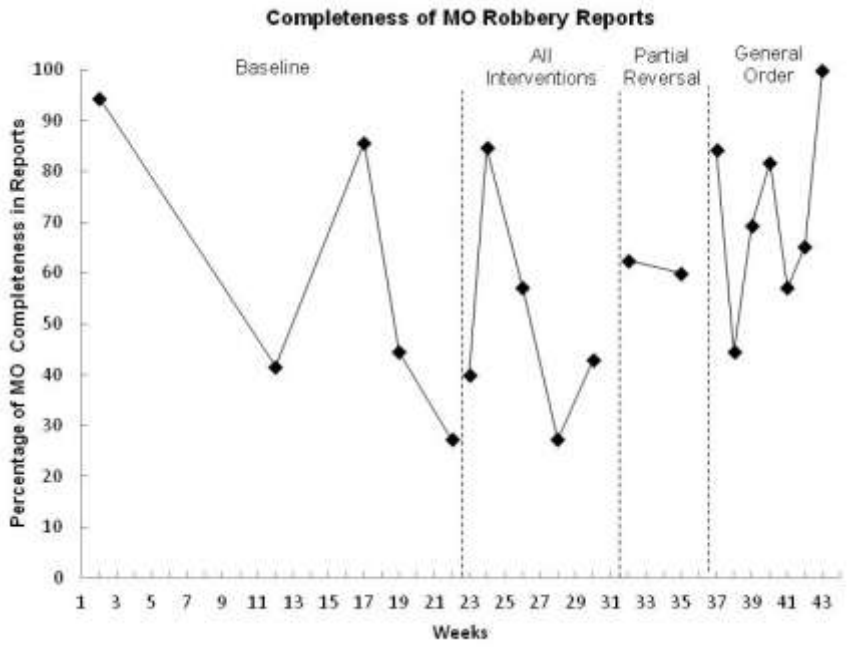

Figure 18. Percentage of Completeness of MO Section for Robbery Reports

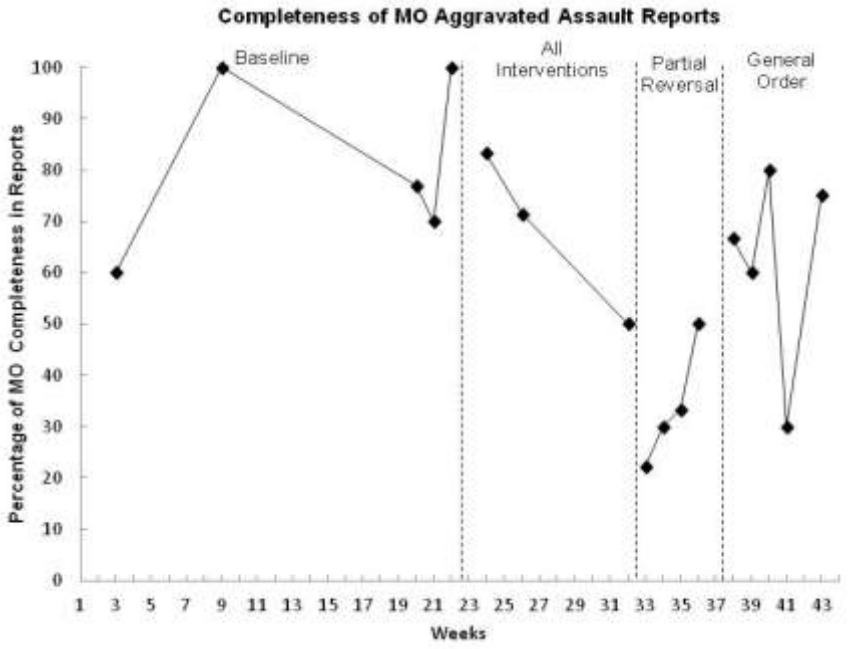

Figure 19. Percentage of Completeness of MO Section for Aggravated Assault Reports

plus report rejections was implemented, discrepant information occurred infrequently, except toward the end of the phase (M=1%, range, 0%-8%). The partial reversal phase experienced more frequently occurring errors compared to the previous phases (M=2%, range, 0%-3%). However, during the general order phase higher variability of discrepancies occurred (M=4%, range, 0%-8%). It appears that higher levels of discrepancies occurred during phases in which task clarification and feedback were not implemented.

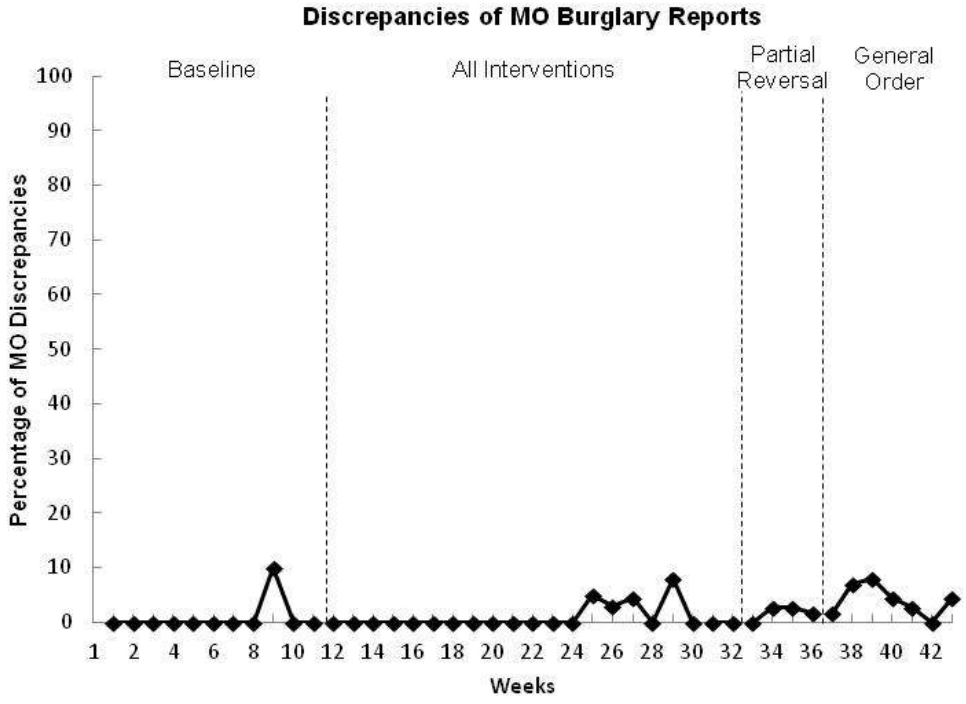

Figure 20. Percentage of Discrepancies in Sampled MO Burglary Reports

Occurrence of discrepancies were highly variable for both robbery and aggravated assault. Figures 21-22 represent the percentage of discrepancies for robbery and aggravated assault. During baseline, discrepant information reported in robbery incidents

was observed as being highly variable (M=10%, range, 0%-50%), but almost all cases, except one, reviewed during baseline indicated some discrepant information (M=44%, range 0%-100%). When task clarification and both group feedback interventions were implemented, the discrepant data contained in robbery reports decrease, except one week where the reports contained discrepancies (M=7%, range , 0%-33%); aggravated assault showed similar results during the same phase (M=5%, range, 0%-33%). The partial reversal condition for robbery only contained two variable data points, (M=5%, range, 0%-11%) and aggravated assault showed similar variable results (M=28%, range, 17%-67%). The general order condition showed differing results for robbery and aggravated assault. During this condition, discrepancies appeared to increase and occur at a higher frequency for robberies (M=10%, range 0%-25%), while aggravated assault discrepancies occurred rarely, except during one week (M=3%, range, 0%-13%).

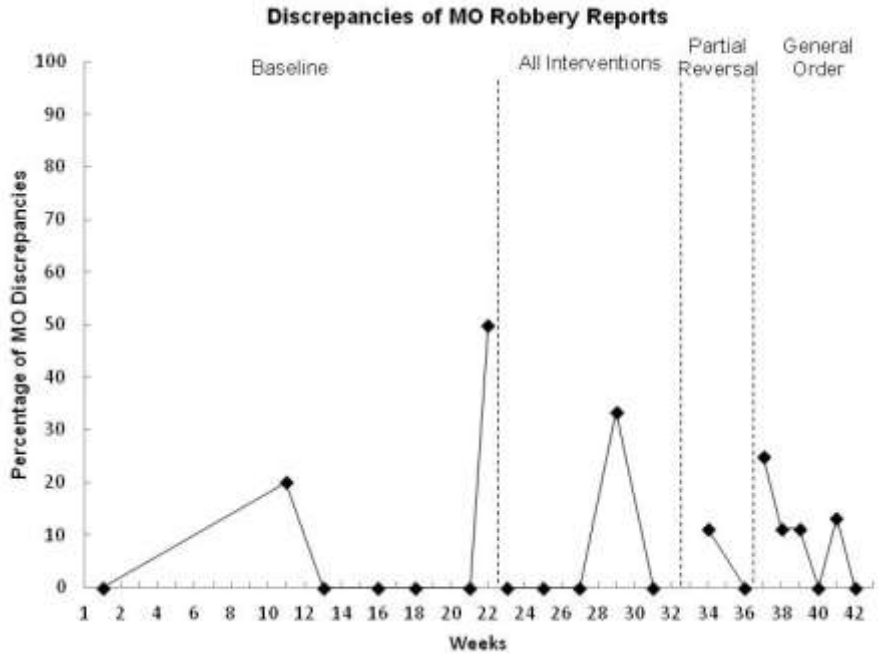

Figure 21. Percentage of Discrepancies in Sampled MO Robbery Reports

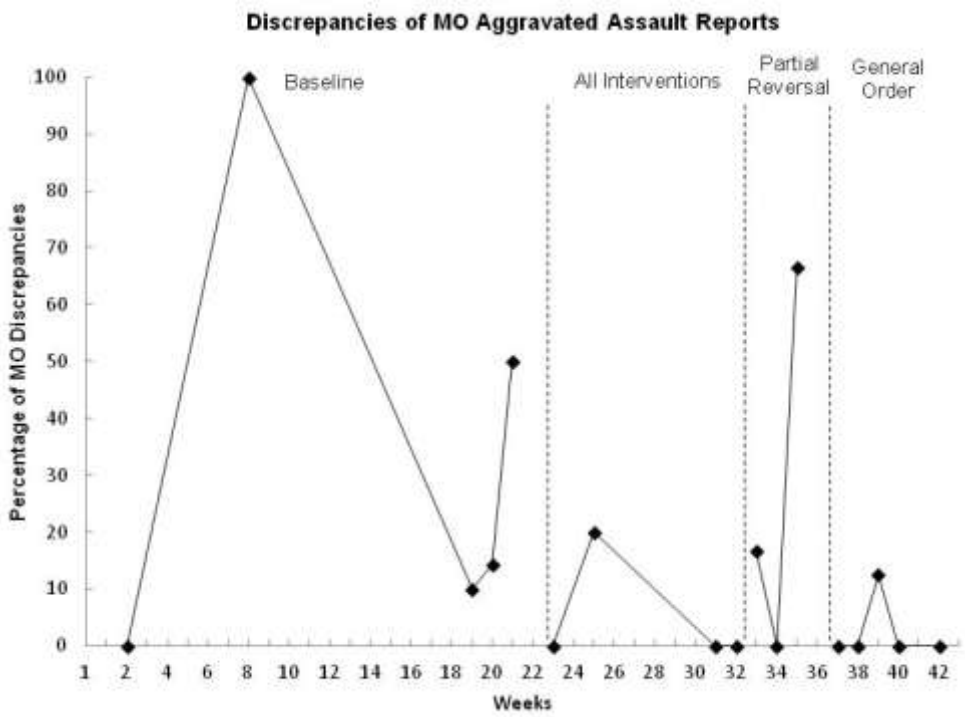

Figure 22. Percentage of Discrepancies in Sampled MO Aggravated Assault Reports

CHAPTER IV

DISCUSSION

The results of this study show that using task clarification and group feedback to officers and sergeants alone had little effect on MO inclusion in reports. However, instructing sergeants that they can reject reports and providing them with feedback on the percentage of reports they accepted without MO included led to higher MO reporting. The results also may suggest that using these interventions prior to imposing an organizational policy change may lead to better performance following the policy change. Further, the overall quality as measured by completeness of MO section and discrepancy between narrative and MO section of the incident reports did not appear to decrease to any great extent when either intervention was implemented.

