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# Technology Distractions on Patrol: Giving Police Officers a Voice

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This is to certify that the doctoral dissertation by

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Abstract

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by

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MBA, Harding University, 2003

BS, Harding University, 2001



Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Distraction while using mobile technology devices such as a cell phone or tablet computer is a common occurrence within the civilian population of the United States. U.S. police officers are increasingly utilizing these types of devices within the patrol environment. However, little is known as to how distraction affects police officers while they interact with these devices in the course of their daily duties. The purpose of this qualitative study was to explore how officers process potential officer safety issues on patrol, while interacting with mobile technology, by questioning participants' perception of distraction. This was accomplished through a phenomenological paradigm that was framed within the concepts of unintended consequences (a subset of systems theory) and load-induced blindness (a subset of cognitive load theory). Data were collected through 10 semi-structured interviews, 2 extensive observations, and researcher-authored memos in conjunction with police officers of a medium-sized city in a western state. These data were analyzed in order to discover themes using a modified Van Kaam methodology. Results were expressed in 7 themes: conflicts with policy intent versus application, uncertainty in chain-of-command communication, reluctance to take tablets outside patrol vehicles, technology distraction's relationship to stress, presence of load-induced blindness, depressed ability to self-assess levels of distraction, and active engagement in risk-lowering strategies related to technology distraction. Implications for social change include informing police administrators and policy creators about research outcomes applicable to: modifications of policy, work-flow optimization, and technology use.

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Dedication

First, I wish to dedicate this study to my creator, who gave me all the talents I enjoy and who in all things are possible. Thank you.

Second, to my wife Jessica and my boys Logan, Landon, and Liam, who sacrificed time and resources for my journey. Thank you.

Third, to my mother Phyllis and my father Ron, whose help was instrumental in accomplishing this goal. Thank you.

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Table of Contents

## List of Tables

List of Figures

Chapter 1: Introduction to the Study

**Introduction**

Police departments around the United States are putting electronic items such as computers and cellphones into the hands of police officers to try and realize efficiency and cost savings (Ioimo & Aronson, 2003). However, the increasing integration of technology into police workflows has been accompanied by problems arising with the way in which officers interact with the devices. While interaction with a stationary computer in a secured police station 30 years ago was generally considered safe (Colton, 1979), computers have undergone a huge transition from large machines that filled entire rooms to smaller devices that are more portable in nature (Moravec, 1998). This evolution brought computers out of secured police facilities and into the cars and pockets of police officers, creating a potential conflict with officer safety: distraction.

Distraction is evident in people that use mobile items such as cellphones while performing mundane daily activities like walking (Bungum, Day & Henry, 2005; Hatfield & Murphy, 2007). Other activities, such as driving, are susceptible to the phenomenon of distraction as well (Strayer & Drews, 2007). Adverse officer safety was not an intended outcome when administrators first put mobile data terminals (MDT) into police vehicles to serve as computer interfaces. Palys, Boyanowsky, and Dutton (1984) found that although policies were put into place by administrators to dissuade officers from using MDTs in a dangerous manner, the ease and convenience of interacting with the technology was hard to overcome in instances where it had a significant potential to compromise officer safety. The unintended consequence of officer distraction from

technology use was already emergent before the introduction of devices such as smartphones that are now commonplace in the United States today.

Many police officers are forced to be mobile due to the very nature of their job. They drive from call to call, walk patrol areas, ride bikes, and fly in aircraft during the course of their days. Technology has answered the needs of the law enforcement industry and is itself now more mobile in nature, facilitating achieving crime prevention goals (Byrne & Marx, 2011). Police officers use cell phones and tablets while on patrol to view data on offenders, view maps that show hotspots of crime, locate resources such as other officers, and to communicate with fellow personnel (Kuula et al., 2013; Casady, 2011). All of these hardware components use software to function. To complicate matters, officers often interact with mobile technology while driving from one point to another. These factors suggest that present-day U.S. police officers are more at risk for distraction than before because they are driving and walking during the performance of their duties while also talking on mobile phones, typing on laptop computers, and interacting with smartphones.

Today's U.S. police officers are multitasking so much that they are likely susceptible to load-induced blindness. Load-induced blindness is the failure to perceive a highly visible stimuli due to attention being elsewhere (Mack, 2003). The split attention tasks that police officers are tasked with can have a detrimental effect on identifying stimuli that are of importance. For example, Lewis-Evans, Waard, and Brookhuis (2011) found that persons under a high cognitive load were more prone to speeding in an unintentional manner. Officers experiencing high cognitive loads while in a patrol car

would also be susceptible to the undesired action of speeding and the other adverse safety issues that accompany that action.

This study was designed to explore the distractions facing police officers who use mobile devices such as laptops and smartphones in the course of their duties. This was accomplished by applying concepts found within systems theory and cognitive load theory. Specifically, unintended consequences and load-induced blindness framed the study.

<div style="text-align:center"><strong>Background</strong></div>

The distraction caused by interacting with a mobile device can lead to unsafe behaviors. Nasar, Hecht, and Wener (2008) found that pedestrians who attempted to cross a street while talking on a phone or were expecting to use the phone engaged in unsafe behavior and exhibited elements of distraction. These findings were echoed by Hatfield and Murphy (2007), who found that pedestrians engaged with a mobile phone were less likely to look at traffic before crossing or crossed in unmarked areas. Interacting with a phone while driving can have similar consequences. Public safety officers are not immune to the dangers of distraction; Servino (2013) found that a police department's policy on technology usage in the vehicle was a significant factor in the occurrence of injury accidents.

Distraction while performing cognitive, resource-intensive tasks is an observable phenomenon. Distraction can come in many forms, but one form is known as load-induced blindness. A person experiences load-induced blindness when they are engaged in a mentally intensive visual task that prevents the detection of different stimuli

(Macdonald & Lavie, 2008). Perez-Moreno, Conchillo, and Recarte (2011) found that inattentional blindness (IB), another form of distraction, was likely to occur when there are multiple tasks being performed. IB manifests as the impairment of an individual's ability to detect outside stimuli.

A common factor between load-induced blindness and IB is the amount of mental load being experienced by individuals. Lavie, Hirst, Fockert, and Viding (2004) found that individuals process tasks in different ways, and that level and type of mental load should be assessed when looking at distractor processing. A person's individual working memory capacity also affects distraction factors (Fockert, Rees, Firth, & Lavie, 2001). Seegmiller, Watson, and Strayer (2011) echoed these findings, showing that there are individual differences in how a person experiences IB based off individual ability. In general, a lower mental load in a task equates to a lower chance of distraction.

Police officers are commonly engaged in multiple tasks that take up a significant amount of mental resources, increasing the chance for distraction. Utilizing a mobile phone, both for text messages and voice calls, is an example of a distracting task. Nasar, Hecht, and Wener (2008) found that people who talk on mobile phones and walk along a predetermined path are more likely to engage in unsafe behavior, experience reduced situational awareness, and put themselves at increased risk for accidents. Smith, Isaak, Senette, and Abadie (2011) specifically looked at text messaging on phones and found that participants were less likely to have true memory accounts than those not engaged with a cell phone task. Cell phone tasks increased the occurrence of false memories in which people thought they remembered something that did not occur (Smith, Isaak,

Senette, & Abadie, 2011). In order to negate some of these side effects of distraction, police departments have introduced training as a way to reduce officer safety issues (Lowry, 2000).

Training does not have a documented positive effect on reducing phenomenon such as IB (Richards, Hannon, & Derakshan, 2010). This finding is troublesome for an organization such as a police department that utilizes training to mitigate risk and incorporate stress inoculation. Because training does not reduce distraction susceptibility, it is likely that a significant number of police officers experience distraction while in the patrol environment when using distraction inducing devices such as cell phones and tablets. However, there has been little to no research done to explore this possibility within the realm of policing; existing research focused primarily on civilian viewpoints. This study was designed in part to address this gap.

A high incidence of officer distraction has high potential legal consequences. Rivardo and Brown (2011) found that individuals experiencing IB were less accurate in reporting details of a crime and were more likely to provide misleading information when involved as an eyewitness. This consequence is especially significant because a large component of officer safety is observing the details in order to properly assess the situation at hand (Reiser & Geiger, 1984). Officers are called upon to be eyewitnesses in many instances, and if that capability is compromised, officers are less likely to be able to perceive a threat appropriately or understand all the stimuli around them. It is clear that such studies as Rivardo and Brown (2011) have implications for police officers but have

not been framed within the context of police environments, creating a significant research gap.

With the influx of technology over the past 20 years, organizations are increasingly being forced to assess their current policies and procedures. Herndon (1997) noted that due to the very communicative nature of technology, organizations push to introduce devices that increase the flow of data; these same organizations that push for the adoption of technology must be willing to adapt and change or else the flow of data will be interrupted due to inefficient policy. When technology is introduced to any environment, it has the potential to create unintended consequences. For example, the introduction of smartphones to the adolescent community increased occurrences of sexting and cyber-victimization (Reyns, Burek, Henson, & Fisher, 2013). These unintended consequences spill over to the workplace; Cameron and Webster (2005) found that employees who were given devices to accomplish legitimate work functions also engaged in instant messaging outside and beyond the scope of the original intent of administrators. Police are not immune to these types of issues.

The technology use policies created by police departments are not immune to unintended consequences. Norris and Dunnighan (2000) found that the policies surrounding the use of informers in police investigations led to an environment that was contrary to some core values and beliefs of their police departments. Unintended consequences, such as the licensing of certain criminal behaviors while using informers, were not an intended result of the policy creation (Norris & Dunninghan (2000). Likewise, Chesney-Lind (2002) found that due to the mandatory arrest laws created in

some states in response to domestic violence, many more women were being arrested as

the main party responsible. These arrests directly affected issues such as child oversight

and a decrease in the number of domestic violence incidents reported by women. The

unintended consequences that exist within existing police policies present a significant

problem when dealing with distraction in patrol environments.

**Statement of the Problem**

Police departments around the United States are adopting a variety of technology

platforms as a way to control and prevent crime (Sanders & Hannem, 2012). Mobile

police technology is a manifestation of these adoptions, responding to a need to get

information to nonstationary, patrol-level operations. Mobile police technologies, such as

data terminals, are being used more frequently in departments around the United States

due to an increase in overall productivity and perceived effectiveness on the part of police

administrators (Ioimo & Aronson, 2003). Shinder (2005) stated that mobile technology is

one of the most widespread embodiments of technology in police operations. There has

been very little research into how these mobile data platforms affect officer safety,

despite recent requests for research that focuses on mobile technology distraction and

officer safety (Servino, 2013).

Technology has continuously evolved over the past few decades to become more

mobile in nature. Police departments have increasingly relied on mobile technology to aid

in increased workload efficiency and time expectations (Ratcliffe, 2004). Geographical

information systems and facial recognition software rely upon computer hardware to

function and work (Byrne & Marx, 2011). In order to leverage these types of

applications, a police officer needs access to a data terminal. Because officers who are assigned to routine patrol functions find themselves inside and outside of police vehicles throughout their shift, officers are increasingly reliant on smartphones and tablets. This is mainly because these types of devices have shown advancing computer processing capabilities housed in a highly mobile platform (Cox & Rogers, 2005). Policies have been created by police administrators to utilize these types of technology while on patrol, but these policies remain fairly untested due to the lack of evidence fully exploring the scope of technology within the police environment (Byrne & Marx, 2011). Due to this lack of evidence, it was unclear prior to this study whether or not existing policies governing mobile technology usage have the unintended consequence of facilitating distraction.

Using mobile technology devices can lead to types of different distraction phenomena such as load-induced blindness and IB (Strayer & Drews, 2007). This is an important area to explore as it may help explain why police officers can become distracted while interacting with devices such as computers and laptops. Servino's (2013) investigation of police officer-involved vehicle accidents found that distraction was a factor in some incidents. The causation of the studied incidents, involving distraction, included instances where officers were interacting with mobile devices such as computers or phones. There are multiple studies that deal with citizen distraction as they relate to cell phone and mobile technology use (Hyman, Boss, Wise, McKenzie, & Caggiano, 2010; Hatfield & Murphy, 2007). These studies showed that distraction caused by interacting with mobile devices decreased awareness of surroundings and engagement in

unsafe behaviors. There are no known studies that deal with specifically exploring officer distraction while interacting with different types of mobile technology in the patrol environment. The absence of this type of research is a detriment to the understanding of how mobile technology induced distraction affects the safety of a police officer. This study sought to fill some of the gaps in literature by providing a fresh look at how distraction affects police officers' safety.

## Purpose of the Study

The purpose of this study was to explore how the phenomenon of distraction, in the form of load-induced blindness, affected officer safety within a police department as an unintended consequence of policy. Administrators have created policies to dissuade police officers from using technology in certain circumstances, but usage in these circumstances continues (Palys, Boyanowsky & Dutton, 1984; Servino, 2013). This study was designed in part to produce findings to guide policymakers' decisions in revising these policies, and to expand the limited body of research on device usage in the public safety spectrum.

## Research Questions

The following research questions were used as the foundation for this study and represent the scope of inquiry:

1. What are an officer's perceptions of the department's goals and policies as they relate to mobile technology use during patrol?

2. How does an officer feel about the department's communication in regards to policies and expectations that deal with safety while using mobile technology?

3. What are the officer's experiences as they relate to the amount and types of tasks being performed that involve mobile technology?