The intervention effects appear to be more effective when applied to the burglary crime type because burglaries were a more frequently occurring compared to others. As noted in comments from the pre-study survey, some of the officers only considered MO information to be effective in solving certain crime types, specifically burglary. During baseline, MO form completion for both day and night shift were highly variable, but occurred at lower levels. Once task clarification and group feedback for both PSOs and sergeants were implemented immediate increases were observed across both shifts. These higher levels of form completion continued during the partial reversal and general order for both shifts, however, were somewhat variable for the night shift compared to the day shift. MO form completion for power shift was highly variable during baseline, however

variability somewhat decreased during the general order phase. Similar levels of form completion were not observed for the power shift during the general order phase compared to the other shifts. Based on these results, it appears that the shifts that received the task clarification and group feedback interventions completed a higher percentage of MO incident forms compared to the power shift, which only received the general order.

The results for robbery and aggravated assault crime type appear at first glance to have had less than an effect compared to the burglary crime types. However, robbery and aggravated assaults occur far less often than burglaries. The results appear to show that for day shift, MO form completion occurred more often when the officers received feedback and during the general order. During the night shift, the general order appeared to have a better effect on MO form completion. For power shift, the data were highly variable and appears to be unaffected by the general order, except for one week. The results also indicated that sergeant report acceptance without MO form completion appeared to occur less for burglary than the other types. Perhaps the reason being that the sergeants felt the MO information was more relevant for the burglary crime type compared to other types of crimes.

Overall, the results of this study are similar to the findings with of Jones, Morris, and Barnard (1985), which evaluated the effects of a feedback package intervention on civil commitment form accuracy completion and timeliness of completion. Officers entered completed the incident forrm information for the MO section at a much higher percentage across all shifts after the interventions were implemented. However, the results differ from Jones, Morris, and Barnard (1985) in that overall completeness was

uneffected by the interventions. Although some information was omitted from the MO report section, the overall completeness of the reports was not directly affected by the interventions of this study. With that said, there did appear to be some room for improvement regarding completeness. One approach to this problem was the layout of the MO form. For example, the general layout of MO section can make it somewhat difficult to remember to select all of the relevant MOs to a specific incident. For example, the current MO list has 18 initial categories of MO types, then within each initial category there are more specific MOs related to that initial category. Although the MOs have categories currently, it is currently segmented into different MO actions and gives no indication if an MO is more relevant for a specific crime type. Given the ambiguity with the current categories, a suggestion could be to create a category system for each crime type and place relevant MOs under each category; this will allow for the officers to work off the same crime type definitions and reduce the amount of missing items in the MO section.

There were a few methodological concerns with the design presented in this study. Given the schedule of the shifts, there was a risk of contamination of information with the power-shift involvement due to the overlapping times with the day shift and the night shift. The high variability in the power shift's data across crime type could possibly be due to contamination, but more likely due to the function of the power shift. The power shift is a support shift; the officers assigned to this shift do not complete as many incident reports as those on day or night shift. Given the support function and shift time, task clarification and group feedback was not implemented with this shift. A positive

aspect of the current design is that it was crafted to analyze changes across behaviors and shifts.

Over the course of the study, there was an issue with officer attrition. As mentioned in the Method section, one of the PSOs was killed in the line of duty during baseline, just prior to the intervention being implemented. Since the data were being analyzed as group performance, this individual's data were not parsed out of baseline data. It is worth noting however that the officer's death that occurred during baseline was not a direct result of the study. In addition to this isolated incident, budget cuts and organizational constraints caused the organization to cut several positions from within the department. Although the eliminated positions did not directly affect the number of participants evaluated, it did have an impact on who was on what shift.

While the intervention was in place a procedural issue was brought to the experimenter's attention that needed to be addressed immediately. One concern was ensuring that the emails with the graphic feedback were sent to the necessary shifts on-time. The experimenter ensured that the Executive Lieutenant had the necessary materials for the weekly email no later than Tuesday morning by 11:00am. For some weeks the subsequent email to the officers with that information wouldn't be sent until Thursday of the same week due to the Executive Lieutenant's work responsibilities not involving the study. In cases when the email was not sent out by Wednesday, the experimenter prompted the Executive Lieutenant to send the email. However, in all weeks when the intervention was in place, the officers did receive the appropriate email.

Another approach to increasing MO completion would be to require its completion before the report is submitted. When an officer completes an incident report, there are specific pieces of information that are required to complete, known as *required fields*, prior to saving and exiting out of the system. The current database settings do not indicate MO as a *required field*. Completion of the MO page was not a required field because the ILeads system is an inter-agency data management system; several other police agencies within the county of Kalamazoo use the same database to manage their incident reports. If a *required field* setting change were to occur for KDPS, all other agencies using the system would experience the same setting change. Those agencies were not willing to allow the MO be a *required field* change within the system, hence, the need for alternative methods to increase MO field completion the intervention components used in this study.

There are also some limitations to the current MO field in the ILeads system. For example, descriptions of items stolen, known as "object of entry" do not denote a section for drugs, to indicate if the burglary was related to a drug case. Another example would be descriptions of the suspect's attire compared to weapons; currently there are 31 options for a weapon type compared to seven for the suspect's attire.

Another limitation was that some items listed in the narrative were somewhat vague, which would have allowed the selection of several relevant MOs in the current listing. For example, if a robbery narrative indicated that a suspect threatened a victim with a weapon, then based on the list two possible MOs are relevant to the case (e.g., threat/points at victim, threat/assaults victim-no shots). However, the selection of one or

more similar items would depend on the specific circumstances of the case as indicated in the narrative. This made it difficult to obtain high IOA on missing items. As explained, due to the wide variety of MO options, and lack of consistency across narrative reports, the missing MO component had to be re-reviewed by the observers. Retraining of the experimenter and the research assistant was necessary to ensure both independent observers were reviewing all cases under the same parameters. After retraining occurred, entire narratives had to be reevaluated. Each observer recorded their results independently and IOA was re-recorded.

Since the beginning of the study, there have been several discussions with administration about the current MO list in ILeads. One recommendation to administration is that the list should be revised to improve MO recording and crime intelligence gathering from the officers. This would require research and cooperation with other agencies to determine what other data management systems are in current use and see what information is best to have in the system. If the list were to be revised, there are certain restrictions on the information technology side that would require cooperation with Intergraph®, however the department is willing to at the very least have the discussions to ensure the department is utilizing the functionality of the system as much as possible.

A couple of the suggestions officers offered on the surveys might also be considered to improve report writing process. One of the suggestions was to categorize the MO list according to crime type. My recommendation would be to have a group of command officers along with PSOs get together as a focus group and review the current

list for categorization. The focus group could then go through each crime type, review the current list as a whole and select which MOs should be listed under which crime type. The categories could help aid the officers in their selection of applicable MOs and reduce the amount of missing MO information for each incident. This could also help reduce the amount of time an officer spends scrolling through the long list of MO information provided for each MO group type, which would reduce the response effort associated with completing the MO section.

Another officer suggestion was to place the MO information on page 2, as opposed to its current location on page 3 because the narrative information and incident classification (e.g., break & enter, robbery, aggravated assault) are also located on page 2. This new page location would further reduce the response effort (Casella et al., 2010; Friman & Poling, 1995) associated with alternating back and forth between two pages to complete the MO section since MO information is the only information that needs to be filled out on page 3. If all of the narrative and MO section were located on page 2, rather than page 3, the MO section would a) be more salient to officers, b) could reduce the response effort of switching between multiple screens within the incident form to complete the necessary information, and c) might increase MO form completion. However, the suggestions provided above are both systems changes that would require assistance from Intergraph®, and would result in a fee for the changes. These recommendations might be more difficult to implement due to funding constraints. Follow up research should examine the effects of reducing response effort alone and its impact on MO completion.

Another recommendation would be to provide more direct information about the utility of MO reporting to the officers. If the officers are informed of how the information that they are gathering is later being used in the process of crime prediction, then it's possible that the quality of the information in the officers reports might increase. Once a crime is solved or a suspect is captured based on the MO information the officers provided in their reports, feedback on this success should be provided to the officers so that in the future they are aware that someone other than their direct supervisor is reviewing their reports and providing praise.

Overall this study was able to demonstrate that the use of task clarification, PSO and sergeant group feedback plus the sergeant option to reject reports and policy change are effective interventions when improving incident form completion. The administrators in the department reported being satisfied with the overall results since improvements were observed without the use of monetary incentives or punitive measures. Another interesting component was the use of performance improvement techniques prior to imposing an organizational policy change; one might speculate that this technique might lessen the impact for the employees. Future research could address the impact of adding similar interventions that would address the nature of the policy prior to the change being implemented for the organization.

There are several benefits relating to predictive ability resulting from the implementation of the treatment. One benefit was that entering MO information in ILeads records enabled detectives and members of administration to search in the database for all crimes that have occurred with a specific MO pattern. This information ultimately helps

the department determine crime patterns that might assist them in deployment of departmental resources by enabling them to better predict where and when future crime may occur.

REFERENCES

Adderely, R., & Musgrove, P. (2003). MO Modelling of Group Offending: A Data Mining Case Study. *The International Journal of Police Science and Management, 5(4),* 267-276.

Alvero, A. M., Bucklin, B. R., & Austin, J. (2001). An Objective Review of the Effectiveness and Essential Characteristics of Performance Feedback in Organizational Settings (1985-1998). *Journal of Organizational Behavior Management, 21(1),* 3-29.

Amigo, S., Smith, A., & Ludwig, T. (2008). Using Task Clarification, Goal Setting, and Feedback to Decrease Table Busing Times in a Franchise Pizza Restaurant. *Journal of Organizational Behavior Management, 28(3),* 176-187.

Andrasik, F., McNamara, J. R., & Abbott, D. M. (1978). Policy Control. *Journal of Organizational Behavior Management, 1(2),* 125-133.

Bailey, J. S., & Burch, M. R. (2002). *Research Methods in Applied Behavior Analysis.* Thousand Oaks: Sage Publications, Inc.

Balcazar, F., Hopkins, B. L., & Suarez, Y. (1986). A Critical, Objective Review of Performance Feedback. *Journal of Organizational Behavior Management, 7(3/4),* 65-89.

Bowers, K., & Johnson, S. (2004). Who Commits Near Repeats? A Test of the Boost Explanation. *Western Criminology Review, 5(3),* 12-24.

Bruce, C. W. (2008). Fundamentals of Crime Analysis. In I. A. Analysts, Exploring Crime Analysis: Readings on Essential Skills (pp. 7-32). Overland Park: International Association of Crime Analysts.

Calpin, J. P., Edelstein, B., & Redmon, W. K. (1988). Performance Feedback and Goal Setting to Improve Mental Health Center Staff Productivity. *Journal of Organizational Behavior Management, 9(2),* 35-58.

Casella, S., Wilder, D., Neidert, P., Rey, C., Compton, M., & Chong, I. (2010). The effects of response effort on safe performance by therapists at an autism treatment facility. *Journal of Applied Behavior Analysis,43(4),* 729-734.

Crowell, C. R., Anderson, D., Abel, D. M., & Sergio, J. P. (1988). Task Clarification, Performance Feedback, and Social Praise: Procedures for Improving the Customer Service of Bank Tellers. *Journal of Applied Behavior Analysis, 21(1),* 65-71.

Divisions (2011). Retrieved December 30, 2011, from Department of Public Safety: http://kalamazoopublicsafety.org/inside-kdps/divisions

Douglas, J. E., & Munn, C. (1992, February). Violent Crime Scene Analysis: Modus Operandi, Signature, and Staging. *FBI Law Enforcement Bulletin, 61(2),* pp. 1-10.

Friman, P., & Poling, A. (1995). Making life easier with effort: basic findings and applied research on response effort. *Journal of Applied Behavior Analysis, 28(4),* 583-590.

Goldstein, H., & Susmilch, C. E. (1981). *Project on Development of a Problem-Oriented Approach to Improving Police Service.* Madison, Wisconson.

Groff, E. R., & La Vigne, N. G. (2002). Forecasting the Future of Predictive Crime Mapping. *Crime Prevention Studies, 13,* 29-57.

Integraph (2009). Retrieved March 04, 2011, from Integraph I/Leads Records Management System Redices Violent Crime by More Than 10 Percent in the System's First Year: http://www.intergraph.com/assets/pdf/3467_print.pdf

Investigation, F. B. (2010, September). *Crime in the United States.* Retrieved January 29, 2011, from About Violent Crime: http://www2.fbi.gov/ucr/cius2009/offenses/violent_crime/index.html

Jessup, P. A., & Stahelski, A. J. (1999). The Effects of a Combined Goal Setting, Feedback and Incentive Intervention on Job Performance in a Manufacturing Environment. *Journal of Organizational Behavior Management, 19(3),* 5-26.

Jones, H. H., Morris, E. K., & Barnard, J. D. (1985). Increasing Staff Completion of Civil Commitment Forms Through Instructions and Graphed Group Performance Feedback. *Journal of Organizational Behavior Management, 7(3/4),* 29-43.

Kalamazoo Public Safety (2009). Kalamazoo Public Safety 2009 Annual Report. Kalamazoo, Michigan, United States.

Kazdin, A. E. (1982). *Single-Case Research Designs.* New York: Oxford University Press.

Kreitner, R., Reif, W., & Morris, M. (1977). Measuring Impact of Feedback on the Performance of Mental Health Technicians. *Journal of Organizational Behavior Management, 1(1),* 105-109.

LaFleur, T., & Hyten, C. (1995). Improving the Quality of Hotel Banquet Staff Performance. *Journal of Organizational Behavior Management, 15(1),* 69-93.

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal Setting Task Performance: 1969-1980. *Psychological Bulletin, 90*, 125-152.

Lowey, S., & Bailey, J. (2007). The Effects of Graphic Feedback, Goal Setting, and Manger Praise on Customer Service Behavior. *Journal of Organizational Behavior Management, 27(3),* 15-26.

Ludwig, T. D., & Geller, E. S. (1999). Behavioral Impact of a Corporate Driving Policy: Undesirable Side-Effects Reflect Countercontrol. *Journal of Organizational Behavior Management, 19(2),* 25-34.

Ludwig, T. D., Biggs, J., Wagner, S., & Geller, E. S. (2002). Using Pubic Feedback and Competitive Rewards to Increase the Safe Driving of Pizza Deliverers. *Journal of Organizational Behavior Management, 21(4),* 75-104.

McDonald, P. P. (2002). *Managing Police Operations: Implementing the New York Crime Control Model-Compstat.* Belmont, CA: Wadsworth.

Miltenberger, R. G. (2008). *Behavior Modification.* Belmont, CA: Thomson Higher Education.

Nau, P. A., Van Houten, R., Rolider, A., & Jonah, B. (1993). The Failure of Feedback on Alcohol Impairment to Reduce Impaired Driving. *Journal of Applied Behavior Analysis, 26(3),* 361-367.

Nordstrom, R., Lorenzi, P., & Hall, V. (1991). A Review of Public Posting of Performance Feedback in Work Settings. *Journal of Organizational Behavior Management, 11(2),* 101-124.

Operations Division (2011). Retrieved December 30, 2011, from Department of Public Safety: http://kalamazoopublicsafety.org/operations

Pearsall, B. (2010). Predictive Policing: The Future of Law Enforcement? *NIJ Journal*, 266, 16-19.

Police, M. S. (2009). *Michigan State Police.* Retrieved January 29, 2011, from 2009 Crime at a Glance: http://www.michigan.gov/documents/msp/2009Annual_CrimesAtAGlance_332333_7.pdf

Ralis, M. T., & O'Brien, R. M. (1987). Prompts, Goal setting and Feedback to Increase Suggestive Selling. *Journal of Organizational Behavior Management, 8(1),* 5-18.

Ratcliffe, J. H., & Guidetti, R. (2008). State Police Investigative Structure and the Adoption of Intelligence-Led Policing. *Policing: An International Journal of Police Strategies & Management, 31(1),* 109-128.

Rohn, D., Austin, J., & Lutrey, S. M. (2003). Using Feedback and Performance Accountability to Decrease Cash Register Shortages. *Journal of Organizational Behavior Management, 22(1),* 33-46.

Slowiak, J. M., Madden, G. J., & Mathews, R. (2006). The Effects of a Combined Task Clarification, Goal setting, Feedback, and Performance Contingent Consequence Intervention Package on Telephone Customer Service in a Medical Clinic Environment. *Journal of Organizational Behavior Management, 25(4),* 15-35.

Stephens, S. D., & Ludwig, T. D. (2005). Improving Anesthesia Nurse Compliance with Universal Precautions Using Group Goals and Public Feedback. *Journal of Organizational Behavior Management, 25(2),* 37-71.

Tittelbach, D., Deangelis, M., Sturmey, P., & Alvero, A. (2007). The Effects of Task Clarification, Feedback, and Goal setting on Student Advisors' Office Behaviors and Customer Service. *Journal of Organizational Behavior Management, 27(3),* 27-40.

Uniformed Crime Reports (2004). Retrieved January 19, 2011, from The Federal Bureau of Investigation: http://www.fbi.gov/about-us/cjis/ucr/ucr/

Van Houten, R. & Nau, P.A. (1983). Feedback intervention, and driving speed: A parametric and comparative analysis. *Journal of Applied Behavior Analysis, 16(3),* 253-281.

Walsh, W. F. (2001). Compstat: An Analysis of an Emerging Police Managerial Paradigm. *Policing, 24(3),* 347-362.

Wilder, D. A., Austin, J., & Casella, S. (2009). Applying Behavior Analysis in Organizations: Organizational Behavior Management. *Psychological Services, 6(3),* 202-211.

Wilk, L. A., & Redmon, W. K. (1990). A Daily-Adjusted Goal-Setting and Feedback Procedure for Improving Productivity in a University Admissions Department. *Journal of Organizational Behavior Management, 11(1),* 55-75.

Appendix A

Experiment Informed Consent

Experiment Informed Consent

Western Michigan University
Psychology Department

Ron Van Houten, Ph.D., Principle Investigator (PI)
Sarah Casella, M.S., Student Investigator (SI)
A Behavioral Approach to Modus Operandi: Incident Form Completion and its Effect on Predictive Analysis-Phase B

You are invited to participate in a research project entitled "A Behavioral Approach to Modus Operandi: Incident Form Completion and its Direct Effect on Predictive Analysis" gain a better understanding as to the officer's use of the system, specifically the MO section. The study is being conducted by Dr. Ron Van Houten, and Sarah Casella, M.S., from Western Michigan University, Department of Psychology. This research is being conducted as part of the dissertation requirements for Sarah Casella, M.S. Please read this consent form carefully and completely and please ask any questions if you need more clarification.

What are we trying to find out in this study?

The purpose of this study is to gain a better understanding of your perceptions and use of the ILeads data management system.

Who can participate in this study?

The only criteria for this study are that the participants be sworn officers employed the Kalamazoo Department of Public Safety who investigate crimes and fill out police reports.

Where will this study take place?

This study will take place on-site at the Kalamazoo Department of Public Safety

What will you be asked to do if you choose to participate in this study?

You will be asked to read the informed consent document to ensure you meet the participation survey criteria (See "Who can participate in this study?" section above).

If you meet the criteria, you will be asked to complete your incident reports as requested by management.

What are the risks of participating in this study and how will these risks be minimized?

It is possible that some of the other groups could see how your shifts have performed across the weeks. However, to mitigate that you will receive information related to your shift via your kalamazoocity.org email address.

What are the benefits of participating in this study?
Although there may not be any direct benefits for you to participate in the study, the results may assist similar future research in the department related to the functionality of the data management system and its perceived usefulness.

Are there any costs associated with participating in this study?
There are no costs associated with participating in this study.

Is there any compensation for participating in this study?
There will be no compensation for participating in this study.

Who will have access to the information collected during this study?
The researchers will take reasonable steps to keep the data downloaded confidential. Downloaded data will be saved on a password protected USB drive and will be destroyed from the original source of download once it's saved to the USB drive. The USB drive will be kept in a locked cabinet in the Principle Investigator's office prior to and after processing. After three years, the files will be formatted and destroyed.

What if you want to stop participating in this study?

You are required to participate as directed by the administration of the Kalamazoo Department of Public Safety. However, the data being collected are anonymous, meaning no personal identifiers are attached to the information being recorded. The researchers of this study are the only individuals that will have access to the confidential and anonymous data that will be collected. No harm or penalty will come against you for participating in this study.