4. What does it feel like to be distracted while using mobile technology devices while on patrol?

5. What are an officer's perceptions on how mobile technology has affected overall officer safety from the standpoint of distraction?

6. How does an officer compensate for distraction, in order to increase officer safety, when using mobile technology?

**Theoretical Frameworks**

The theoretical frameworks for this study were used to narrow down the focus of the overall study. There are multiple ways in which this study could have been approached, but it focused on two main areas through a conceptual framework made up of two individual theoretical frameworks: unintended consequences within systems theory and load-induced blindness within cognitive load theory.

Systems theory was first explored as a way to look at how subsystems interacted with each other (Von Bertalanffy, 1968). This theory enveloped the previously noted phenomenon known as unintended consequences. In the original context, unintended consequences occur when results do not come out as expected (Merton, 1936). This original definition is still applicable today. Mackay and Chia (2013) found that some managerial decisions made to address immediate concerns sometimes led to long-term results that were not desired. These outcomes are an example of unintended consequences. Police administrators do not purposefully increase adverse officer safety

circumstances, but several factors suggest that decreased officer safety is an unintended

consequence of the decision to use mobile technology in certain environments. Systems

theory was chosen as a framework of this study in order to help explain why distraction

continues to be a problem with such incidents as vehicle accidents. Furthermore, the

unintended consequence element aided in the understanding of how policy usage can

reduce or increase distraction.

       Unintended consequences tend to appear in organizations that are too focused on

goals and ignore feedback loops (Chapman, 2005). A police department that is willing to

sacrifice some things in order to meet short-term goals could experience unintended

consequences. Likewise, a police department that ignores feedback loops could also

experience unintended consequences due to the disconnection that would exist between

leadership and workers. The best way to limit unintended consequences is for an

organization to view individual policies from a variety of angles and to extrapolate

outcomes based off those different viewpoints (Chapman, 2005). Research questions one

and two dealt with gauging the department's susceptibility to unintended consequences.

       The second part of the combined conceptual framework involved load-induced

blindness. Load induced blindness is a subset of cognitive load theory as first proposed

by Lavie (1995). Cognitive load theory states that the amount of mental load being placed

on an individual will have an effect on distractibility (Lavie, 1995). Mental load can

come in a variety of different factors such as perception, processing, memory, and

individual ability. The most important part of load-induced blindness for this study

focused on the amount and type of tasks being undertaken by the police officer. Rivardo

and Brown (2011) found that the amount and type of tasks being performed by an individual will directly affect load-induced blindness. Load induced blindness had a direct effect on safety as it was found to have a correlation with a driver's ability to avoid an accident while driving (Most & Astur, 2007). Officers that are potentially overburdened with mentally intensive tasks have a higher degree of distractibility under the load-induced blindness phenomenon and thus may be susceptible to unsafe behaviors. Research question three dealt with exploring the amount and type of tasks being asked of police officers involving mobile technology.

Unintended consequences and load-induced blindness work in conjunction with each other. For example, distraction could be  an unintended consequence of administrators using mobile technology to increase efficiency in the short-term but not realizing that there would be outcomes that were previously unaccounted for. One possible outcome includes decreased officer safety due to the distraction brought about by load-induced blindness. For this reasons, both theoretical frameworks were the basis for exploration and will be explained more in depth in chapter 2.

## Nature of the Study

The nature of this study was qualitative. This methodology can be utilized to understand the experiences of patrol officers on the issue of officer safety as it relates to the scope of the project. Due to the lack of current research on the topic, it also aided in identifying the key variables for consideration in future studies. One of the main focuses of this study centered on identifying how police officers understand and identify safety issues that may occur when they interact with technology. This particular phenomenon

was best studied through a qualitative methodology in conjunction with a

phenomenological paradigm.

Phenomenology can be especially useful when researchers want to explore the

perceptions of individuals to a specific phenomenon (Moustakas, 1994). In order to gain

this understanding of perception, I designed a phenomenological study that has multiple

data points: observation, interview, and memos-to-self. All data collection was conducted

at the Glendale Police Department (GPD) following strict standards and protocol that

were approved by my dissertation committee and adhered to Walden University's

Institutional Review Board (IRB) protocols. The department was chosen based primarily

on the way that it utilizes tablet computers and cellphones in a variety of workflows

throughout the patrol division. GPD was also selected because I have no direct ties or

previous experience working with the department. The department participated in

research studies in the past, was open to the research, and utilized mobile technology at a

very high rate within their operations.

The interview questions used in this study followed a script of main theme

questions and probing questions. Ten individuals were chosen to participate in the study

as this was deemed an appropriate sampling size in order to reach subject saturation

(Creswell, 2013). The interviews were scheduled to last around 60 minutes and were

recorded verbatim via a digital recorder. Moustakas (1994) stated that the long interview

is the preferred tool of phenomenology and that sufficient time should be spent with co-

researchers so that a full understanding of the phenomenon can take place. The 60-minute

threshold helped to maximize understanding and limit the impact of officers' duties. In

order to more fully understand the environment of how officers utilize mobile technology, and subsequently add deeper understanding to the interview responses (Moustakas, 1994), I engaged in an observation phase of data collection. The observation portion of the study focused on two ride-alongs with police officers in their cruisers over the course of their shift. Police departments use different patrol periods but for this study, each observation period lasted 8 hours. During these observations, meticulous notes and memos were written in order to analyze results. Observations took place in day and night conditions in order to more fully understand how each type of environment affected distraction and officer safety. The main purpose of the observation phase was to gain first-hand insight into how officers interacted with mobile technology. The main question framing the observation portion of the study was, "What does distraction look like from an officer's standpoint?" Being able to use the knowledge gained from observing distraction first-hand helped with context in regards to interview answers provided by the interview participants. At the end of each day of interviews and observations, I wrote memos-to-self in order to fully understand the phenomenon I observed. These memos were included in the thematic development phase of data analysis.

Once codified, all transcripts and participant provided information such as observation notes and interview transcripts were given to the participants to review for accuracy and understanding. This process was important in drawing out accurate conclusions and in order for participants to clarify and acknowledge research data (Creswell, 2013). As is the case throughout the process, participants were allowed to opt

out of the study at any time. The analysis phase began after data was retrieved from
GPD..

The data was analyzed using a modified Van Kaam method as outlined by
Moustakas (1994). All data was encoded digitally and placed within the NVivo software
in order to draw out themes and conclusions. All data was protected using encryption and
physical security methods. The identities of participants were kept confidential so that
ethical considerations were maintained. This confidentiality was maintained through a
combination of pseudonyms and protocol. No real names were presented on finished
work and true identities will be kept secure. All physical and digital data will be
maintained for a period of no less than five years.

## Operational Definitions

*Chain-of-Command Communication:* Communication that goes through vertical
linkages and connections in a hierarchal structure (Hinds & Kiesler, 1995).

*Distraction:* Something that makes it difficult to think or pay attention
(Distraction [Def. 1], n.d.).

*Inattentional Blindness:* The failure to perceive a visual stimulus when in direct
view due to attention being elsewhere (Mack, 2003).

*Load-Induced Blindness:* Impairment in the ability to detect the presence of a
stimulus due to high mental resource loads (Macdonald & Lavie, 2008).

*Officer Safety:* The reasonable actions or mental processes that law enforcement
officers use to minimize risk to themselves and the public (Ison, 1983).

*Mobile Technology:* Technology that is created to be mobile by its very nature. This includes mobile phones and tablet computers (Chae & Yeum, 2010).

*Police Officer:* An employee of a local law enforcement agency who is an officer sworn to carry out law enforcement duties. (Bureau of Justice Statistics, 2013). The term "officer" is used synonymously with "police officer" in this study.

*Unintended Consequence:* Outcomes or results that are not an intended part of a process, policy, or an innovation; unintended consequences can be positive or negative (Nworie & Haughton, 2008).

## Assumptions, Limitations, Scope, and Delimitations

Based on the information provided in the above sections, there were some assumptions and limitations that had to be taken into account concerning this study. These are listed below:

1. A limitation for this study was the sampling size. Due to the limited number of police departments who have adopted mobile technology to the degree needed for this study, purposive sampling was used to draw participants for the study.

2. It was assumed that police officers experience some degree of distraction while using mobile technology in their job performance. Research has indicated that people are susceptible to distraction under certain circumstances (Nasar, Hecht & Wener, 2008; Strayer & Drews, 2011; Strayer, Drews & Johnston, 2003).

3. A delimitation of this study was that a strong reliance was placed upon participants to be open, truthful, and forthcoming in their answers without fear of repercussion. Measures were undertaken to offset these delimiters and are described in detail in Chapter 3.

4. The scope of this study centered on the selected police department and the police officers that are assigned patrol duties and use mobile technology in the course of their duties. Due to this fact, transferability to other departments should be undertaken with great care as the chosen police department had several unique attributes that other departments may not possess.

## Significance

This study helped to fill a gap in the available research regarding mobile technology and officer safety. Servino (2013) outlined the need for further research on how distraction affects officer safety. The study compiled a unique body of literature that adds to the scholarly research available to police administrators, policy makers, hardware/software engineers, and officers who either create policy or products for law enforcement officers. The main goal of this study was to incite positive change in the way that patrol officers interact with an ever changing array of technology in the course of their duties. Moravec (1998) highlighted the technological leaps that computing technology has undergone and will continue to undergo as hardware becomes smaller and more portable. Ioimo and Aronson (2003) outlined the fact that police administrators are seeking to save money and increase work efficiency by placing technology into the hands of police officers. Due to the evolving nature of technology and the drive to become

efficient, research has lagged in order to truly understand some of the unintended

consequences that technology, such as smartphones and computers, has on officer safety.

Officer safety is a predominant issue in the minds of many entities, and protecting our

law enforcement officers is a noble and justifiable cause for anyone that should be at the

forefront of any police administrator's thoughts and actions (Stephens & Matarese,

2013).

The potential social change for this study centered on protecting the life of law

enforcement officers by providing scholarly research in an area that undergoes constant

change and retooling. Furthermore, this research identified issues that directly affect the

overall safety of law enforcement officers. Police officers put their lives at risk in order to

protect the citizens that they are sworn to protect. The value of any human life cannot be

underestimated and research geared towards protecting that life is a positive social

change mechanism. Nunn (2001b) concluded that police technologies are changing the

very essence of police patrol procedures and have wide spanning consequences for all

parties involved. This study serves as a springboard for future research into the different

ways that officers utilize technology, exploring other ways that mobile technology affects

officer safety, and different ways that mobile technology can be accessed.

## Summary

Law enforcement is a multifaceted career that requires quite a bit from sworn

officers. In order to increase efficiency (Colton, 1979) and better communication with

officers in a variety of applications (Ratcliffe, 2004), departments started issuing

technology to officers over the past 40 years. The evolution of the computer terminal in

the 1960s to the smartphone of today has led to a great many changes in the law enforcement community. Some of these changes have been so swift that research has left a void in crucial areas in need of scrutiny. Mobile technology use by police officers would appear to be one such area that needs research.

These facts are clear: Cellphones cause distraction to everyday citizens (Hyman, et al., 2010) and training does not negate this distraction (Richards, Hannon, & Derakshan, 2010). Since police officers are ordinary men and women who put their lives at risk in order to enforce laws and promote public safety, it can be assumed that officers are susceptible to distraction caused by mobile technology interaction.

This study was designed to explore a police officer's perception of distraction while interacting with mobile technology. This was accomplished through a qualitative methodology using a phenomenological paradigm. This was done so that the true experiences and insight of the officers would become known. Utilizing a community partner, GPD, individual officers served as the participants in the observation and interview phases of data collection.

The study is useful in filling gaps in the current collection of literature as well as paving the way for future studies and inquiries. The potential social change attributes created by this study will lead to safer policies and expectations placed upon police officers by their leaders.

Chapter 2: Literature Review

**Introduction**

The distraction caused by mobile technology is clearly manifested in a variety of ways and under different circumstances (Nasar, Hecht, & Wener, 2008). At the time of this study, it was not clear if patrol officers experience distraction while interacting with mobile technology in the patrol environment. The purpose of this study was to gain understanding into distraction by exploring the perception of distraction through police officers' eyes.

The literature discussed below demonstrates the lack of specific research that applies directly to officer safety issues that occur while using mobile technology in daily operations. There are several contributing factors to this research gap, including the rate of increase in technology adoption by U.S. police entities over the past few years and the dramatic changes in specific hardware and software capabilities. Other factors to consider are the expectations placed on police officers by administrators within the police force and the government surrounding them. Policing in the United States is no longer limited merely to responding to calls, but includes the ability to more effectively patrol geographical areas with a variety of resources (Ratcliffe, 2004); this ability is facilitated by the use of mobile technology.

The literature review is divided into different sections that focus on the largest principles of importance within this study. The literature strategy is discussed first. The search was conducted using a variety of phrases and terms to capture the essence of the study itself. Law enforcement is such a far-reaching field that numerous search terms

were needed to encompass the entirety of the landscape. For instance, it was not enough to search "police," but even such terms as "sheriff" and "public safety" yielded unique results. The search strategy also focused on finding terms that were useful in the theoretical frameworks.

The theoretical framework terminology was especially important to narrow down, as numerous terms were located that had slightly different meanings. "Inattentional blindness" was not the original search term used but was found to most accurately portray the phenomenon circumstances to be explored. Likewise, "distraction" and "inattentional blindness" were determined to be independent elements of the framework but not necessarily synonymous with each other. "Unintended consequences" was used as a term to explore the effects that policy decisions have on decision-making mechanisms within any group but specifically law enforcement.