WESTERN MICHIGAN UNIVERSITY
H. S. I. R. B.
Approved for use for one year from this date:

MAR 10 2011

HSIRB Chair

This study will take approximately 36 weeks in its entirety to complete. Again, your data being recorded are completely anonymous, so your name will not appear anywhere in conjunction with individual data. If you have any questions, you may contact Dr. Ron Van Houten at (269-387 - 4471), Sarah Casella at 386-216-2002, the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year.

Appendix B

Experiment HSIRB Approval Letter

Experiment Human Subjects Institutional Review Board Letters of Approval

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: March 10, 2011

To: Ron Van Houten, Principal Investigator
Sarah Casella, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 11-03-13

This letter will serve as confirmation that your research project titled " A Behavioral Approach to Modus Operandi: Incident from Completion and its Effect on Predictive Analysis-Phase B" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 10, 2012

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: April 12, 2011

To: Ron Van Houten, Principal Investigator
Sarah Casella, Student Investigator for dissertation
Joshua Murphy, Student Investigator

From: Amy Naugle, Ph.D., Chair Amy Naugle

Re: HSIRB Project Number 11-04-12

This letter will serve as confirmation that your research project titled "A Behavioral Approach to Modus Operandi: Incident Form Completion and its Effect of Predictive Analysis-Phase B" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: April 12, 2012

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

Appendix C

Approval Letter from Chief of Police

Approval Letter from Chief of Police

Kalamazoo Department of Public Safety
OFFICE OF THE CHIEF
150 E. Crosstown, Suite A
Kalamazoo, Michigan 49001-2849
(269) 337-8123
Fax (269) 337-8245

December 21, 2010

Western Michigan University
Human Subjects Institution Review Board
210 West Walwood Hall
Kalamazoo, MI 49008-5456

To whom it may concern;

I am writing to inform you that after numerous discussions between members of our department, Dr. Ron Van Houten and Sarah Casella, I have approved a collaborative research partnership between these individuals and the Kalamazoo Department of Public Safety. We feel they will be able to help address some of our departmental issues related to the consistency and quality of reporting procedures by introducing scientifically validated techniques.

We understand that within the scope of this collaboration the WMU researchers are obligated to adhere to certain HSIRB and dissertation requirements. We will be as compliant as possible with these requirements, within our confidentiality constraints. These researchers have completed the background investigation requirements to be granted access to the premises and have minimal access to the data management system.

We look forward to their assessment and recommendations for improving the consistency and quality of reports.

Sincerely,

Chief Jeff Hadley

Appendix D

Survey Informed Consent Form

Survey Informed Consent Form

Western Michigan University
Psychology Department

Ron Van Houten, Ph.D., Principle Investigator (PI)
Sarah Casella, M.S., Student Investigator (SI)
A Behavioral Approach to Modus Operandi: Incident Form Completion and its Effect on Preditive Analysis

You are invited to participate in a research project entitled "A Behavioral Approach to Modus Operandi: Incident Form Completion and its Direct Effect on Preditive Analysis" gain a better understanding as to the officer's use of the system, specifically the MO section. The study is being conducted by Dr. Ron Van Houten, and Sarah Casella, M.S., from Western Michigan University, Department of Psychology. This research is being conducted as part of the dissertation requirements for Sarah Casella, M.S. Please read this consent form carefully and completely and please ask any questions if you need more clarification.

What are we trying to find out in this study?

The modus operandi (MO) is a specific crime signature that may change slightly from case to case, however the basic fundamentals of the MO are the common factors that link cases together. It is important to capture and develop MO signatures across crimes in order to increase the probability of solving future, similar crimes. The purpose of this survey is to gain a better understanding of your perceptions and use of the data management system, with emphasis on the MO section of incident reports.

Who can participate in this study?

The only criteria for this study are that the participants be sworn officers employed the Kalamazoo Department of Public Safety who investigate crimes and fill out police reports. Officers are the ones completing the modus operandi information as the incidents occur; therefore they are the most relevant population.

Where will this study take place?

This study will take place on-site at the Kalamazoo Department of Public Safety

What will you be asked to do if you choose to participate in this study?

You will be asked to read the informed consent document to ensure you meet the participation survey criteria (See "Who can participate in this study?" section above). If you meet the criteria, you will be asked to complete a survey attached to the informed consent document. Please answer the questions to the best of your ability-there are no wrong answers.

This is a one-time survey distribution. The time commitment for this study will be approximately five minutes in total, with three minutes to read this informed consent document and two minutes to complete the survey.

What are the risks of participating in this study and how will these risks be minimized?
If you decide to participate in this study, someone might see how you responded. However, we will keep the surveys private until the data are entered into the spreadsheet after which we will store the surveys in a locked filing cabinet.

What are the benefits of participating in this study?
Although there may not be any direct benefits for you to participate in the survey, the results may assist similar future research in the department related to MO and its relation to predictive analysis.

Are there any costs associated with participating in this study?
There are no costs associated with participating in this survey.

Is there any compensation for participating in this study?
There will be no compensation for participating in this survey.

Who will have access to the information collected during this study?
The researchers will take reasonable steps to keep these surveys confidential. The surveys will be kept in a locked cabinet in the Principle Investigator's office prior to and after processing. After three years, the surveys will be destroyed.

What if you want to stop participating in this study?

You are required to complete this survey. The survey is anonymous; please do not sign this informed consent form or put your name or employee ID information on the survey.

You have the option to have your anonymous responses to be included in a future research study. The final question on the survey will ask if you would like for your responses to be included in a future research study with WMU. If you indicate yes, your anonymous answers will be used in future research. If you indicate no, your responses will not be included in future research.

This survey is comprised of 13 questions and will take approximate 5 minutes to complete. Your replies will be completely anonymous, so do not put your name anywhere on the form. *Returning the survey indicates your consent for use of the answers you supply*. If you have any questions, you may contact Dr. Ron Van Houten at (269-387 -4471), Sarah Casella at 386-216-2002, the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year.

Appendix E

Survey HSIRB Approval Letter

Survey Human Subjects Institutional Review Board Letter of Approval

WESTERN MICHIGAN UNIVERSITY

Human Subjects Institutional Review Board

Date: January 4, 2011

To: Ron Van Houten, Principal Investigator
Sarah Casella, Student Investigator

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 11-01-02

This letter will serve as confirmation that your research project titled "A Behavioral Approach to Modus Operandi: Incident from Completion and its Effect on Predictive Analysis" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 4, 2012

Walwood Hall, Kalamazoo, MI 49008-5456
PHONE: (269) 387-8293 FAX: (269) 387-8276

Appendix F

Pre-experiment MO Survey

Pre-Experiment MO Survey

Incident Form Survey

Please answer them as truthfully as possible, as there is no right or wrong answer.

1. What is a Modus Operandi?

   _____
   _____
   _____

2. When you complete your reports, how often do you use the MO section?

   100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% N/A

3. When you fill-in the MO section, why do you do it? (If selected N/A for #2, please skip)
   Please select an answer choice that applies:
   1. I think it's useful to keep a record of everything
   2. It's a section of the report that should be completed
   3. I was asked to complete this section

4. When you do use the MO section, what do you think in terms of its usefulness? (If selected N/A for #2, please skip)
   Please select an answer choice that applies:
   1. I think it's useful to help link suspects to prior crimes
   2. I don't think it's a useful tool to help link suspects to prior crimes
   3. I use it because I was told to fill the information in

5. If you complete the MO section, what happens after?
   1. I always receive feedback from my supervisor after completing this section
   2. I sometimes receive feedback from my supervisor for completing this section
   3. I never receive feedback from my supervisor for completing this section

6. When you complete your reports, how often do you *not* use the Modus Operandi (MO) section?

   100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% N/A

7. When you complete your reports, why do you not use the MO section?
    a. The current options available need to be revised
    b. I don't think it's a useful tool to link suspects to prior crimes
    c. It's a waste of time
    d. I didn't know there was an MO section

8. If you do *not* complete the MO section, what happens after?
    4. I always receive feedback from my supervisor for not completing this section
    5. I sometimes receive feedback from my supervisor for not completing this section
    6. I never receive feedback from my supervisor for not completing this section

9. What percent of the time do you think the MO information has lead to solving a crime?

    100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

10. What type of crime is most relevant to the information in the MO section? Please circle all that are relevant
    a. Repeat crime by repeat offenders (same individuals)
    b. Repeat crime by different offenders
    c. One-time offense by a repeat offender
    d. One-time crime by a one-time offender

11. Do you think if the MO section were completed it would add more functionality to I/Leads to help solve future crime?
    a. Yes
    b. No

12. General Comments

13. Do you agree to allow your anonymous responses to be included in a coordinated research study with WMU?
    a. Yes
    b. No

Appendix G

Post-experiment MO Survey

Post-Experiment MO Survey

Incident Form Survey

Please answer all questions truthfully. Do not include your name on this survey. All responses are completely anonymous to researchers and any affiliate of Kalamazoo Department of Public Safety. Thank you for your time.

1. When submitting an incident report, what percent of the time do you complete the MO section?
   100 90 80 70 60 50 40 30 20 10 0

2. What do you think in terms of the usefulness of the MO section of the incident report?
   a. I think it's useful to help link suspects to prior crimes
   b. I don't think it's a useful tool to help link suspects to prior crimes
   c. I use it because I was told to fill the information in

3. When submitting an incident report without the MO section completed, about what percent of the time was the report rejected by a commanding officer?

100 90 80 70 60 50 40 30 20 10 0 N/A (or always completed)

4. If you complete the MO section, what happens after?
   a. I always receive feedback from my supervisor.
   b. I sometimes receive feedback from my supervisor.
   c. I never receive feedback from my supervisor.

5. When commanding officers gave comments concerning incident form completion, how did you feel about that feedback?
   a. It was helpful and/or it was a good reminder.
   b. It was unnecessary, annoying and/or a waste of time.
   c. I was indifferent to the feedback process; it did not affect my incident form completion habits.
   d. Other or N/A (please explain):

6. How much *more* time did it take you to complete the incident reports when you completed the MO section?
    a. None/I have always completed the MO section
    b. Less than 5 minutes
    c. 5-10 minutes
    d. 10-15 minutes
    e. More than 15 minutes

7. About what percentage of the time did a commanding officer accept an incident form from you without a properly completed MO section?

100 90 80 70 60 50 40 30 20 10 0 N/A (or always completed)

8. Do you think the requirement to complete the MO section has added more functionality to ILeads to help solve crime?
    a. Yes
    b. No

9. Do you agree to allow your anonymous responses to be included in a coordinated research study with WMU?
    a. Yes
    b. No

Please include any additional comments on the end of the survey. Thank you for your responses.