The theoretical frameworks of this study drew primarily on two main areas: unintended consequences that evolve out of inadequately vetted policy decisions, and a form of cognitive science known as load-induced blindness. These two subcategories of much larger theories, systems theory and cognitive load theory, form the foundation for which officer safety was explored. The theoretical frameworks worked to focus the study and to create the avenue from which the exploration of officer safety issues took place.

After the major components of the theoretical frameworks are described, the major concepts of the law enforcement variables are also described. Some of the key components in this section talk about the expectations placed upon officers by administrators, the mobile technology tools being used by officers to meet these

expectations, and a discussion of the possible consequences that may arise when an officer uses technology over the course of daily workflows. While there was very little research available that focused solely on the adverse effects of technology in the law enforcement field, there was some available research gathered from the general public under different but in some aspects similar, circumstances.

**Literature Search Strategy**

There were numerous library databases and search engines used in the literature review of this study. The literature is divided into different components that encompass larger themes. For instance, elements of the theoretical frameworks are located in one section while law enforcement elements are in another. The terms used to discover literature included: *officer safety*, *police*, *sheriff*, *public safety*, *law enforcement*, *mobile technology*, *software*, *hardware*, *smartphone*, *tablet*, *cell phone*, *PC*, *unintended consequences*, *inattentional blindness*, *distraction*, *cognitive load theory*, *systems theory*, *load-induced blindness*, *policy*, and *risk.* These terms were used both independently and with each other in order to narrow down literature that was relevant.

There were two main search engines used to locate literature. Thoreau and Google Scholar were used extensively to search for key terms and literary works. Advanced search methods were undertaken within each search engine to narrow down literature that was relevant to the appropriate topics. The search engines were able to locate works that were available in an array of databases available in the Walden University Library. These databases included: PROQUEST Central, Political Science Complete, PROQUEST Criminal Justice, LexisNexis Academic, PsycINFO, PsycARTICLES, SAGE, and

SocINDEX. Within each database, independent queries were performed on broader terms to ensure that all applicable works were located. Date restrictions for material produced within the last 5 years was used as a primary delimiter, but when looking for original sources or in instances where no current research was available, this delimiter was not used.

Outside of research articles, some dissertations and federal department statistics were also searched during the process. The United States Departments of Justice and Transportation websites were queried as they have researched certain elements of this study in the past. Likewise, I undertook a query of available dissertations in order to look for previous research relevant to my own study. This was done in order to gauge the level of current research as well as to look for any missed information outside of the research article queries.

**Theoretical Frameworks**

The theoretical frameworks for this study focused on two main aspects: a subcategory of systems theory known as unintended consequences and a division of cognitive load theory that encompassed load-induced blindness. Both of these theories were chosen due to their potentially direct impact on technology policies in workplaces. While not used solely in the realm of law enforcement policy, these theories have been used in similar environments and circumstances where researchers have explored how technology can affect its users. This previous research aligned within this study where technology and police officer interaction was explored.

**Systems Theory-Unintended Consequences**

Unintended consequences as a result of purposive action were first explored in the 1930s. Merton (1936) identified unintended consequences as results that were not adequately planned for or thought out prior to taking some sort of action. These results differed from undesirable consequences in that undesirable consequences were planned for and calculated out prior to taking an action. In essence, an unintended consequence is a surprising result that can be negative, positive, or neutral in nature.

Unintended consequences ideals exist in the broader realm of systems theory. This theory deals with the interaction of small subsystems on each other to bring about the total system outputs (Von Bertalanffy, 1968). The way in which a manager views an organization is important in determining how certain policies will affect it. Systems theory would state that a policy change on one section of the organization would have cascading effects across other elements of the larger organization; some of these effects could include unintended consequences under certain conditions.

Chapman (2005) looked at the idea of unintended consequences under two possible management perceptions of an organization: mechanistic and systems thinking. Mechanistic thinking presumes that organizations are too complex to control on a large scale and must be broken down into smaller subgroups. In this line of thinking, there is only one correct view or outcome that must come about. In systems thinking, organizations are viewed as inherently adaptive and complex systems that cannot be broken down. Systems thinking holds that results will be uncontrollable due to elements interacting in unpredictable ways while mechanistic thinking is capable of producing

unintended consequences even though best efforts are employed to control results. With these two different ways of thinking, it is comparable to hugging a statue versus hugging a bear: One will produce a very predictable result while the other will be very unpredictable.

Many organizations use mechanistic thinking because most have desired outcomes that need to be controlled and predictable. One of the earliest examples of mechanistic thinking, in modern times, is the assembly line. The assembly line brought about a new way to assemble products in a quick and cost efficient manner. Heller (2010) noted these positive outcomes but also listed several unintended consequences that came about due to narrow-sightedness. Workers on the assembly line likened it to working in a "prison-like atmosphere" (Heller, 2010, p. 124) where there was the perception of an enslaved culture. Coupled with this was the feeling amongst workers that they had to work at a certain quickness level or they were letting everyone else down. The unintended consequence of increased stress appears to have been created by the creation of the assembly line.

Factories are not the only places that have examples of unintended consequences. The medical industry has produced research that shows the impact of unintended consequences on healthcare. Califf (2006) outlined some of the unintended consequences that have occurred when changes were enacted within clinical trials of medicines. For example, U.S. clinical trials were originally set up in a way that were so tightly regulated and managed that they could serve as the gold standard for approving new medicines across the globe. These regulations and oversight led to such high price increases and

resource expenditures that companies began to move clinical trials to other countries in order to circumvent the United States' oversight and control. This proved that organizations will work around policies when they become too cumbersome. This is important for law enforcement departments because it shows that organizations can be impacted by negative unintended consequences. Furthermore, my research will show that law enforcement organizations are not immune to these consequences.

Cumbersome policies are not the only short-term oversight that managers display when dealing with unintended consequences. Mackay and Chia (2013) found that decisions made by managers to address immediate concerns can lead to long-term negative consequences, some unintended. One of the main reasons for unintended consequences in these circumstances is the failure to adequately assess the risk of chance, especially when dealing with extenuating circumstances, into decision making processes. Although the risk for such occurrences is low, they do exist and could potentially lead to an unintended consequence.

The decision to incorporate different technology into workflow policies is one type of decision that must account for unintended consequences. There are examples of technology creating unintended consequences in different types of organizations. Technology has been found to be a useful tool, but it can lead to distraction in the classroom (Nworie & Haughton, 2008). Some of the distractions cited within the classroom include: using devices to play games at inopportune times, lack of engagement while using device interfaces, cell phones ringing at inopportune times, and the problematic shift in regards to limited time resources. These types of distractions could

conceivably carry over to any user that was utilizing such devices; they appear to not have factors that would make them unique to students.

One of the most telling distractions described by Nworie and Haughton (2008) was the withdrawal of attention from important circumstances when students used cell phones in the classroom. Students would be busily engaged with a cell phone and miss critical points made by instructors and others in the classroom. This is an unexpected outcome as the original purpose of technology in the classroom was to enhance education. Distraction is a very valid candidate for being labeled as an unintended consequence in this scenario.

Unintended consequences also appear in criminal justice studies. Place-based policing is one of the fastest growing trends in modern policing with the intent of placing officers in high crime areas so that future crimes can be deterred (Taylor, Koper, Woods, 2010). Unfortunately, while there is evidence that this policy works, there is also evidence of unintended consequences arising. Black and Park (2012) outlined several of the consequences to include: displacement of positive economic activity within the hot spots, a rise in the phenomenon of managerial capture, and the intensification of highly selective policing efforts on special interest groups. These unintended consequences were not part of the original intent of the policy change but have become a part of the long-term outcomes observed.

The criminalization of domestic violence also has produced unintended consequences. Hovmand, Ford, Flom, and Kyriakakis (2009) found that mandatory arrest laws, pertaining to domestic violence, have increased the number of women arrested as

well as decreasing the number of men arrested. While on the surface this may seem normal, further research showed that the increase in number of women arrested also was correlated to the increase in the number of victims that were wrongly arrested. The unintended consequences that came out of this policy include less cooperation from victims with police, due to their arrest, and a disproportionate amount of minority women that were arrested due to their cultural upbringing. One of the consequences in the domestic violence scenario was immediate: more women were arrested on the scene. One other consequence took longer to manifest: less cooperation with police during future incidents.

Norris and Dunnighan (2000) studied the unintended consequences of police departments using informers to solve cases. The main consequence observed was that of conflict. Police administrators pushed detectives so hard to solve certain crimes that liberties were given to informants that essentially legalized certain crimes committed by the informers. The main goal of police administrators was to solve crimes, but they failed to account for unintended consequences that may occur. This brought not only internal conflict but conflict with the public as well. Focusing too much on specific goals brings its own set of problems.

Mechanistic thinking is prone to unintended consequences when organizations become too focused on specific goals (Chapman, 2005) and ignore feedback loops (Chapman, 2005; Hovmand, Ford, Flam, & Kyriakakis, 2009). Both of these failures are rooted in the lack of understanding as to how the smaller elements of the organization act upon each other and, subsequently, the organization as a whole. Due to specific examples

of law enforcement policies and actions resulting in unintended consequences, it can be assumed that law enforcement agencies are mechanistic in nature. If this is the case, there are specific warning signs within these types of organizations that can warn of possible unintended consequences being created in policies.

Chapman (2005) stated that an organization must be viewed as a system from many perspectives. While mechanistic thinking may help leaders to better organize individual parts of the machine, this line of thinking does not help prevent unintended consequences. If an organization does not display some aspects of systems thinking, then there may be a problem with policy outcomes.

Another element in preventing unintended consequences involves the core process in how policy is originally created. Policy makers need to extrapolate how different units will function individually, upon each other, and as a group if a certain policy is enacted (Chapman, 2005). If an organization is too narrow-minded in their scope of policy creation, then it is quite possible that unintended consequences could occur. This line of thinking leads to the final clue within organizations that are prone to unintended consequences: managers disconnected from their employees.

Managers become disconnected from line level personnel, which leads to misunderstandings in workflows and procedures (Chapman, 2005). This can lead to policies that produce unintended consequences. Policy makers in the manufacturing industry serve as a good example of this type of occurrence. With the creation of assembly lines, the main goal was to increase production while lowering costs. Heller (2010) outlined Lordstown Syndrome which was directly associated with working in

assembly line atmospheres. Managers noticed higher absenteeism, increased occurrences of sabotage to internal equipment, and higher strike rates. There are numerous reasons why these outcomes were associated with assembly lines, but they were all unintended consequences of a specific policy.

**Cognitive Load Theory-Load Induced Blindness**

Distraction, as a concept, can occur for many reasons and under different circumstances. Within the context of police officers, it is important to remember the duties that officers must undertake in the course of a normal workday. Patrol officers are dispatched to a varying array of circumstances in order to deal with different requests. In addition to these dispatched calls, officers must also carry out the will of police administrators in the form of proactive patrols and efforts. As previously discussed, administrators are relying on technology more and more in these daily tasks. The question is posed; can distraction occur under these circumstances due to interaction with tablets and cell phones?

Lavie (1995) demonstrated some of the earliest exploration of the concept of cognitive load and its relationship to distraction. It was found that distraction can take place when perceptual load is low; the possibility of distraction increases when a person is engaged in a task that is not overly taxing. Perceptual load is not a fixed variable for every person. A person's capacity to perceive stimuli, maintain cognitive load, and process stimuli through such facilities as working memory capacity (WMC) vary greatly from person to person (Richards, Hannon, & Derakshan, 2010). This would indicate that some people are more susceptible to distraction than others.

Cosman and Vecera (2012) coupled perceptual load with processing capacity in order to study the relationship between load, capacity, and distractibility. Results of the experiment showed that when perceptual load is high and processing capacity is low, there is a lower level of distraction. Conversely, when perceptual load is low and processing capacity is high, there is a greater chance for distraction. Perceptual load can be altered through a myriad of means, such as in the scientific process for experimentation purposes, but one's capacity to process is not as easy to control much in the same way as an intelligence quotient measurement or ability.

The individual differences in people were also demonstrated in Lavie, Hirst, Fockert, and Viding (2004). This study revealed that a high amount of load processes within cognitive capacities, specifically working memory tasks, had the ability to increase distraction probabilities. Working memory tasks are handled differently from one person to the next. For one person, it may take one task to overload the cognitive processing system, but for another this may require two or three tasks. The way in which a person uses their working memory capacity has a large role in the processing of distractors and selective attention (Fockert, Rees, Frith, & Lavie, 2001).

There is dissenting opinion as to how well cognitive load theory explains observed phenomenon. Fitousi and Wenger (2011) stated that the theory needs to be altered more in order to appropriately account for the individual differences in cognitive capacity and overall processing abilities. The argument against the theory was not that it should be scrapped but that it should be altered from its present state. However, there

was no evidence found that when aggregated across the population, results reached

utilizing cognitive load theory were inaccurate (Fitousi & Wenger, 2011).

Since this study focused on cell phones and tablet computers, it was important to

look at cognitive load theory, and more importantly, distraction within those confines.

Hatfield and Murphy (2007) looked at distraction amongst pedestrians that were using

cell phones while attempting to cross the street. Results showed that pedestrians using

cell phones under these conditions were more likely to cross at unmarked areas and were

less likely to appropriately check for traffic and wait for that traffic to stop. In other

words, they assumed increased risk due to the distraction that the cell phone provided.

The ultimate finding was that cognitive distraction, in this case a cell phone, decreased

overall safety.

The decrease in overall safety was also echoed by Bungum, Day, and Henry

(2005) who found that the introduction of distraction predicted the occurrence of fewer

precautionary actions while walking. When a pedestrian was walking while distracted,

they were more likely to be at risk in several different ways. Nasar, Hecht, and Wener

(2008) stated that distraction involving cell phones led people to reduce their situational

awareness, increase risky behaviors, and also increased accidents as well as crime

victimization rates. The increase of risky behavior and decrease of safe behavior are

especially troubling when contemplating police officer safety implications.

The effects of cell phone distraction were not just confined to pedestrian actions.

Numerous studies have looked at cell phone usage while driving. Strayer, Drews, and

Johnston (2003) found that talking on a cell phone while driving took away from

attention resources to visual stimuli. As previously discussed, each person only has a finite number of resources to expend on any set of given tasks. The cell phone takes away from the available pool of resources. It was also discovered that participants voiced the opinion that it was harder to drive while talking on the phone, but they did not think that they swerved or slowed down. However, in reality, it was found that cell phone distraction did cause a noticeable change in speed and lane maintaining ability (Strayer, Drews, & Johnston, 2003). Cell phone distraction would also seem to cause a disconnect in self-perception of ability and reality.

Distraction was not the only adverse part of cognitive load theory. While being distracted has been shown to lower individual safety there was another observable phenomenon that decreased safety. IB was first described by Mack and Rock (1998). IB occurred when a person did not notice a certain stimuli around them in their environment. The stimuli could theoretically be of no consequence, but it also could be of great consequence to the observer.

Visual objects that are not relevant to current tasks can go unnoticed (Bessa, Coelho, & Cruz, 2006). This is the mechanism which people utilize to stay on task and limit distraction. Without it, humans would not have a way to stay on task or focus. However, this mechanism also creates the possibility of IB occurrences. Mack (2003) found that attention is noted only when the stimulus has been analyzed by the observer. The analysis of a stimulus obviously takes some cognitive abilities away from a person and would entail some amount of time to process. If the observer did not have enough

resources or the processing time took too long, then IB could occur. Under dangerous conditions, IB would have a dangerous effect on the observer.

IB is broken down into two broad types: cause due to unavailability of resources and cause due to judgment towards irrelevance (Eitam, Yeshurun, & Hassan, 2013). Either one of these causes is an acceptable explanation to IB occurrence. Much like distraction, IB has a relationship with cognitive abilities. Macdonald and Lavie (2008) found that a high perceptual load affects perception and that it also impaired the ability to detect other stimuli. This blindness, known as load-induced, is very much akin to IB. The ability to detect stimuli is dependent on cognitive limits and the ability of an individual to divide attention (Macdonald & Lavie, 2008). Perez-Moreno, Conchillo, and Recarte (2011) echoed these sentiments by stating that as cognitive task loads increase, the ability to detect visual stimuli decrease. When a person became so engrossed with a single task, or myriad of tasks, they began to lose environmental awareness.

Dixon et al. (2012) noted that tasks requiring greater attention seemed to contribute to IB. This was largely attributed to the concept of attentional tunneling in which a person becomes so focused on a task that they lose the ability to perceive other stimuli. It was found that this tunneling effect lowered the detection rate of high priority objects in close proximity to targeted objects. While this specific study looked at augmented reality, it also speculated to broad types of object targeting. In essence, it was possible to see objects in the visual field but not perceive them in the appropriate manner even if they represent a high level of needed attention.

Fougnie and Marois (2007) found that WMC also can adversely affect detection abilities when overtaxed. WMC works in conjunction with other cognitive abilities to limit distraction, but it can also impair detection of unexpected main task irrelevant stimuli. Under some conditions this is ideal, such as when a person needs to limit harmless distractions. Under other circumstances there is the possibility that such IB could be detrimental to one's own safety or to someone else's safety. The relationship of relevance between the stimulus of focus and outside stimuli also seems to have a role in IB.

The more similar that an outside stimulus is to the task at hand, and the more different it is from other outside stimuli, will increase the overall noticeability to the observer (Most et al., 2001). This would suggest that IB has a relationship between task relevance and unexpected stimuli characteristics. This fact is coupled with the previous statement that mental load has a relationship with processing what is visually perceived (Perez-Moreno, Conchillo, & Recarte, 2011). If a person is at the limit of their mental capacities, they may already be blind to outside stimuli..

Richards, Hannon, and Derakshan (2010) found that training does have a positive impact on reducing IB when the training task closely mimics the primary task. This is attributed to the fact that training will decrease the amount of cognitive resources needed to complete a task. Once again, the amount of training needed to effectively inoculate persons against IB will vary from person to person. Seegmiller, Watson, and Strayer (2011) concluded that while WMC has a direct effect on IB, there are differences depending on personal capacities. High WMC individuals encounter IB at a lower rate

as compared to individuals with lower WMC. It is then plausible that people with lower WMC need to have a higher level of training to further offset the occurrences of IB as compared to their counterparts. Attentional control was also noted as being part of the broader spectrum of WMC. Thus, high WMC persons are already more adept at ignoring outside stimuli; sometimes this ability is to their detriment and may require a different level or type of training altogether.

While training did show promise in decreasing IB, experience did not. Nasholm, Rohlfing, and Sauer (2014) concluded that task experience did not negate the number of IB occurrences. While some administrators believe that experienced employees will naturally build up a tolerance to IB, this appears to be false. At first this finding may seem controversial, but after further reflection it does make sense. If the very essence of IB is that a person fails to note a stimuli in their range of perception, then how will they ever know that they missed the stimulus in the first place? Experience will not help a person realize what they cannot perceive; there must be another way to inoculate against IB.

Cosman and Vecera (2012) noted that object based attention strongly correlates with the extent of irrelevant task processing. As previously discussed, this is a double-edged sword. If a person becomes so focused on an object that they experience IB, then there is the potential for problems. However, if the person is not very focused on a task then they are easily distracted. There is some middle ground in which a person is properly focused but still attune to their environment. This level of concentration should be a trainable point, even though people's cognitive levels vary. Rivardo and Brown(2011)

stated that the type of task engaged in could also affect IB. This is another item that might be mitigated through training or policy.

There is one other piece of interesting evidence in perception ability. Cosman and Vecera (2012) also found that object boundaries can affect the processing capabilities of a person. For instance, a person consciously or unconsciously sets up a search radius in order to process specific information. Perception within this boundary is greatly different from perception outside this boundary. Nasar, Hecht, and Wener (2008) demonstrated such a phenomenon when they looked at pedestrians walking down a street while using a cell phone. Under these circumstances mobile phone users recalled fewer of the objects around them when compared to people not using a cell phone. This could be because they were focused on the boundary created by the cell phone: the cell phone screen. Cell phone users in this scenario also took more risks which may be attributable to their lack of environmental perception.

Strayer and Drews (2007) looked at cell phone conversations among drivers. They found that people who use cell phones while driving performed very little analysis of objects outside their focus of attention. The focus of attention while driving and talking on a cell phone creates divided attention between the acts of driving and communicating. Some attention has to be taken away from focusing solely on driving in order to converse on a phone so that means that there is less attention to notice things around you. A driver may notice things in front of them, even though studies such as Trick, Enns, Mills, and Vavrik (2004) show decreased driving ability when attention is divided, but they may not notice the objects next to them or behind them.

These types of problems could definitely affect police officers in the course of their duties if they were to interact with devices such as a cell phone or tablet computer. Hyman, et al. (2010) found that cell phone users experience IB when simply walking around outside. Police officers are routinely tasked with walking around, whether it be from their car to an entrance or on a foot patrol. If part of their workflow included using an electronic device while walking, then IB could occur. Rivardo and Brown(2011) found that eyewitnesses who experience IB were less accurate in giving accounts of the circumstances and gave misleading information. Research also showed that IB reduces the number of reliable witnesses overall. This would seem to infer that a place such as an arcade would yield a small amount of key eyewitnesses as there would be a great amount of IB due to the interaction of people with narrowly focused electronic devices. Police officers are sometimes used as the sole eyewitnesses in cases and it would appear that IB would be a detriment to that cause.

Smith, Isaak, Senette, and Abadie (2011) looked at the users of cell phones but varied the interaction type. Rather than researching users who talked on the cell phone, they looked at people who texted on the phone. This is an important variation as now there is research that would be applicable to the type of interactions that would also take place on a tablet computer. They found that texting, as well as talking, on a cell phone impaired a person's ability to distinguish stimuli in an environment; they experienced IB. In particular, people that were texting were unsure of their memories and they did not trust them. It was also noted that this type of behavior would be detrimental to eyewitness accounts. In terms of police officers, it would be a detriment to their ability to form

probable cause. If an officer is unable to swear or affirm their recollection of events, then any number of court proceedings or warrant applications could be harmed.

Another one of the trends that seemed to emerge out of recent research is the dependence on overly broad processing when a person experiences IB while using a cell phone or like device. A person's ability to truly recognize what is going on around them is replaced with an autopilot sort of processing ability (Smith et al., 2011). Under some circumstances this sort of autopilot processing would not be a bad thing, but when it comes to life or death circumstances, as those sometimes faced by police officers, this type of processing could prove deadly. There are numerous examples of police officers killed while sitting in their car doing reports. It is possible that IB played a role in these deaths as officers were not adequately focusing their attention to potential threats in the environment around them.

The pervasiveness of IB in cell phone users has also been studied. Hyman et al. (2010) found that seventy-five percent of cell phone users experienced IB to some degree while walking. This would seem to indicate that the problem falls within the majority of people and that utilizing a cell phone demands a vast amount of attentional resources in many people. It is also a hard outcome to fix. One of the more recent phenomenon in policy is that of hands-free device laws while driving. These are instituted in hopes that some attentional resources can be regained, but it appears that the use of hands-free devices still correlates to slower reaction on braking maneuvers and a reduction in recognition memory to outside objects (Strayer, Drews, & Johnston, 2003).

Taken at its sum, unintended consequences and cognitive load theory would appear to be ideal as a theoretical framework for this study. From a policy standpoint, administrators may have introduced technology as a way to achieve specific goals, but with the implementation have come the possible problems of distraction and IB due to cognitive load theory. The questions for this study was framed in a way that echoes this established theoretical framework.

<div align="center">**Law Enforcement Specific Variables**</div>

Technology use by police departments is not a new concept. Colton (1979) described the way in which computer systems and other technologies began permeating police departments in the 1960s. These early computer systems were used mainly for resource allocation and statistical analysis purposes. The technology of this time period was much too large to be mobile so it was mainly kept inside police precincts, substations, and headquarters (Colton, 1979; Palys, Boyanowsky, & Dutton, 1984). Mobile police technology, as an achievable concept, began to appear at police conferences and police magazines in the 1970ss (Palys, Boyanowsky, & Dutton, 1984). The miniaturization of larger, more complex systems meant that officers would be able to access important data outside physical buildings and in a more real-time context.

One of the first hurdles that had to be overcome in the mobilization of police technology was the transfer of data from mainframe to end user device. Palys, Boyanowski, and Dutton (1984) studied the decentralizing effects that Mobile Data Radio Systems (MDRS) had on the police workflow process. While the idea of decoupling information from a police mainframe certainly held allure from an administrative

standpoint, there were serious reservations about how it would affect "the way in which police officers go about policing" (Palys, Boyanowski, & Dutton, 1984, p. 114). It would appear that since the first inception of mobile police technology, administrators have struggled to balance increased productivity and data availability with that of sound policy.

Increased productivity is at the root of mobilizing certain police technologies. While the earliest forms of police computerization focused on crime statistics and available officer resources (Colton, 1984), there has been a shift towards focusing on technologies that aid in increasing expected officer task outcomes. Ioimo and Aronson (2003) stated that the use of computers, outside the confines of buildings, will continue to grow because of the increase in overall productivity; this is attributed mostly to the fact that mobile computers help free up officer time.

Nunn (1994) described several different ways that mobile digital terminals could increase overall efficiency. The idea of increased communication was a mainstay in several of the expectations. If an officer is able to access data immediately, such as license plate information or warrants, this should increase efficiency as compared to a workflow that involves either using a two-way radio or going to a centralized location to retrieve the data. The earliest forms of realized efficiency in mobile police technology were focused on the fact that officers had better access to information, and they did not have to travel to get to it.

Mobile digital terminals in the 1990s all shared three characteristics: they were decentralized, interactive, and routinized (Nunn, 1994). The idea of decentralization, as

previously discussed, was a big leap in police workflows as was the interactivity of

mobile police technology. Danziger and Kraemer (1985) studied the way in which police

detectives interacted with the earliest forms of crime data. While increases were generally

noted across the board in terms of efficiency and productivity, it was also interesting that

the context in which detectives were using the data was of importance. The detectives

found that access to the computer data needed to be decentralized because a large amount

of their investigation time was spent in the field and not in front of a desk. This revealed

that while early police technologies were helping to increase productivity, there was an

untapped demand to be satisfied.

The third aspect of mobile digital terminals is that of being routinized. This means

that officers use technology, with some faithfulness, in the course of their daily duties

(Nunn, 1994). Nunn (2001a) demonstrated the lengths at which computerization has

overtaken police workflows. Police administrators are using computer technology in wide

arrays of functionality to include administrative duties, service delivery, and crime

solving. Within each of these broad functions there are numerous sub workflows that are

undertaken in order to achieve the desired results.