Appendix H

List of All MOs in ILeads

List of All MOs in ILeads

Code_FBI	Description	Group Code	Description	Group Code	Description
1	POINT OF ENTRY	1	UNKNOWN POINT	12	UNKNOWN
2	EXIT	1	FRONT DOOR	12	BLACK/BLUE
3	METHOD OF ENTRY	1	BACK DOOR	12	CHROME
4	MEANS OF ENTRY	1	SIDE	12	STAINLESS BARREL
5	EVIDENCE	1	SIDE DOOR	12	SINGLE BARREL
6	ALARM	1	WINDOW	12	DOUBLE BARREL
7	PRESENCE OF VICTIM	1	FLOOR	12	AUTOMATIC
8	WEAPON	1	ROOF	12	REVOLVER
9	ACCOMPLICES	1	CONCEALED	12	SAWED OFF
10	OBJECT OF ENTRY	2	UNKNOWN	13	FIRES WEAPON
11	SOLICITED/OFFERED	2	SAME AS ENTRY	13	ASSAULT VICTIM/NO SHOTS
12	FIREARM FEATURE	2	FRONT DOOR	13	STATES HAS BOMB/EXPLOSIVES
13	THREATS	2	REAR DOOR	13	THREATENS VICTIM
14	SUSPECT ACTIONS	2	SIDE DOOR	13	PUTS GUN IN TRAY
15	FORCES VICTIM TO DO	2	WINDOW	13	IMPLIED HAD WEAPON
16	SUSPECT WORE	3	NO FORCE	13	COVERED WITH PAPER/COAT
17	SUSPECTS KNOWLEDGE	3	DOOR REMOVED	13	KEPT IN POCKET
18	FORCE USED	3	BROKE/REMOVED GLASS	13	KEPT IN BAG
19	SEX ACTS	3	PRIED/JIMMIED LOCK	13	POINTS AT VICTIM
		3	USED PASS KEY	13	COCKS WEAPON
		3	PRIED	14	USED NOTE
		3	RIPS	14	JUMPS COUNTER
		3	SAWS	14	TAKES PERSONAL PROPERTY FROM VICTIM
		3	FORCE WINDOW	14	OPEN REGISTER
		3	FORCE DOOR	14	OPEN SAFE
		4	KEY	14	PLACED PROPERTY IN BAG/SACK
		4	PRYING TOOL	14	SNATCHES PROPERTY
		4	SAW/DRILL	14	CARRIED BRIEFCASE, ETC.
		4	BRICK/ROCK	14	FORCED ENTRY
		4	BODILY FORCE	14	FOLLOWED VICTIM
		4	INCENDIARY	14	RANSACKS
		4	SCREWDRIVER	14	OPEN REGISTER/PLACE PROPERTY IN BAG
		4	KNIFE/CUTTING TOOL	14	SUSPECT REMOVED PROPERTY/CASH FROM REGISTER
		4	HAMMER/MALLET	15	DISROBE
		4	LOCK PICK/PLASTIC CARD	15	HANDS IN AIR/BEHIND HEAD
		4	REMOVED AIR CONDITIONER/FAN	15	TO COUNT
		4	HID IN BUILDING	15	TO WAIT TO CALL POLICE
		4	BROKE/REMOVED DOOR PANEL	15	OPEN REGISTER
		4	CUT/BROKE LOCK	15	OPEN SAFE
		5	BEER CANS	15	PLACE PROPERTY IN BAG/SACK
		5	CIGAR/CIGARETTES	15	HAND OVER PROPERTY/CASH
		5	PRINTS	15	TO FACE ANOTHER WAY
		5	MATCHES	15	PLACE HANDS ON STEERING WHEEL
		5	NOTES	15	MOVE TO BACK OF BUSINESS
		5	AMMO SHELLS	16	FACIAL COVERING
		5	TOOLS	16	HALLOWEEN MASK
		5	TOOLMARKS	16	SKI MASK
		5	WEAPON	16	STOCKING MASK
		6	NO ALARM	16	COAT/HOOD OVER HEAD
		6	INOPERATIVE	16	GLOVES
		6	DEFEATED	16	SUNGLASSES

Group Code	Description	Group Code	Description	Group Code	Description
6	TRIPPED	10	GUNS	18	BIT
6	AUDIBLE ALARM	10	HOUSEHOLD GOODS	18	WHIPPED (WITHOUT HANDS)
7	ON PREMISES	10	MONEY/SAFE	18	COVER MOUTH WITH HANDS
7	AT WORK	10	OFFICE EQUIPMENT	18	THREATS
7	ON VACATION	10	TELEVISION/STEREO	18	HIT AFTER ACT
7	UNKNOWN	10	TOOLS	18	HIT PRIOR TO ACT
8	FICTITIOUS GUN	11	LIQUOR	18	PULLED VICTIMS HAIR
8	HANDGUN	11	MONEY	18	TORE CLOTHES OFF VICTIM
8	RIFLE	11	CIGARETTES	18	TORE PHONE OUT OF WALL
8	SHOTGUN	11	FOOD	19	URINATION
8	OTHER GUN	11	GAS/OIL/AIR	19	SADISM
8	UNDETERMINED FIREARM	11	INFORMATION	19	PUT HAND INTO VAGINA
8	KNIFE	11	RIDE	19	MASOCHISM
8	RAZOR	11	AMUSEMENT/GAME	19	SODOMY - RECTAL
8	AX/HATCHET	11	ASSISTANCE	19	PORNOGRAPHY
8	SAW/CUTTING TOOL	11	DRINK	19	VICTIM DID ABNORMAL ACTS
8	BOW & ARROW/CROSSBOW	11	CANDY	19	VICTIM MASTURBATE SUSPECT
8	OTHER SHARP INSTRUMENT	11	EMPLOYMENT	19	VICTIM MASTURBATE SELF
8	JIMMY/PRY TOOL	11	SEX	19	SUSPECT MASTURBATE SELF/VICTIM
8	PLIERS/WRENCHES	11	DRUGS	19	REACHED CLIMAX
8	POUNDING TOOL	11	USE OF PHONE	19	TOUCH/FONDLE VICTIM
8	PUNCHING TOOL	11	USE OF TOILET	19	DISROBE SUSPECT
8	KEY/LOCK BYPASS INSTRUMENT	11	VICTIM HITCHHIKING	19	SUCKED BREASTS
8	OTHER BLUNT INSTRUMENT	17	CASES SITE	19	PENETRATED FROM REAR
8	HANDS, FIST, FEET, ETC.	17	USED LOOKOUT	19	SODOMY - ORAL SEX ON VICTIM
8	GAS/AIR POWER PROJECTILE	17	KNOW COMPLAINANT	19	SODOMY - ORAL AND RECTAL SEX
8	POISON	17	UNUSUAL COMMENTS	19	REQUIRED HELP TO ACCOMPLISH ACT
8	CHEMICAL/ACIDS	17	VICTIM MAKING BANK DEPOSIT	19	DEFECATION
8	PUSH/THROW OUT WINDOW	17	DRIVER IN GET-AWAY CAR	19	PUTS OBJECT INTO VAGINA
8	EXPLOSIVES	17	WORK WITH FEMALE ACCOMPLICE	19	SET FIRE
8	FIRE	17	COMPLAINANT KNEW SUSPECT	19	PHOTOGRAPHED VICTIM
8	NARCOTIC OR DRUG	18	FORCED TO OTHER LOCATION	19	FETISHISM
8	DROWNING	18	FORCED TO FLOOR	19	TONGUE OR MOUTH TO ANUS
8	STRANGULATION/HANGING	18	TIED/TAPED UP	19	TALK ABOUT BODY FUNCTION
8	ASPHYXIATION	18	HANDCUFFS	19	OBSCENE/PROFANE WRITING
8	UNKNOWN OR NOT STATED	18	BLINDFOLDED	19	SIMULATED INTERCOURSE
8	OTHER DANGEROUS WEAPON	18	COVERED VICTIMS FACE	19	UNABLE TO GET ERECTION
9	NONE	18	CUT/STABBED	19	KISSED VICTIM
9	ONE	18	BRUTAL ASSAULT	19	DISROBED VICTIM
9	TWO	18	THREATEN VICTIMS FAMILY	19	USED PROPHYLACTIC
9	THREE	18	CHOKE	19	VICTIM FORCED TOP POSITION
9	FOUR OR MORE	18	HIT DURING ACT	19	MULTIPLE VICTIMS
9	UNKNOWN	18	KIDNAPPED	19	SODOMY/ORAL BY VICTIM
10	AUDIO-VISUAL	18	TWISTED ARM	19	RAPE OR ATTEMPT
10	AUTO PARTS	18	KICKED	19	NO UNUSUAL ACTS
10	BUILDING MATERIALS	18	HELD DOWN	3	CONSENT
10	CIGARETTES	18	FORCED INTO AUTO	3	CUT SCREEN
10	CLOTHING	18	FORCED INTO SMALL ENCLOSURE	10	IDENTIFICATION
10	COIN OPERATED MACHINE	18	TIED TO OBJECT (BED, ETC.)	10	CREDIT CARDS
10	COPPER/BRASS	18	GAGGED	7	ASLEEP
10	GOLD/SILVER/JEWELRY	18	BURNED VICTIM		

Appendix I

Copper Theft Case Study:
MO Usage to Assist in Predictive Analysis

Copper Theft Case Study: MO Usage to Assist in Predictive Analysis

Once the interventions were implemented across all shifts for all crime types, the experimenter began reviewing all of the MOs that were being compiled in the ILeads data management system. The burglary crime type was the main crime type reviewed because this crime type occurred more frequently compared to robbery and aggravated assault. At this point in the study, the MOs were being recorded more often by the officers, hence there were more data in the record system to pull from to find crime patterns.

The experimenter initially began by looking at specific points of entry per zone (there are six zones within the city). Then, common day occurred and time of day were parsed into three-hour time blocks. Next, the most common object of entry based on the common point of entry was evaluated. It was during this process that the common point of entry across the city (based on officer MO report completion), was windows during the hours of 9:00am and 6:00pm. Although televisions and laptop computers appeared to be common objects of entry, these were burglaries that were occurring across the city with no common trend. However, a common object of entry that was found by looking at window point of entry, was copper piping theft.

The experimenter next asked the Senior Systems Analyst to download all of the incident reports that indicated copper piping as an object of entry between the dates of January 01, 2011 to November 15, 2011. From this download, there were a total of 26 total incidents. Four additional incidents were added to the list where the property stolen was copper piping, but the MO section was not completed. The incidents were then placed in order of date occurrence. Then, these incidents were sent to a specialist that

works at City Hall to map the geographic-x and geographic-y coordinates associated with each incident in order of occurrence. Figure I-A is a copy of the incident reports that was later mapped. Figure I-B is a copy of the first version of the map used to determine the copper piping trend. The experimenter confirmed with the Executive Lieutenant and the Criminal Investigative Division that there was indeed a copper theft trend occurring in the city, however, further information into the crimes had come up short.