Byrne and Marx (2011) categorized these sub workflow functionalities into two

broad categories: hard and soft technologies. Hard technologies are items that are

tangible and occupy physical space. Examples of these technologies include weapons,

cameras, computerized devices, and protective equipment. Soft technologies are items

that are intangible in nature. Examples of these technologies include strategic concepts,

software programs, and crime analysis concepts. These two technology types can act

independently of each other but also can be codependent in nature. For example, a police department may issue computers to all officers which is a type of hard technology. That same police department may also place on the computer an array of software programs that are to be used over the course of the officer's daily duties. This is an example of a soft technology that is being used in conjunction with a hard technology.

Hard technologies, within the realm of policing and data transfers, have evolved quite a bit over the years. When looking at the proliferation of mobile computing platforms, one has to only look at the progression of usage as a key indicator. In 1993 only 6% of all departments used MDTs (Department of Justice, 1996). This is in stark contrast to more modern times when in 2007 fifty-nine percent of departments reported using MDTs (Department of Justice, 2010). A total usage increase of fifty-three percent across the board shows that local police departments are shifting the way in which they utilize certain hard technologies within the police vehicle. Meehan (1998) predicted that this shift would occur after finding that numerous patrol level officers positively benefited from mobile data technologies.

Soft technologies have also enjoyed an evolution within the realm of policing data strategies. Early soft technologies focused on the best way to accurately reflect statistical crime data (Colton, 1979). Modern day police departments want to analyze data but in a different way. Ratcliffe (2004) outlined the way in which police departments have started to utilize concepts such as crime mapping and hot spots to reduce crime while on patrol. The use of GIS concepts has allowed officers to move beyond the concepts of random

patrol into more focused patrol efforts (Taylor, Koper, Woods, 2010). GIS software has also allowed departments to delve into the realm of location-based services.

Location-based services are groups of information that can be retrieved based upon an entity's location in a geographical space (VrÄek, Bubaš, & Bosilj, 2009). These types of services are possible due to the marriage between hard technologies, devices equipped with global positioning systems (GPS), and soft technologies, GIS software that is also capable of displaying some sort of additional data. Police departments can use location-based services as a way to display where a patrol unit is within a mapped out area (Brewer, 2007). The extended capabilities of automatic vehicle location (AVL) are just now starting to be realized. Some possible applications include the marriage between AVL and such data as dispatch details and crime location.

These types of soft technologies have helped to spur development of new hard technologies, technologies that are portable in nature but also possess a certain level of computing power. Sanders and Hannem (2012) noted that information technology, within policing strategies, will help to improve crime prevention techniques that exist now and those that will be created going forward in the future. The overall current reliance upon these technologies was also noted. This reliance was demonstrated when Shinder (2005) showed how technology can be used as a way to expedite information to field officers and streamline ongoing duties. Due to their capabilities and portability, tablets and other handheld devices were found to be particularly useful for completing law enforcement investigations and varying other tasks in the field (Shinder, 2005; Baber, Smith, Butler, Cross, & Hunter, 2009).

The term smartphone has come to mean a group of devices that are able to make phone calls, send/receive email, browse the Internet, and run computer applications (Dall, Andrus, Hof, Laadan, & Nieh, 2012). The popularity and need for more computing power from these types of devices continues to grow in U.S. society (Choi, 2013) and within the policing industry, there is increasing evidence that police administrators are utilizing these devices in the field.

Cell phones have long been used in a variety of police functions. While some functionality falls within the realm of official duty, there is also evidence that some usage falls in the realm of unofficial duty. Manning (1996) specifically outlined these types of activities that police officers utilized the cell phone to accomplish:

> Cellular phones are used in many ways. They are used officially by patrol officers to check on details of a police call with callers; to verify assignments; to discover if an incident remains on-going; to discuss jobs with other officers; to check information with the communications center. Officers can call other agencies such as social welfare agencies, other police departments, or emergency medical services rather than request police operators in the communication division to place such calls. They are also used unofficially for informal officer- to-officer communication, for pizza delivery, for personal calls. (p. 59)

Regardless of official or unofficial use, it is evident that the cell phone and its evolutionary offspring the smartphone, are being used by officers in the field. Kuula, et al. (2013) demonstrated how smartphones can be used by police officers as a way to receive emergency alerts or other wide reaching notifications. It was also shown that an

officer's geographical location and status could be maintained and displayed during an operation due to an interface with the smartphone. This proves the smartphone is a valuable tool for communicating with officers, controlling their actions, and commanding their future actions. It also demonstrates that police entities will continue to adapt and use the smartphone within existing workflows. The need to communicate, control, and command police officers will not go away.

Tablet PCs are a relatively new device category. In essence they are an evolution of the desktop personal computer and the notebook category of computers. Karadag and Kayabasi (2013) highlight some of the evolutions that make the tablet more preferred than the standard desktop or notebook computer. Of note, is the ultra-portability and different ways in which a person can interact with the device. Tablets allow people to carry massive amounts of information in a relatively small physical space. They also allow people to record items digitally that were historically stored via pen and paper. The tablet also uses visual interaction with information in a mobile environment. Some applications present on a tablet are not ideal for a desktop based system, such as AVL or other location-based services.

With these types of benefits it easy to understand why police departments may wish to explore how tablets may fit into their workflows. The Panasonic Toughbook is a rugged notebook computer designed to withstand the adverse environment which police officers sometimes find themselves a part of. Panasonic has also released a rugged tablet named the Toughpad which is designed to give police officers the benefits of a tablet in a rugged, dependable design (Panasonic, 2014). Tablets built specifically for police

departments are just now beginning to come online. There is evidence though that police departments are simply using consumer versions of tablets to complete tasks.

Casady (2011) demonstrated how a consumer version of the Apple IPad and an Android tablet were modified for use by police officers in the field. In fact, IPads, tablets, and a variety of smartphones were used to push data to police officers in the field. This practical application demonstrates that departments are using tablets and smartphones in daily police workflows. This trend is not likely to end as departments seek to maximize efficiency through the use of mobile technology.

Police departments use smartphones and tablets in a variety of tasks. It is important to understand that these two types of mobile devices have different categories of usage. Concerning police workflows, Pica and Sorensen (2004) outlined these under the category of environmental tasking, which contains subcategories of active and passive tasking, as well as the category of mobile device interaction, which contains structured and unstructured subcategories. The result of combining these categories leaves mobile device related police tasks to fall within one of the following units: active-structured, active-unstructured, passive-structured, and passive-unstructured.

An example of an active-structured task may be the routine accessing of motor vehicle records when police officers query vehicle registrations. These tasks require officers to actively interact with the device by entering certain types of data and then receiving certain types of data back. These are tasks that require the attention of the officer and occur on a fairly structured routine. This contrasts with active-unstructured tasks. These tasks also require an officer's active attention but are less routine and

structured. This is a query of online mapping services that require the officer to pick unique crime fields, time ranges, and locations.

Outside of the active tasks there are also passive tasks. These are the tasks that are performed in the background with little input from the officers. A great example of a passive-structured task are the license plate readers found in some police cars. Lum, Hibdon, Cave, Koper, and Merola (2011) described license plate readers as devices within a police vehicle that are capable of comparing license plates found on vehicles around the vicinity of a police car with that of license plates of interest found in a database. The process essentially automates a function, that of routinely running license plates, and turns it into a passive-structured task. Another example of a passive task is that of updating software. Updates to software are not structured from a time standpoint but rather are released as they are completed and necessary. Mobile devices in the police workflow sometimes need to be updated and thus represent a passive-unstructured task that must be performed. These tasks require little police intervention but happen at random times and for random pieces of software.

The differing amount of attention that must be spent among these four different categories of tasks highlights an interesting topic of mobile device usage by police officers. What are the safety implications? This is not a recently occurring question. Palys, Boyanowsky, and Dutton (1984) looked at aspects of this question and found that some officers realized the possible safety ramifications that arise from using mobile technology. First, officers were found to sometimes avoid training protocols and split their attention between suspects and MDT. This did not happen all the time, but certain

officers did break established protocols. The second issue found in the 1984 study

focused on the aspect of confining the officer within the vehicle, when operating the

MDT, with no means of escape while interviewing a person. Different officers had

different perspectives on these safety issues. The study in 1984 focused on one type of

mobile device, the MDT. Its entire structure and use has changed dramatically over the

years.

Even though mobile data devices have changed quite a bit over the past 20 years,

there is very little available research to understand how these changes have affected

officer safety. The one exception to this lies in the field of police officer vehicle crashes.

There are quite a few studies that deal with the causes of officer involved traffic

accidents. One theme runs within all of them: lack of attentiveness or distraction by

officers. Lundälv, Philipson, and Sarre (2010) found that lack of attentiveness by

officers was an attributable factor in some accidents. Servino (2013) found that

departments who authorized cell phone use in police vehicles were 14.42 times more

likely to experience injury crashes.

Further complicating the matter is that there are legislative pushes to control the

use of mobile data devices under certain circumstances. Fowles, Loeb, and Clarke

(2010) noted that increasingly, state legislatures are making the interaction with cell

phones while driving a primary offense rather than a secondary offense for the purpose

of lowering traffic deaths and accidents. This is also supported by USDOT (2013) which

found that in 2012 there were 3,328 people killed due to distracted driving; cell phones

and other mobile data devices were listed in the distracted driving category. It is clear that mobile device usage by normal citizens can be a distraction.

One of the reasons sometimes used to justify mobile device usage by police is the amount and type of training undertaken by the group. Servino (2013) found that contrary to current held beliefs, most police departments did not provide training over and beyond what a normal citizen may experience. The limiting factor to this finding is that it is the sole study found that made this revelation. No substantiating evidence could be located outside this study so a certain degree of skepticism must be undertaken when taking this viewpoint. Evidence would suggest that if this were true, police officers would be just as at-risk for distraction as any other citizen under similar circumstances.

**Officer Safety**

Officer safety, as a concept, is a fairly wide reaching and all-encompassing phenomenon. Officer safety is also one of the most important goals of policing (Herbert, 1998). Ison (1983) frames officer safety within the context of mental and physical tasks meant to keep a law enforcement officer safe. Stephens and Matarese (2013) identified six specific areas that are priorities in regards to research and discussion: officer gunfire injuries, officer deaths, vehicle operation, risk management, education and training, and leadership's role in developing a safe culture. Four of these areas had direct relevance with this study.

Vehicle operation is one of the most deadly tasks that an officer can perform while on duty (National Law Enforcement Memorial Fund, 2011). Officers spend a lot of time in their vehicles driving from one place to another. Officer safety while engaged in

vehicle operation is an area that has been researched. Garrison, Brown, Holbrook, and Carruth (2012) studied the effects of talking on a radio while driving from one place to another. Results showed that there is some increase in attentional demands when officers use ten codes. This increase in attentional load could lead to distraction principles highlighted under the load-induced blindness concept.

Police liability is a topic that permeates media and government function meetings throughout the United States. However, the concept of using risk management to minimize police liability is a concept that seems to lack support. Archbold (2005) found that only a very small number of police departments actually engage in risk management practices as a way to decrease liability. This is a troubling trend as Paton (2006) identified an increased need for risk management as it specifically relates to critical incident stress. Officers are called upon to act valiantly in life or death situations, and these situations can elicit responses that have a negative impact on workers' compensation issues and future incident response (Paton, 2006). Risk management procedures might also have an impact on other police functions such as police interaction with technology. Archbold (2005) described a wide variety of assets that could be protected under risk management and human assets were listed as one of the sub-groups. Decreasing an officer's risk from potential injury, as precipitated by distraction, falls within the scope of risk management.

Education and training also directly affect the way in which police officers handle potential safety issues. Buttle (2007) found that training played a direct role in the way in which officers implemented safety tactics such as defensive and offensive weapons. Less

training made the officers less likely to use defensive maneuvers in a time when they were needed. With regards to technology, Brown and Brudney (2003) found that a lack of training was indicative of struggles to properly use technology in a turbulent environment. Since police officers work in highly stressful environments, it is very important for them to have the appropriate level of training to feel comfortable interacting with technology. Otherwise, an officer safety issue could arise.

Birzer (2003) found that one of the more successful ways to conduct police training is to enhance decision making skills through the use of case studies and problem solving. This is a difficult concept to use when teaching brand new police recruits as they have no job experience or real life situational experience. When framing this learning method against the backdrop of technology distraction it becomes even further complicated as newer officers have never performed police duties while using mobile devices in real life situations. Even though this training method may not be ideal for new officers, it may hold promise for veteran level training.

Andragogy, as a training theory, may help police officers negate some safety issues by allowing them to think out issues in the classroom setting before they happen in real life (Birzer, 2003). This may hold true to technology distraction as well. While it has been previously stated that training may not be ideal to offset the distractive properties of technology (Richards, Hannon, & Derakshan, 2010), training may have a positive impact in allowing officers to avoid the situation altogether. If police officers can understand that technology can be adverse to officer safety in certain situations, then they may be more inclined to avoid those situations.

Shipton (2011) outlined the fact that police departments have a varying array of techniques to train and educate police personnel. The learner-centered strategies employed by some departments mean that officers are allowed to explore concepts and situations through their own eyes. The teacher-centered strategies employed by other departments mean that officers are encouraged to focus mainly on the perspective of the teacher. Without a standardization of police education methods, it is difficult to achieve uniformity when it comes to technology distraction training. Birzer (2003) seems to advocate for the learner-centered approach where police officers would be allowed to realize that technology use in certain situations may not be a good thing. Shipton (2011) stated that not all police departments are allowing officers to come to this self-realization through introspective means.