	Incident_ID	Date_Occu	Day Occ	Hour_Occ	[redacted]	M.O. Group 1	M.O. Group 2
1	11009280	4/20/2011	Wed	1320		OBJECT OF ENTRY	COPPER/BRASS
2	11009280	4/20/2011	Wed	1320		OBJECT OF ENTRY	COPPER/BRASS
3	11010381	5/30/2011	Mon	1200		OBJECT OF ENTRY	COPPER/BRASS
4	11010381	5/30/2011	Mon	1200		OBJECT OF ENTRY	COPPER/BRASS
5	11009011	6/8/2011	Wed	1600		OBJECT OF ENTRY	COPPER/BRASS
6	11009011	6/8/2011	Wed	1600		OBJECT OF ENTRY	COPPER/BRASS
7	11013656	7/1/2011	Fri	0		OBJECT OF ENTRY	COPPER/BRASS
8	11013637	7/12/2011	Tue	900		OBJECT OF ENTRY	COPPER/BRASS
9	11011314	7/14/2011	Thu	1700		OBJECT OF ENTRY	COPPER/BRASS
10	11011253	7/15/2011	Fri	1052		OBJECT OF ENTRY	COPPER/BRASS
11	11012972	08/01/11	Mon	1600			
12	11012402	8/3/2011	Wed	955		OBJECT OF ENTRY	COPPER/BRASS
13	11013635	8/6/2011	Sat	900		OBJECT OF ENTRY	COPPER/BRASS
14	11012841	08/10/11	Wed	1303			
15	11013149	8/15/2011	Mon	1301		OBJECT OF ENTRY	COPPER/BRASS
16	11013205	8/16/2011	Tue	1440		OBJECT OF ENTRY	COPPER/BRASS
17	11013206	8/16/2011	Tue	1252		OBJECT OF ENTRY	COPPER/BRASS
18	11013207	8/16/2011	Tue	1509		OBJECT OF ENTRY	COPPER/BRASS
19	11013208	8/16/2011	Tue	1517		OBJECT OF ENTRY	COPPER/BRASS
20	11013209	8/16/2011	Tue	1517		OBJECT OF ENTRY	COPPER/BRASS
21	11013314	8/17/2011	Wed	1900		OBJECT OF ENTRY	COPPER/BRASS
22	11013249	08/17/11	Wed	910			
23	11013371	08/19/11	Fri	1207			
24	11015609	9/20/2011	Tue	1000		OBJECT OF ENTRY	COPPER/BRASS
25	11015862	9/25/2011	Sun	1647		OBJECT OF ENTRY	COPPER/BRASS
26	11015963	9/27/2011	Tue	1008		OBJECT OF ENTRY	COPPER/BRASS
27	11016121	9/27/2011	Tue	2100		OBJECT OF ENTRY	COPPER/BRASS
28	11016273	10/2/2011	Sun	1315		OBJECT OF ENTRY	COPPER/BRASS
29	11017366	10/19/2011	Wed	1900		OBJECT OF ENTRY	COPPER/BRASS
30	11018944	11/15/2011	Tue	1025		OBJECT OF ENTRY	COPPER/BRASS

Figure I-A. Copper Theft Incident Report Data Provided in Map for November 15, 2011

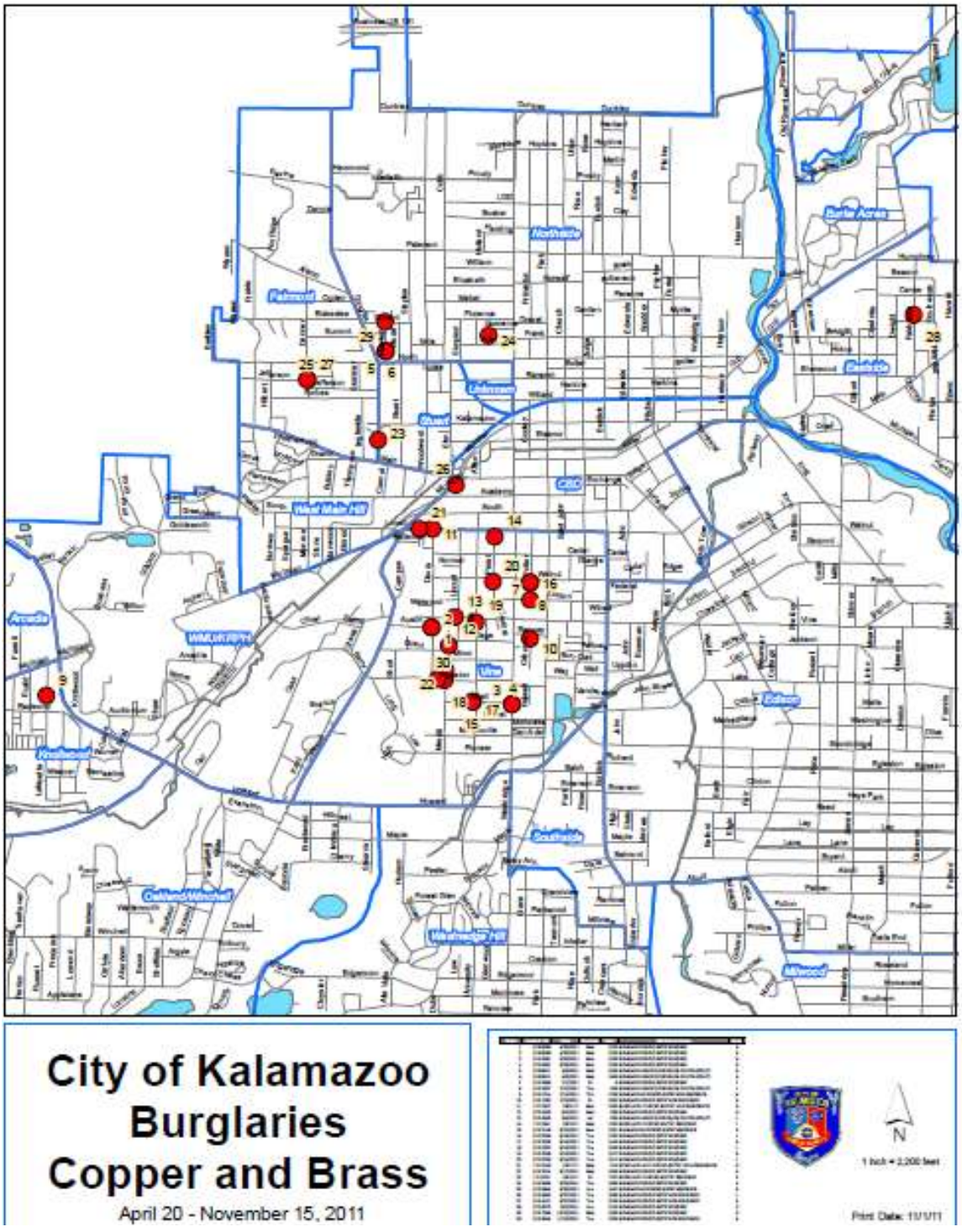

Figure I-B. Copper Piping Theft Trend Map-Created November 15, 2011

Over the next few weeks, additional data were gathered and more related incidents were added to the overall list of copper theft crimes. The next round of data were compiled and an updated map had been revised on December 16, 2011. A total of five more cases were added to the list of theft incidents. Relevant cases indicating building materials as an object of entry were also added to the list of incidents. Figure I-D is a copy of the revised map, and Figure I-C is a copy of the data used in the revised map. In addition to the map, data regarding common day and time of occurrence were provided based on the information inputted into the system by the officers. Figures I-E-I-I below are the tables that were shown to the detectives in CID.

On December 21, 2011, the experimenter was asked to give a brief presentation on the information gathered to date based on the copper thefts. The information provided to CID thus far has helped lead to the installation of silent alarms in one neighborhood where the copper thefts were commonly occurring. This information has also, led to increased patrols in targeted neighborhoods where the thefts were commonly occurring. Since the beginning of the analysis, there has been a noticeable decline in the copper theft trend. A few explanations could either be related to the MO information provided in the ILeads reports that have led to criminal arrests, or seasonal changes. Copper thefts appeared to occur more in the summer months when the targeted homes were vacant due to home renovations. To date, the copper thefts are still open cases, however the data provided in the MO section has helped the detectives gain certain leads when no other options were available.

	Incident_ID	Date_Occu	Hour_Occ	MICR Cod	MICR Description	[redacted]	M.O. Group 1	M.O. Group 2
1	11009280	4/20/2011	1320	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
2	11009280	4/20/2011	1320	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
3	11010381	5/30/2011	1200	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
4	11010381	5/30/2011	1200	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
5	11009011	6/8/2011	1600	22001	BURGLARY-UNNOCCU		OBJECT OF ENTRY	COPPER/BRASS
6	11009011	6/8/2011	1600	22001	BURGLARY-UNNOCCU		OBJECT OF ENTRY	COPPER/BRASS
7	11013656	7/1/2011	0	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
8	11013637	7/12/2011	900	22001	BURGLARY-UNNOCCU		OBJECT OF ENTRY	COPPER/BRASS
9	11011314	7/14/2011	1700	22002	BURGLARY-NO FORCE		OBJECT OF ENTRY	COPPER/BRASS
10	11011253	7/15/2011	1052	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
11	11012972	08/01/11	1600	22001	BURGLARY-FORCED			
12	11012972	8/1/2011	1600	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	BUILDING MATERIALS
13	11012402	8/3/2011	955	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
14	11013635	8/6/2011	900	22001	BURGLARY-UNNOCCU		OBJECT OF ENTRY	COPPER/BRASS
15	11012841	08/10/11	1303	22001	BURGLARY-FORCED			
16	11013149	8/15/2011	1301	22002	BURGLARY-NO FORCE		OBJECT OF ENTRY	COPPER/BRASS
17	11013206	8/16/2011	1252	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
18	11013205	8/16/2011	1440	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
19	11013207	8/16/2011	1509	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
20	11013208	8/16/2011	1517	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
21	11013209	8/16/2011	1517	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
22	11013249	08/17/11	910	22002	BURGLARY-NO FORC			
23	11013314	8/17/2011	1900	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
24	11013371	08/19/11	1207	22001	BURGLARY-FORCED			
25	11013883	8/22/2011	1300	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	BUILDING MATERIALS
26	11014947	09/12/11	1237	22001	BURGLARY-FORCED		OBJECT OF ENTRY	BUILDING MATERIALS
27	11015609	9/20/2011	1000	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
28	11015862	9/25/2011	1647	22002	BURGLARY-NO FORCE		OBJECT OF ENTRY	COPPER/BRASS
29	11015860	9/25/2011	1509	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	BUILDING MATERIALS
30	11015963	9/27/2011	1008	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
31	11016121	9/27/2011	2100	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
32	11016273	10/2/2011	1315	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
33	11017366	10/19/2011	1900	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
34	11018944	11/15/2011	1025	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS
35	11020180	12/06/11	1503	22001	BURGLARY-FORCED EI		OBJECT OF ENTRY	COPPER/BRASS

Figure I-C. Copper Theft Incident Report Data Provided in Map for December 16, 2011

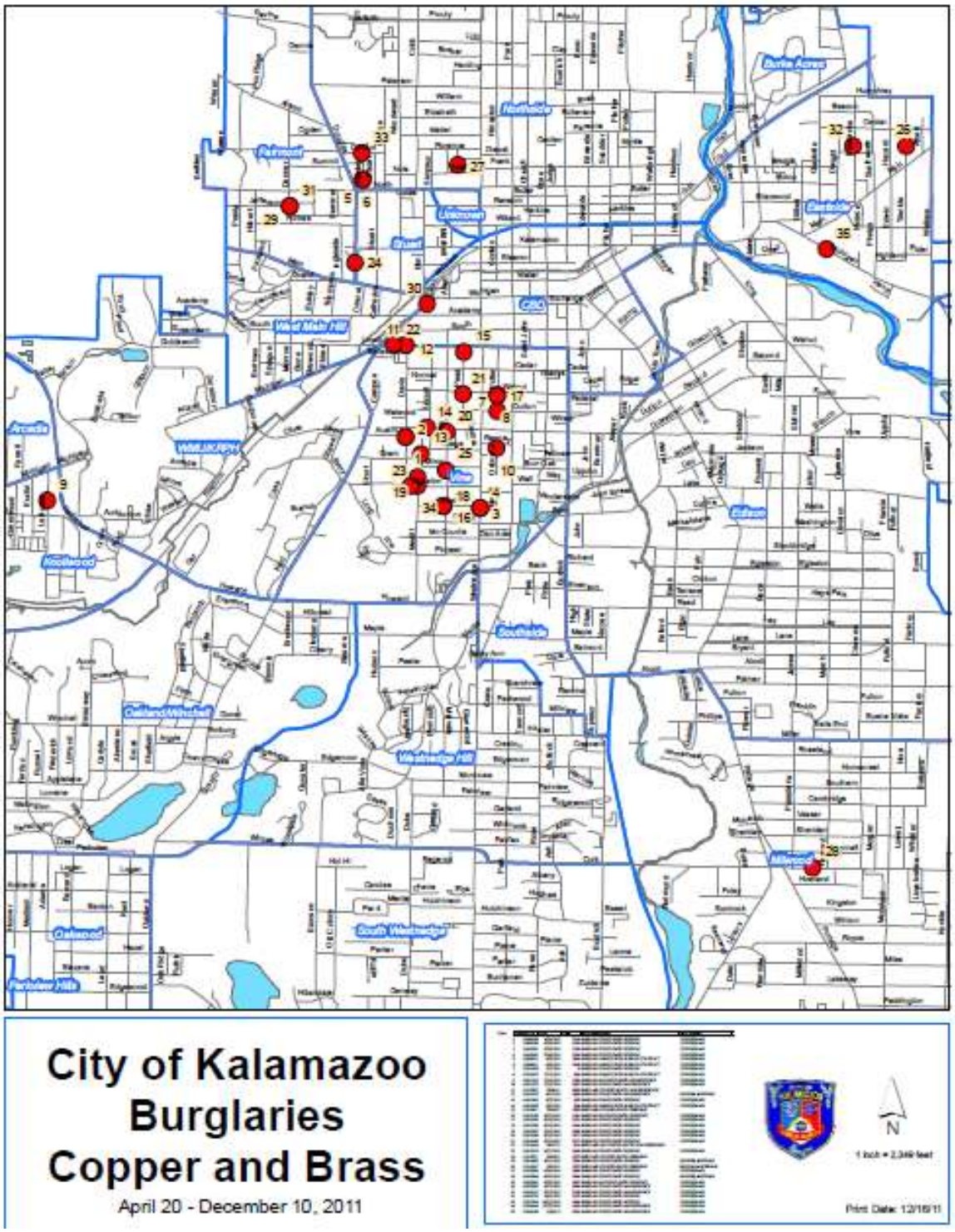

Figure I-D. Copper Piping Theft Trend Map-Created December 16, 2011

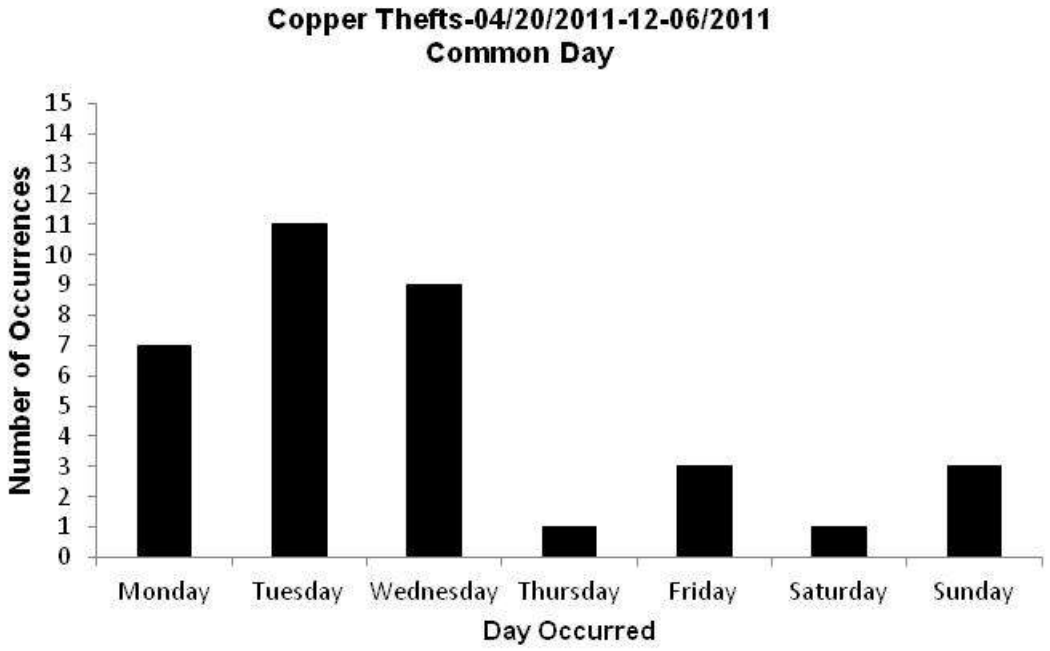

Figure I-E. Copper Theft-Common Day

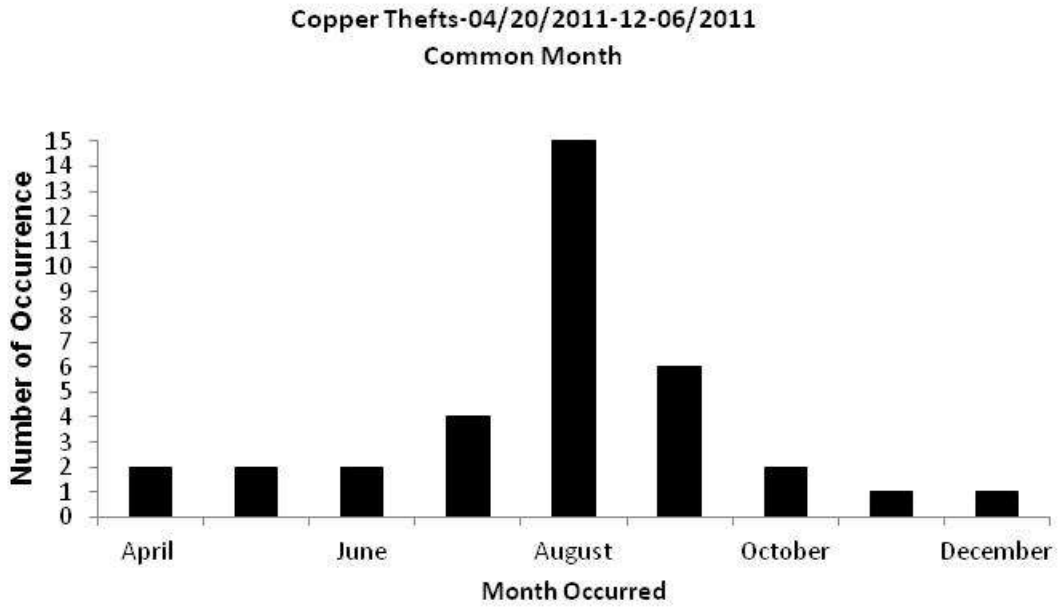

Figure I-F. Copper Theft-Common Month

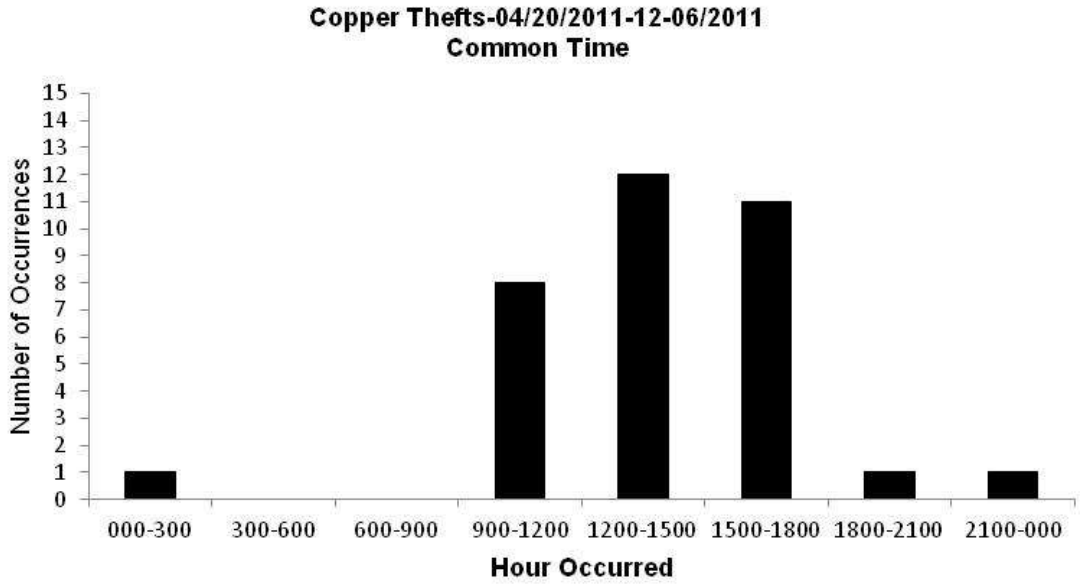

Figure I-G. Copper Theft-Common Time

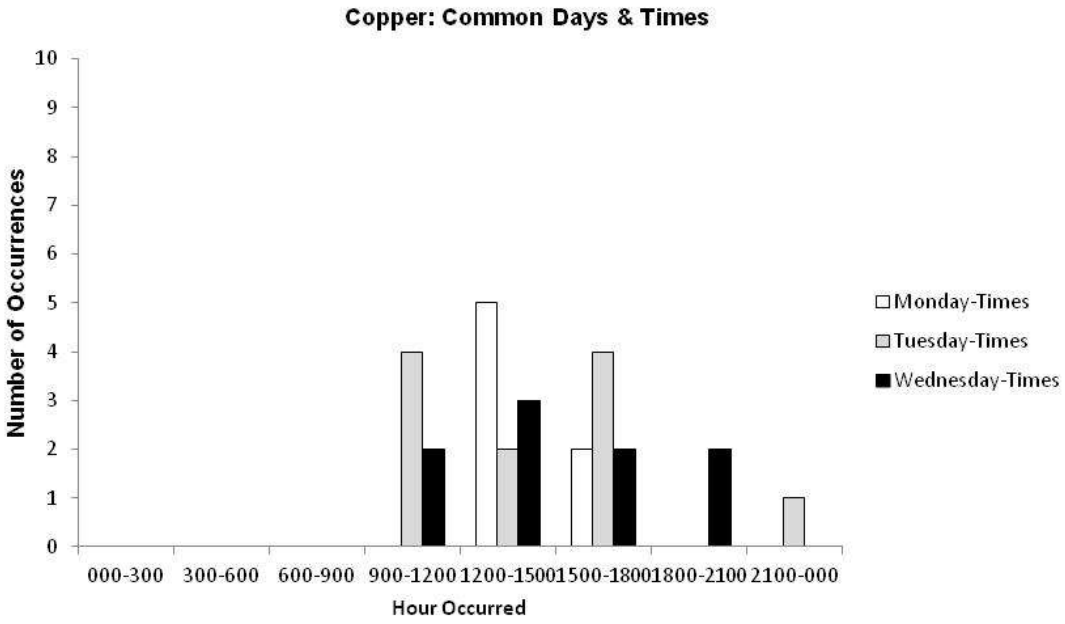

Figure I-H. Copper Theft-Common Day and Time

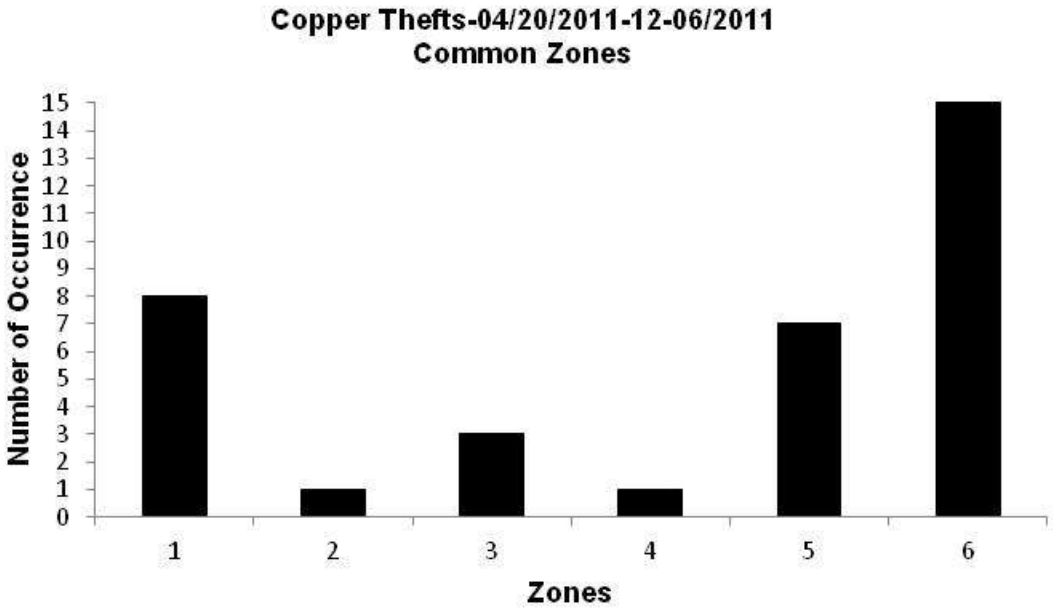

Figure I-I. Copper Theft-Common Zone

Appendix J

Task Clarification Memorandum

Task Clarification Memorandum

Kalamazoo Public Safety

OFFICE MEMORANDUM

To: Day Shift

Re: B&E-Modus Operandi

From: Ex. Lt. Scott Merlo

Date: 05/03/2011

The following is a request to all of our *day* shift officers, to begin filling in the Modus Operandi (MO) section for every B&E report. The MO section is located on page 3 of the incident report. Once the MO button is selected, a separate window will appear which will allow for multiple MOs to be entered for the incident (e.g., method of entry and exit, means of entry, object of entry, presence of victim, alarm, etc.). Entry of this information will be examined and the shift's progress in this effort will be provided.

From this day forward, please be sure to include MOs for all *Burglary* related crimes. Although this information is typically reported in narrative format, we encourage all *day* shift officers to, in addition to the narrative, complete the MO section on page 3 of the incident report. By entering MO information in this format, the ILeads search ability function is enhanced. Increased functionality of the system will in turn allow for better analysis of crime trends in the City of Kalamazoo. We need your help to make this possible.

"COMMITTED TO PUBLIC SERVICE"

Page 1 of 1

Appendix K

General Order

General Order

DEPARTMENT OF PUBLIC SAFETY

KALAMAZOO MICHIGAN

GENERAL ORDER February 5, 1971

Index Number G-65

INVESTIGATIONS AND REPORT WRITING

I. PURPOSE:

To establish guidelines for conducting investigations, report writing and report review.

II. PROCEDURE:

A. The majority of the reports shall be written or taped in the field. Complex cases may require the completion of reports in a station equipped with reference materials and telephone. Officers using a station for report completion shall notify a supervisor and dispatch.

B. When an incident occurs on a street, the location shall be reported with reference to the nearest street address. If there is no nearby address, use the block number (example: 1400 block of W. Main St.). If the incident occurred at an intersection, describe in the narrative where in the intersection (i.e., compass point).

C. In cases involving more than one officer, the primary officer=s narrative shall include a summary that ties the entire investigation together.

D. To insure proper case routing, when the Aconnected case≅ box on the lower right of the PD100 applies, write what that connecting case is (i.e., 96-00123, A&B).

E. Officers are responsible for conducting complete and thorough investigations. This includes the gathering of evidence, locating and interviewing all involved persons and completing all necessary reports. When a suspect is arrested for a criminal offense (CID will interview suspects in major cases such as homicide, etc.), the suspect shall be read Miranda warnings, questioned regarding the offense, and information gained shall be in the report.

1. When obtaining suspect information from the Records computer, be certain you have the correct person prior to listing the information on the PD100. Ask witnesses/complainants detailed questions to assist in such matching and document your reasoning. If you are not certain you have the correct person, list the information on a memo.

2. Always document how a suspect was identified (i.e., Ops, ID, etc). If a complainant only has a Asuspicion≅ who the suspect is, without a factual basis, list the person on a memo, not in the PD100 suspect section. If suspect is unknown, list Aunknown≅ in involved section on PD100.

3. Search for and interview witnesses (i.e., contact neighbors). If you don=t, document why! Take photos and prints when applicable. If you don=t, document why!

4. When evidence is not seized due to compliance with G.O. 131, document the reason, as Prosecutors need this information.

5. Prior to seizing a videotape of a suspected crime, have the complainant cue the tape at the point of the suspect arrival, and clarify this point in your report. If this can=t be done until later, have the complainant call when the tape is ready.

6. When complainants do not wish to prosecute in Acrime against person≅ cases, officers and detectives shall have them sign a ANo Prosecution≅ form. A parent or guardian shall sign for juveniles.

7. Refer to Ops SP-12 for Judicial Review Procedures.

8. When completing a report of a part one crime (i.e. CSC, Homicide, UDAA, Robbery, Aggravated Assault, Arson, Burglary, and Larceny) the M.O. section shall be completed.