One problem that lies within self-realization scenarios is that police professionals seem to perform poorly when asked to assess themselves on scenario outcomes. Regehr, LeBlanc, Jelley, and Barath (2008) found that officers were more likely to assess their performances as poor when in fact they were satisfactory or above average when graded by a group of professional evaluators. This is a problem if officers are expected to assess their abilities and change their behaviors based on critical incident post-operation meetings. If the officer lacks the ability to properly assess a positive or negative factor, then changes could be made or not made in an inappropriate manner.

Simulation of critical incidents is another training method used by police departments to teach officers about incident response. Sjöberg (2014) found that authenticity, competency, and role-playing ability were key indicators to the success of

such scenarios. Police are confronted with numerous situations in which they must make decisions that could prove dangerous to themselves or others (Anderson, Litzenberger, & Plecas, 2002). In order to negate some of the risk and learn how to deal with stressful situations, officers take part in role-play exercises to simulate the events as close to life as possible. These scenarios vary widely as they can be set up with a wide range of characteristics and boundaries (Sjöberg, 2014). One aspect that could be added to these scenarios is the interaction of officers with mobile devices during events that would closely mirror situations while on routine patrol. Instead of taking away a cell phone during training, police administrators may consider letting trainees keep them and even encourage their use during scenario training.

Garner (2005) stated that most officer safety issues arise due to a mistake on the officer's part. These mistakes can be simple or very complex in nature. Examples of these mistakes include: improper assumptions, poor technique, relaxing, and preoccupation. The preoccupation aspect is of particular interest to this study. Due to the very nature of the job, law enforcement officers are not able to disengage themselves from their environments and duties because of the potential risk that they may incur (Garner, 2005). The inherent risk associated with the law enforcement profession could make officers especially vulnerable to the negative consequences of distraction.

Another variable specific to law enforcement officers is the necessity to respond to high stress situations in a vehicle that contains built-in potential distractors. Stevens and Minton (2001) found that items such as radios, cell phones, and technology information devices contributed to numerous officer injuries while driving. Distraction

while interacting with these technologies had a direct effect on vehicle crashes. It stands

to reason that these types of devices could create other officer safety issues in different

environments.

These high stress situations may also be compounded with age related stress.

VanderKaay and Young (2012) found that older adults seem more susceptible to

technology use stress and that there were differences among age groups when it came to

the perceived outcomes and benefits of technology use. Czaja, et al. (2006) echoed these

findings when it was determined that older adults are less likely to use technology due to

such factors as computer anxiety and intelligence. O'Brien, Rogers, and Fisk (2012)

found that low-technology older adults preferred to work with people directly rather than

with technology and if they did interact with technology they preferred to keep it very

basic. Police departments, like most other organizations, have a wide range of ages

amongst its employees. It is possible that these age ranges may affect the perceptions of

distraction. Therefore, age was included as a selection criterion amongst participants in

order to fully understand the phenomenon.

Police administrator policy also impacts officer safety issues. Hassell (2007)

studied the way in which police administrator policy affected officer decision making.

The study found that police precinct commanders who were given the authority to

implement policies specific to their geographic area would create policies that responded

appropriately to crime levels. For example, if a team had higher levels of violent crime

then police officers were more likely to be aggressive and take extra officer safety

precautions. The inverse was also true. If a police precinct experienced lower levels of

violence and overall crime then the officers were more apt to be relaxed when it came to officer safety issues. Police departments have created geographic boundaries as a way to better organize patrol efforts (Hassell, 2007), but it appears that there is also a level of adaptation that is created by individual precinct policy that directly contributes to officer safety issues.

Willits (2014) examined policy as it directly relates to violence against police officers and organizational structure. It was found that administrative decisions pertaining to the use of sub-stations correlated with the occurrence of police officer assaults. This is an interesting finding in that it appears policy outside the realm of direct officer safety protocols, such as traffic stop procedure or pat-down technique, can directly affect officer safety. Police administrators have to be very cognizant of this fact and look to current research in order to identify areas of possible concern.

One of the more important issues that arise within officer safety issues is the call for evidence-based policy development. Adams and Jennison (2007) found that technology can be of great benefit to police departments, but the quickly evolving aspects of technology can outpace the development of good policy. The transformative nature of certain police technologies, such as communication equipment and computers, is undeniable. The inconsistencies in the way in which policy governs their use and expected outcomes is a problem when it comes to controlling such issues as negative officer safety situations (Adams & Jennison, 2007).

**Summary**

It is clear that police administrators are relying more heavily on technology, both in hardware and software varieties, in order to achieve increased efficiency (Mcdevitt, Posick, Rosenbaum, & Schuck, 2011). What is unclear is how the reliance on mobile technology will affect officer safety. There is some evidence that cell phones and tablets negatively affect citizens in the course of driving cars and walking down the street (Hyman, et al., 2010; Strayer & Drews, 2007). Distraction and IB are blamed as being the culprits behind the decrease in such abilities as perception and memory as well as decreasing overall safety (Smith et al., 2011; Nasar et al., 2008; Hatfield & Murphy, 2007).

While most of the available research focuses on civilian applications, many police officers have the potential to perform such tasks as driving and walking over the course of their assigned daily duties. Furthermore, there are skills highly pertinent to patrol officers, such as eyewitness memory, that are hampered by the phenomenon of IB (Rivardo & Brown, 2011). The specific elements of cognitive load theory utilized in this study would appear to demonstrate the potential to adversely affect officer safety under certain circumstances. IB, load-induced blindness, and distraction are all plausible outcomes that may occur when using cell phones or tablet computers.

Police administrators integrated technology into workflows to increase efficiency, communicate more effectively, and disperse information to the mobile environment (Ioimo and Aronson, 2003). Unintended consequences can arise when administrators do not adequately assess certain elements and workflows within their organizations when

changing policy or standards (Chapman, 2005). It is possible that police administrators

may be experiencing the unintended consequence of decreased officer safety due to the

integration of mobile technology within the patrol environment.

This study sought to apply a conceptual framework made up of two separate

theoretical frameworks, evolved from cognitive load theory and systems theory elements,

in order to explore how officers perceive their safety while on patrol. The study bridged

the gap between the expected outcomes of technology integration, as evidenced through

existing policy, and the actual outcomes that are being experienced today. The findings of

this research will help to keep officers safe by adding to the overall breadth of available

scholarly research decisions made by policy makers and police administrators.

The phenomenological approach undertook aided in the exploration of officer

safety perception as well as how the selected theory elements interacted on the overall

phenomenon. Cooney (2012) described the different ways in which a phenomenological

study can be undertaken. Chapter 3 will discuss in detail the exact design of this

phenomenological study.

Chapter 3: Research Method

**Introduction**

This phenomenological study was designed to explore U.S. patrol officers' awareness of their overall safety when interacting with mobile technology. The phenomenon of distraction was at the center of this exploration. Patrol officers are tasked with a varying array of duties that entail the use of mobile technology. For example, mobile computers are deployed throughout departments (Department of Justice, 2010) as a way to expedite workflows and better communicate within the field (Meehan, 1998). Some police departments issue smartphones or tablets in a further attempt to connect officers with data in a variety of environments. This study explored how using these relatively new types of technology affects officers' safety.

In order to fully explore this awareness, I researched the phenomenon of distraction in a qualitative manner using a modified Van-Kaam method to derive meaning from data collected in a phenomenological research methodology. The theoretical frameworks of systems theory and cognitive load theory narrowed the study's focus to a policy-related perspective in the form of unintended consequences as well as a psychological perspective in the form of load-induced blindness and overall distraction levels. The purpose of this study was to better understand how officers process potential officer safety issues on patrol while interacting with mobile technology. This chapter describes the rationale for the research design, the role of the researcher in the study, the methodology, and address issues of trustworthiness.

## Research Design

The overarching research question for this study was: How does interacting with a mobile device affect an officer's awareness of their safety? From this overarching question, six additional questions were formulated in order to narrow the focus of the exploration:

1. How do officers perceive the goals of using mobile technology in a safe manner?

2. How do officers feel about policies and expectations established by departmental leadership regarding safe technology use?

3. What are the experiences of officers regarding the amount and type of tasks being performed that utilize technology?

4. What does it feel like to be distracted when using mobile technology devices while on patrol?

5. How has mobile technology personally affected overall officer safety?

6. How do officers compensate for officer safety issues that arise when they interact with mobile technology?

The first two questions attempted to explore the relationship between patrol officers and managers through the eyes of officers. Chapman (2005) stated that unintended consequences can occur when feedback loops are ignored in mechanistic organizations. A police department with feedback loop problems could be more prone to unintended consequences such as officer safety issues. Unintended consequences, as a subset of systems theory, made up the first part of the dual theoretical framework for this study. While police managers do not purposefully create an atmosphere in which officer

safety issues exist, unintended consequences offer a potential explanation for the presence of technology-related officer safety issues. The specific feedback loops explored in these questions pertained to how well the department communicated its mobile technology goals to the officers and how well the department communicated its policies and usage expectations to officers. Within each broad category of questions there were additional probing questions that explored both sides of the communication loop: administrators/supervisors and individual officers.

Moustakas (1994) stated that phenomenological research seeks to gain understanding through the eyes of co-researchers, also known as research participants. Accordingly, the first two questions of this study were designed to document events through the officers' eyes to seek out traces of unintended consequences. The concept of communication is a two-way avenue in which both sides need a level of understanding (Moustakas, 1994). If the officers were not properly interpreting goals and policies, then it was likely that unintended consequences may occur according to systems theory principles. Phenomenology was used to gain the perspective of understanding from the officers' viewpoints.

Research Question 3 focused on the load-induced blindness aspect of the dual theoretical framework. A person can become so saturated with cognitive tasks that they are unable to process any additional tasks to the point that they miss something going on around them (Perez-Moreno, Conchillo, & Recarte, 2011). Furthermore, the amount of object-based attention spent on a task will directly affect a person's ability to process irrelevant tasks (Cosman &Vecera, 2012). Both of these types of occurrences can be

described as a manifestation of distraction by an individual. The phenomenological process focused on the co-researchers' perceptions of task saturation. Moustakas (1994) stated that perception is concrete and cannot be doubted in phenomenology. If an officer perceives that they are saturated, then they are saturated, thus raising the possibility of load-induced blindness.

Research Questions 4–6 explored the awareness of officers regarding the relationship between officer safety and technology through the concept of distraction. Research Question 6 focused on intentional experience and acts of consciousness. Moustakas (1994) stated that acts of consciousness could be used to gauge perception, because they are outward acts based on internal perceptions. Intentional experiences are also acts of consciousness that express some level of understanding of a phenomenon (Moustakas, 1994). All six questions were posed from the perspective of the officer. The most vital part of this study was to understand how officers perceive what is going on around them.

**Phenomenology**

The concept of phenomenology can be traced back to three individuals in the nineteenth and twentieth centuries: Kant, Hegel, and Husserl (Groenewald, 2004). Of these three individuals, Husserl spearheaded the effort to create a research methodology that worked from the foundation that individuals can be certain of how they perceive things in their minds (Fouche, 1993). Certainty is something often sought in any research methodology. This philosophical method of exploring phenomenon around us, from the viewpoint of the individual, became known as phenomenology. The line, "Back to the

things themselves!" (Moustakas, 1994, p. 26) is often used to describe the way in which

phenomenologists seek to gain perspective in its purist form, from the viewpoint of the

person who is directly experiencing the phenomenon.

Moustakas (1994) outlined four steps that must be undertaken in any

phenomenological study in order to fully grasp the perceptions of the studied individual:

1) the epoche, 2) phenomenological reduction, 3) imaginative variation, and 4) synthesis.

The epoche is the conscious effort of a researcher to dispose of biases and preconceptions

with the goal of perceiving something as for the first time (Moustakas, 1994). The epoche

is often referred to as the process of bracketing by phenomenological researchers

(Creswell, 2009). The purpose of bracketing is to let go of what is previously thought

about a phenomenon in order to fully embrace what is actually happening. Bracketing

was used in this study to limit bias and allow true meaning to emerge.

Phenomenological reduction is the process in which textual description is added

to what is being perceived by an individual (Moustakas, 1994). Perception is both an

internally and externally motivated process. It is not enough to simply describe what is

seen, but it is equally important to describe how what is seen affects what is felt.

Phenomenological reduction seeks to add deep layers of understanding and meaning,

through textual communication, to any phenomenon that is able to be perceived

(Moustakas, 1994). By communicating with a person who has experienced a

phenomenon, a phenomenological researcher is able to derive meaning from the holistic

description provided. Reduction was used in this study in conjunction with a modified

Van Kaam method to add the required level of deep description needed for true understanding.

In order to fully encompass phenomenological reduction, there are a series of steps that must be undertaken. Moustakas (1994) described these steps as follows: first a researcher must ensure that they are focused on the phenomenon itself in an unbiased manner. The sole focus must be on the explored phenomenon and devoid of any preconceptions. Next, the researcher must gather the data from the research participant and apply horizontalization to it by giving equal consideration to all statements. Statements that are irrelevant or repeated are excluded, but otherwise each statement is treated with equal importance. The remaining statements are then grouped into descriptive themes and examined for previously undiscovered insight or knowledge.

Imaginative variation seeks to gain understanding of a phenomenon by delving outside of basic meaning and into the more complex meaning that may exist (Moustakas, 1994). The goal of any phenomenological study is to fully understand what is being experienced by an individual (Creswell, 2013). This cannot occur without moving past basic meaning into deeper meaning. Moustakas (1994) describes this process as getting into the essence of an experience. A researcher's intuition comes into play, as the researcher is the key to creating themes and ultimate insight.

The fourth and final step is synthesis. In this step, the researcher takes all the available data and compiles it into a rich description that fully describes the phenomenon (Moustakas, 1994). Creswell (2013) outlined different ways in which synthesis could take place, but the most important theme that intertwined all the methods centered on

breadth and depth. A phenomenological researcher must fully engross himself in the data so that they gain adequate insight into the phenomenon and then communicate that to the audience. It is not enough to simply expose one's self to the phenomenon, but rather the researcher should strive for full understanding and perspective at that time and place (Moustakas, 1994).

Officer safety ultimately depends on an officer's ability to accurately process a potential risk or danger. The way in which a person perceives a phenomenon is inseparable from the actions they perform and understanding they have of the phenomenon (Moustakas, 1994). Phenomenology is ideal for gaining insight into how officers perceive their environment when engaged with mobile technology. In trying to understand the officer's perception, it is my hope that themes will emerge to better aid future research and products. Other methodologies were considered but were excluded in favor of phenomenology, which enables officers to voice their lived experiences.

**Role of the Researcher**

I am currently a PhD candidate at Walden University. IRB permission was granted prior to the collection of any data for this study (IRB approval number - 01-22-15-0323058). I served as the instrument collecting all study data, as recommended by Moustakas (1994).I compiled the data for this study through observations, interviews, and notes-to-self. Since the researcher is the main instrument in these types of studies, it was important for me to have an understanding of myself as well as my biases and limitations (Creswell, 2013). The concept of epoche was critical as it allowed me to separate myself from distracting outside influences (Moustakas, 1994). My role as an observer was to

impact the research environment as little as possible while also seeking to gain understanding about what was going on around me. My role as interviewer was to ask questions in a manner that sought to understand phenomenon in a deep and meaningful way. I performed these tasks while being very cognizant of my own biases and perceptions through the process of bracketing.

I conducted the observations of both ride-alongs as well as the interviews for all participants. The observations were undertaken with a focus on observing interaction between the officers and technology. The interviews were conducted using six predetermined questions in conjunction with a series of probing questions. Creswell (2009) outlined the usefulness of probing questions in gaining further insight into individual perception. Interviews are the main tool of phenomenological methodology. Data from the observation and interview portions of the study were joined to create overall themes and insights.

My work on this study was informed by my having previously been employed as a law enforcement officer. This experience had both positive and negative attributes for this study. My experience was used to frame certain statements and insight into the unique law enforcement culture. This level of understanding proved useful in understanding law enforcement protocols and procedures. Conversely, the same experience proved negative as I had formed preconceived notions and biases regarding certain procedures and expectations. The negative aspects were limited through conscious bracketing and premeditation on protocols.

There were no other special conditions to note in this study regarding my role. The participating department and individual participants were specifically chosen due to lack of past involvement with each other, personally or professionally, as well as the absence of any previous relationships. This was done purposefully in order to limit bias.

**Research Participants – Co-Researchers**

In order to perform this study, I sought out a police department that had a fairly unique aspect to its operations: mobile technology, in the form of tablet computers and smartphones, is deeply integrated into daily workflows and patrol procedures. Examples of deep integration included: the presence of specific hardware and software components that were used daily in the course of normal patrol activities, the presence of policy that governs officially issued mobile technology components, support of police administrators for the use of technology in multiple routines, and a variety of technology components currently being used. Some potential candidates were excluded initially for different reasons. Some of those reasons included: a lack of technology saturation, early phase adoption of technology, lack of established workflow protocols involving technology use, and personal conflicts of interest.

I identified a specific department that met the research criteria and showed interest in being a part of the study. The Glendale Police Department (GPD) had acquired tablet computers for all officers in the field and was actively using them in a myriad of daily routines and tasks. Furthermore, the officers in this department had various opportunities to use smartphones while on duty. The proliferation of tablet computers and smartphones within GPD made it a prime target to approach regarding this study. Prior to

conducting any research or collecting any data, I obtained a cooperation agreement with the department (see Appendix H) and IRB approval.

The agency and individual participants for this study were purposefully selected. Moustakas (1994) stated that in qualitative methodologies, research participants are purposefully chosen due to their unique insight into a stated phenomenon. GPD was chosen for its unique use of mobile technology and the individual research participants were chosen based on certain criteria. The observation participants were chosen based on three criteria: shift, age, and use of technology. Moustakas (1994) stated that observations should be undertaken across differing circumstances and environments so that a complete picture can be taken into consideration. It was possible that technology use was affected by time of day. I wanted to experience technology use both in a daytime setting and a nighttime setting. Therefore, a nighttime and a daytime shift was utilized for the two observations. Another interesting aspect of the phenomenon involved age. It was possible that the age of the participant may change the perception of distraction. I tried to obtain a wide age range to take this possibility into account. I also chose participants based off their use of technology. Some officers utilized smartphones as part of their job assignments, in addition to tablets, and this was a group that I wanted to observe. Due to the structure and nature of police work I had to rely on management decisions regarding choices for the ride-alongs. To the best of my knowledge, this request was granted.

Moustakas (1994) stated that interviews are one of the main data collection tools available for qualitative researchers. The long interview is the preferred data collection method of phenomenologists as it helps to the researcher and co-researcher to gain

insightful understanding (Moustakas, 1994). While there were no exact number of interview participants offered as concrete in present day literature, there were recommendations as to ranges. Creswell (2013) recommended somewhere between 5 and 25 participants. Whatever the number used, it must provide sufficient understanding into the phenomenon so that the researcher fully understands the breadth and scope (Moustakas, 1994). A range of ten to twelve participants were sought for the interview portion of this study.

The interview participants were purposefully selected based off three criteria: job assignment, age, and use of technology in daily routines. All interview participants had to be assigned to patrol duties and use mobile technology, preferably different types of devices. A biographical sketch (see Appendix B) was completed for each interview participant in order to gauge sample characteristics. This sketch was used to ensure that the phenomenon was being explored across the complete spectrum. In order to gain complete insight into a phenomenon a researcher must be sure that the totality of the circumstances is taken into account (Moustakas, 1994). A written informed consent (see Appendix C) was signed by each participant prior to interviews. In order to keep identities confidential, each participant was assigned an alternate identity via pseudonym and numerical identifier. This identity is referred to in the results section rather than the real names of participants. The dissertation chair and I have sole access to the true identities of the participants during this study.

**Data Collection**

The study was divided into two phases for data collection purposes. The first phase involved two, eight hour ride-alongs that comprised the observation portion of the study. GPD had outlined procedures for citizen ride-alongs and I agreed to obey the directions of the officers I was assigned to in the case of an emergency. One ride-along took place during a daytime shift and the other took place during a nighttime shift. The officers were advised of the study beforehand and were asked to sign an informed consent (see Appendix C) prior to participation in the observation phase. Moustakas (1994) stated that phenomenology co-researchers must have a few attributes in order to participate in the study: must have experienced the phenomenon first hand, must be willing to go along with all the study's parameters, and must want to gain understanding into the phenomenon themselves. The officers had to meet the minimum standards for observation participants as previously discussed as well as the minimum standards outlined by Moustakas.

Prior to beginning the observations, I made a conscious effort to bracket my biases and preconceived notions. Moustakas (1994) stated that this is a necessary step in the epoche phase of phenomenology. During the ride-alongs, I took extensive notes on what was being observed and what was going on around me while paying special attention to interactions between officers and mobile technology. These notes were used to help create the phenomenological reduction needed to fully understand the studied phenomenon (Moustakas, 1994). The notes were written in a way that expressed: what I was seeing, my perception of officer actions, the context of the environment around me,

and how I felt about the phenomenon of distraction in the environment. These provided layers of insight, understanding, and context that were necessary for phenomenological research (Moustakas, 1994).

Special care was made to not influence the events occurring and I tried to remain as neutral as possible during the observation phase in order to get a true sense of the overall experience (Creswell, 2013). I limited communication with the officers during the ride-along and if clarification was needed on an observation, I waited until the end of the ride-along for discussion. After each ride-along, I completed a memo-to-self regarding impressions and thoughts concerning each observation period. Moustakas (1994) stated that memos written by the researcher can aid in a deeper understanding of the themes that run across the collected data. These memos also aided in phenomenological reduction. The notes and memos were codified later in the process for complete synthesis.

Ten participants were selected for the interview portion of the study. Each participant was chosen based on the interview participant criteria as previously outlined. A biographical sketch (see Appendix B) was completed on a group of potential participants to check for required attributes and to ensure that a good cross-section of participants was utilized. Each prospective participant was also given an introductory letter (see Appendix D) with brief details about the study and what was to be required of them. The final biographical profiles will be discussed in detail in Chapter 4. All interview participants signed an informed consent (see Appendix C) prior to participating in the interview portion of the study.

After final selections were made on interview participants, I contacted each participant by phone and set up a time for the interview over a weeklong time period. The interviews were set up to go no longer than 60 minutes with an average goal of 45–60 minutes. All interviews were conducted onsite at the police department within their facilities in a quiet, semiprivate setting. An interview script (see Appendix E) was utilized for the introduction and conclusion of the interview. Jacob and Furgerson (2012) outlined several ways to create a successful interview for a qualitative research study. Building rapport, using probes, practicing on a colleague not involved in the study, and limited scripting were all techniques utilized in this study. Interviews were conducted using the list of questions with accompanying probes (see Appendix A).

The interview questions were created by myself and were based on concepts located in the available scholarly research. The questions and their corresponding literature have been previously described in chapter 2. Prior to administering the interview questions to police personnel, the interview questions were given to three fellow Walden University PhD candidates in order to check for question clarity and desired outcome. This was done to ensure that responses were gained within the intended scope of study.

Prior to conducting interviews, bracketing was once again employed in order to engage in the epoche phase as described by Moustakas (1994). All interviews were recorded via digital recorder. The recordings were then transcribed verbatim in order to produce accurate data for synthesis. These transcriptions aided in phenomenological reduction. Creswell (2013) advised that transcriptions include some emotional identifiers

in order to truly assess meaning behind statements. A professional transcriber was used to transcribe the interviews. Prior to working on the transcriptions, a confidentiality agreement (see Appendix G) was signed and retained. The transcriber had worked professionally with police departments in the past and had experience transcribing interviews verbatim with the necessary emotional inflections.

After transcription was complete, participants were given a copy of their interview to check for accuracy. This was done so that complete accuracy and understanding could be obtained. Participants were also allowed to ask any questions or make clarification to statements that may have been made out of context. At the conclusion of this process a thank you letter was sent to each participant. The participants' identity key, digital interview recordings, signed forms, and the verbatim transcriptions were kept securely locked in a cabinet within my personal office during the course of this study and beyond. All available data was entered into NVivo Mac version for data analysis purposes.

**Data Analysis**

In looking for an appropriate method of data analysis, I considered several different options. In the end I decided to use a modified Van Kaam method as outlined by Moustakas (1994). This method was applied to all research participant data as well as my memos and observation notes. This process was aided by the use of NVivo software. The first step in the Van Kaam method was to utilize horizontalization to list every relevant aspect of the studied experience. Step two was to reduce and eliminate overlapping, vague, or repeated aspects. If the insight was relevant and aided in understanding of the

phenomenon, then it was considered an invariant constituent. All non-invariant constituents were purged.

Step three involved clustering the invariant constituents into broad themes. This was accomplished by grouping and labeling related insights. Next, the clustered themes were validated against the research participants that expressed them to ensure that the themes were accurately presented and represented by the individual. This was done so that accuracy could be maintained by looking at the verbatim transcript and derived meaning. After validating the identified themes, the next step was to construct individual textural descriptions for all participants. These descriptions contained verbatim examples from the interview transcripts. Step six involved creating an individual structural description for each participant. These were made using individual textural descriptions and imaginative variation. Step seven saw the creation of an individual, textural-structural description which was made by combining invariant constituents and broad themes into the meanings and essences of the phenomenon.

The final step in the data analysis was to create a composite description of each individual textural-structural description that represented the group as a whole. The final composite description outlined the meanings and essences of the combined group and is presented at length in Chapter 4. These results were then given to GPD for final validation and questioning in an attempt to ensure proper understanding of the phenomenon.

This modified Van Kaam method encompassed the final two steps of proper phenomenological study: imaginative variation and synthesis (Moustakas, 1994). A

conscious effort was undertaken by me in order to gain deeper meaning into observations, notes, and transcriptions. Imaginative variation was used in conjunction with such Van Kaam principles as horizontalization in order to gain complete insight. Synthesis occurred by following the Van Kaam method for data analysis as described earlier. A complete synthesis of the information resulted in deeper meaning and insight into the targeted phenomenon: distraction (Moustakas, 1994).

### Study Trustworthiness

In an attempt to address study credibility, I incorporated several known measures to increase overall credibility. Moustakas (1994) stated that triangulation is an effective tool in increasing internal validity in qualitative studies. I incorporated three data collection points for triangulation purposes: observation, interviews, and memos-to-self. I also used member checks. Member checks are a great tool to use to increase validity (Creswell, 2013). Each interview participant was allowed to view their transcribed interviews and make corrections to content and meaning. This ensured that true essence and meaning could be derived from the data.