F. When an officer writes or tapes the report narrative, section headers shall be used to describe the content of each section. Do not use general terms in the PD100 summary or report narrative, such as Acaused trouble≅, Aused obscene language≅, Awas assaulted≅, etc. Be very specific as to what the person did or said. Refer to people by their last names. If two or more persons have the same last name, use their first names. Write the case number on all attachments (i.e., LEIN work, memo, copies, etc.)

G. Officers= opinions shall not be written into reports. If an officer has an opinion about a case, document it on a memo and attach the memo to the report.

H. When a ticket is written or evidence is gathered, the ticket number and evidence locker number shall be included in the report.

I. To prevent unnecessary duplication, items listed on a PD101 property sheet should not be re-listed in the narrative report. However, important factors regarding the PD101 items shall be in the narrative, such as location they were taken from.

J. When an officer completes a report or reviews a typed report, the officer shall write the officer=s name at the end of the report along with the date, and time the report was completed.

K. Officers shall not hold reports or tickets without command authorization. Officers shall complete arrest reports prior to going off-duty. Officers shall promptly submit reports to command for review. Command officers shall ensure CID arrest reports and CID Domestic Violence reports are promptly placed in the Shift Commander=s Office.

1. Career Criminal Histories (CCH=s) and KDPS arrest records shall be attached to all arrest cases if the following day is a weekend or holiday. The officer shall have the CCH run under the ORI# of the office which will be handling the case (i.e. Prosecutor, etc.). Also, all domestic violence and retail fraud cases must have these documents.

2. KDPS personnel shall ensure their names/signatures are legible in reports and on other documents. Personnel may print their names if necessary.

3. Command officers shall review all cases turned in during their shift and bring them to headquarters from time-to-time during the shift. Command officers are responsible for the accuracy and completeness of reports they review and approve. When an investigation is lacking, command officers shall take appropriate supervisory action to insure an officer performs complete investigations in the future.

4. Reports needing minor correction shall be corrected by the reviewing command officer, or that command officer shall have the officer correct the report prior to the end of the shift. If the officer is not available, the report shall be sent to the Records Bureau with an error report attached, and the pink copy of the error report shall be sent to the officer with instructions. The original error report shall be filed in the officer=s incident file.

5. When an officer receives a report or citation back for correction, the correction shall be completed on that duty day. If this cannot be done, the officer shall inform that officer=s immediate supervisor. Reports and citations in need of correction shall not be removed from headquarters.

Q. Command officers shall submit a supplemental report when supervising felonies and major cases, such as a homicide, fatal traffic accidents, major disturbance, etc. or in cases in which they were actively involved.

1. Command officers shall insure that reports requiring LEIN entry are promptly brought to the Communications Center (i.e.; Breathalyzer or Refusal forms, UDAA etc.). Command shall ensure that a copy of UDAA, Missing Person and RAW cases (requiring LEIN entry) accompanies the original to the Communications Center.

S. Command shall ensure that criminal reports contain elements of the crime(s), probable cause if there was a search or arrest, Miranda compliance, and that evidence was properly handled. Case numbers shall not be reassigned and a report shall be written for each case number. PD105 code for Acase not needed≅ is 9889.

1. When a City of Kalamazoo employee is involved in a crime, a copy of the report shall be routed through the chain-of-command to Human Resources.

U. The Incident Commander or designee shall complete the National Fire Incident Report (NFIRS) on fire incidents. Illegal burning cases do not require a NFIRS.

G.O. 65
Page Four

Effective: February 5, 1971
BY ORDER OF:

Revised Date: October 15, 1983
June 3, 1996
September 27, 2000
October 27, 2011

JEFF HADLEY
CHIEF OF PUBLIC SAFETY

AI have read this policy and been given the opportunity to discuss its contents with my supervisor≅. Command Officer SIGNED: Employee

Distribution: A,B,C, & E

_____
_____

Date: _____

Appendix L

Non-pooled Percentage of MO Form Completion
for Robbery and Aggravated
Assault Across Shifts

Non-Pooled Percentage of MO Form Completion for Robbery and Aggravated Assault Across Shifts