The issue of transferability was also addressed in this study. While qualitative studies are inherently more difficult to recreate due to such factors as small or unique populations (Creswell, 2013), there were attempts made to address external validity. Rich, thick description was used in conjunction with purposive sampling. This purposive sampling accurately reflected GPD's population as a way to increase transferability. Both of these methods are considered appropriate for increasing external validity in qualitative studies (Patton, 2002).

The purpose of this study was not centered on replication but rather understanding and insight into police department officers. GPD has a fairly unique population with cultural factors and attributes which may not be present in other departments. Dependability for this study was aided by member checks and an adherence to consistency in research settings, interview questions, and procedures for each individual. Confirmability was maintained through a conscious effort to check and recheck data at different points in the study. This is found in such areas as member check procedures, validation within the modified Van Kaam data analysis method, and a final review of the results by the police department. All of these tasks were undertaken to increase confirmability factors.

**Ethics**

Ethical considerations were woven throughout this study's creation. The research proposal was approved (#01-22-15-0323058) by Walden University's IRB prior to collection of data. Within that process there were assurances that participants' identities be kept safe and no ethical dilemmas would exist. The main ethical consideration in this study was maintaining the confidentiality of participants. While I was not able to avoid the fact that police administrators would know the pool of participants, they would not be able to know which participant made which comment. Creswell (2013) suggested using a pseudonym and numerical labeling system to aid in confidentiality. These suggestions were adopted in this study and were used to identify participants in Chapter 4, transcripts, and research notes.

Prior to participating in any research, each participant received a copy of the consent form (see Appendix C) that outlined the scope of the study, the risks, and contact information. Administrators at GPD reviewed the consent form and were given an opportunity to ask questions pertaining to their personnel. Administrators with GPD were also asked to review and sign a letter of cooperation (see Appendix H) prior to data collection. At this time ride-along protocols were discussed. Ride-alongs are fairly common in police departments, but they do carry slight risk. My previous employment as a police officer helped to negate some of this risk, but I still agreed to follow all procedures and rules outlined by GPD in their ride-along protocol. Police departments have set up specific protocols for ride-along activities in order to minimize risk to all involved parties. A citizen ride-along form (see Appendix F) was signed prior to the observation phase of the study. I also discussed the confidentiality requirements of the study and outlined how the study would be presented for review at different stages in order to maintain the study's integrity.

Data collected from this study included: signed forms, digital recordings, memos-to-self, transcriptions, coding, participant identity keys, observation notes, and data corrections. The data collected in this study will be kept for a minimum of five years in a secure physical form and digital form. A physical copy of all collected data will be kept in my personal office in a locked cabinet. A digital copy of this data will be kept on a password protected external hard drive as well as a secured cloud storage facility like Dropbox.

**Summary**

This Chapter focused on the methodology of the study. In order to gain insight into how police officers perceive technology distraction in the patrol environment, a phenomenological methodology was proposed. Topics covered in this chapter include: overall research design, role of the researcher, research participants, data collection, data analysis, and study trustworthiness.

Chapter 4: Results

**Introduction**

This chapter discusses how research data was collected, analyzed, and was maintained in this study about distraction and U.S. police officers. Each research question is discussed from the viewpoint of original research intent as well as the corresponding results that were obtained through data collection and analysis. Conflicting results are specifically highlighted in an attempt to share differing viewpoints of the targeted phenomenon.

Seven phenomenological themes are identified and briefly discussed in this chapter, with the main interpretation of findings taking place in Chapter 5. The identified themes were:

1) There is a conflict between policy intent and realistic application with regards to technology usage.

2) There is uncertainty in chain-of-command communication regarding technology usage.

3) There is a reluctance to take tablets outside the patrol vehicle.

4) Officers are experiencing stress brought about by distraction from technology.

5) The phenomenon of tunnel vision is being experienced by officers in relation to technology distraction.

6) Most officers minimized their level of distraction while interacting with technology, but see others as being visibly distracted by the same technology.

7) Officers are not getting rid of technology that causes distraction, but rather they
   are attempting to reduce the risks associated with distraction through a variety of
   means.

There were no major deviations from the originally planned research design outlined in

previous chapters, except for the use of only 10 participants in the interview phase of the

study due to extenuating circumstances (SWAT activation and court summons) for two of

the officers that had previously agreed to take part in the study. Ten participants was the

minimum number initially targeted in the study design, so the study integrity was not

comprised by this decreased sample size. I used interviews, observations, and memos-to-

self as data collection points and in subsequent analysis.

## Recruitment

All interview participants were recruited from a list of 20 individuals that was

provided by the community partner, Glendale Police Department (GPD). These potential

participants represented a variety of officers with varying backgrounds and

demographics. I then emailed each officer an introductory letter (Appendix D) explaining

the study and introducing myself as well as a consent form (Appendix C) and a

demographics form (Appendix B) along with a request to complete and return the latter

two forms if the subjects wished to be considered for participation. The officers then

either responded back with the completed forms or stated that they did not wish to

participate. Fourteen officers stated that they were interested in the study and returned the

forms, but 2 were eliminated due to current job assignment and conflicting schedule

requirements for the interview.

I selected 12 officers to participate in the interview portion of the study based off the research criteria: patrol experience, age, and use of technology. Notifications were made to the individuals via email. Interview times and locations were decided upon and communicated to the participants. The initial goal of the study was to conduct 10–12 interviews. Twelve interviews were scheduled, but only 10 were conducted due to previously discussed scheduling conflicts.

The observation participants were recruited in a different manner. After arriving onsite, I met with the community partner and identified the timeframes in which I was available for observations. Shift rosters were checked by myself in conjunction with the community partner and a list of potential observation participants was identified. Two participants were ultimately chosen based on their willingness to participate in the study and their shift, age, and use of technology. These officers were approached by myself with the community partner representative present as well. Both officers consented to taking part in the study and filled out the appropriate forms after the community partner representative had left. Recruitment of participants for this study adhered to the guidelines established by the study design as well as those of the IRB process. No person was forced to participate by any entity. There were no stipends or rewards given for participation. All questions and concerns were answered before participation in the study by myself and participants were given my contact information, as well as the IRB's, to address any concerns that arose after participation. To my knowledge, no concerns were raised after participation.

**Setting**

The setting for the research took place at various locations around Glendale, AZ. These locations included: apartment complexes, stores, parks, roadways, single family dwellings, various businesses and parking lots. The observations originated at one of the two main police stations, the Foothills Substation and Gateway Substation, but then migrated to the previously described location types throughout the city as officers responded to calls and went about their daily business. I conducted all of the interviews at one of the two police substations utilized by GPD, depending on where the participating officer was assigned to work.

Concerning the observation phase, there were no issues noted by myself or participants with setting. The two observation participants in this portion of the study were very open in their dialogue and willingness to allow me to observe them in all facets of their job. I was generally able to get out of the car during calls and view firsthand how officers dealt with calls and how technology was integrated into their work. During one call, I was not able to view first-hand how the officers acted on a scene due to safety considerations because there was a potentially armed suspect that the officers were attempting to take into custody, and I was asked to stay outside until the scene was cleared. Other than that one instance, I shadowed the officers from call to call and spent 16 hours total with them.

The interview portion of the study was also conducted while onsite at GPD. All 10 interviews were conducted in secluded, quiet rooms within the police stations. Examples of these areas included unused supervisor offices and conference rooms, where

access was open to any officer or employee of the department. The rooms within the

stations proved ideal for this study due to their convenience to the officers. Officers were

able to meet me after their initial shift meeting, after their shift ended, or in the middle of

their shift while they had a little downtime. I utilized the stations due to their convenience

but also in hope that the officers would feel comfortable in a safe, familiar environment.

This practice aligned with Trocchia and Janda's (2000) use of a similar method for

phenomenological interviews and actions to make participants comfortable in their

interview environment in order to facilitate discussion. There were no interruptions or

distractions present in the settings during any of the interviews.

One issue arose within the interview setting. Due to the inherent nature of the

demographics of the community partner, it was difficult to find participants that

represented a stark age and experience level difference: very young with little experience

or much older with a lot of experience. A blend of ages and experiences was ultimately

obtained for the study.

## Demographics

The participant demographics are summarized in Table 1. Participants in this

study ranged in age from 32–56 years, with a mean of 41 ($n = 12$). Years of experience

ranged from 5–15 with a mean of 9 ($n = 12$). All participants were assigned to patrol at

the time of study and reported using technology on patrol "Everyday". One participant

described their confidence with technology as "Not Confident" ($n = 1$); another reported

"Very Confident" ($n = 1$); all others reported "Confident" ($n = 10$). Observation

participants are noted with a "P1" designation ($n = 2$), while interview participants are noted with a "P2" designation ($n = 10$).

The demographics for this study represented a wide swath of the study population. As with any organization, there was a wide array of ages, experience, and level of comfort with technology. In recruiting persons for this study, consideration was given to expanding the demographics as much as possible to get a variety of inputs into data collection. Ultimately, the final demographic make-up of research participants was reflective of the intended purpose of representative variety. The synopsis below of each participant utilizes pseudonyms in place of the officers' real names; their characteristics are summated in Table 1.

P1-0, Officer Pat, is a 32-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 9

- Number of years on patrol: 9

- Age: 32

- Rank: Patrol FTO

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet, Cell Phone, Digital Camera, Digital Recorder, Wi-Fi, Internet

P1-1, Officer Mack, is a 42-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 12

- Number of years on patrol: 12

- Age: 42

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Cell Phone, Tablet, Radio

P2-1, Officer Jane, is a 41-year-old woman who has experienced distraction associated with technology while on patrol. The demographic questions posed to her were answered as follows:

- Number of years in law enforcement (total): 8

- Number of years on patrol: 8

- Age: 41

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet, Cell Phone

P2-2, Officer Dean, is a 45-year-old-man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 5

- Number of years on patrol: 5

- Age: 45

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet, Radio, GPS, Cell Phone

P2-3, Officer Taylor, is a 38-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 5

- Number of years on patrol: 5

- Age: 38

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet, Radio

P2-4, Officer Gus, is a 36-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 6.5

- Number of years on patrol: 6

- Age: 36

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Smartphone, Tablet

P2-5, Officer Jon, is a 37-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 8

- Number of years on patrol: 8

- Age: 37

- Rank: Officer/FTO

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet/Cell Phone

P2-6, Officer Randy, is a 34-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 11

- Number of years on patrol: 11

- Age: 34

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: In-Car Computer, Radio, Cell Phone

P2-7, Officer Eli, is a 44-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 8

- Number of years on patrol: 8

- Age: 44

- Rank: Officer

- Self-described level of confidence with technology: Not Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet

P2-8, Officer Charlie, is a 41-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 15

- Number of years on patrol: 14

- Age: 41

- Rank: Officer

- Self-described level of confidence with technology: Very Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Radio, Tablet, Printer, Radar, Lidar, Stereo

P2-9, Officer Hank, is a 56-year-old man who has experienced distraction associated with technology while on patrol. The demographic questions posed to him were answered as follows:

- Number of years in law enforcement (total): 14

- Number of years on patrol: 14

- Age: 56

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet, Cell Phone, GPS

P2-10, Officer Nora, is a 48-year-old woman who has experienced distraction associated

with technology while on patrol. The demographic questions posed to her were answered

as follows:

- Number of years in law enforcement (total): 10

- Number of years on patrol: 9

- Age: 48

- Rank: Officer

- Self-described level of confidence with technology: Confident

- Self-described level of use of technology: Everyday

- Types of mobile devices used while on patrol: Tablet/Cell Phone

Table 1

*Biographical Sketch Summary*

| #/PSEUD | Age | Years In Law Enforcement | Use Technology to Perform Daily Duties | Currently Assigned to Patrol |
|---|---|---|---|---|
| P1-0: Officer Pat | 32 | 9 | Yes | Yes |
| P1-1: Officer Mack | 42 | 12 | Yes | Yes |
| P2-1: Officer Jane | 41 | 8 | Yes | Yes |
| P2-2: Officer Dean | 45 | 5 | Yes | Yes |
| P2-3: Officer Taylor | 38 | 5 | Yes | Yes |
| P2-4: Officer Gus | 36 | 6.5 | Yes | Yes |
| P2-5: Officer Jon | 37 | 8 | Yes | Yes |
| P2-6: Officer Randy | 34 | 11 | Yes | Yes |
| P2-7: Officer Eli | 44 | 8 | Yes | Yes |
| P2-8: Officer Charlie | 41 | 15 | Yes | Yes |
| P2-9: Officer Hank | 56 | 14 | Yes | Yes |
| P2-10: Officer Nora | 48 | 10 | Yes | Yes |

## Data Collection

There were three main data collection points for the study. The observation phase consisted of two separate ride-alongs that took place over eight hour time periods. One ride-along was conducted during daytime hours and one ride-along was conducted during nighttime hours. Each of the two observation participants were chosen based off their age, experience level, use of technology, and their willingness to take part in the study. The criteria information for participant selection was obtained by a biographical sketch

(see Appendix B). The rationale for selecting participants based off these criteria was rooted in literature outlined in Chapter 2 and the research design in Chapter 3. Before the observation phase took place, to include biographical sketch data collection, a signed consent form was obtained and an overview of the study was conducted.

Approximately half of the time spent on observations took place within the patrol vehicle with the other half of the time spent outside the vehicle. Due to the transitory nature of police work, each observation participant drove to numerous locations around the city handling numerous calls for service. Specific types of locations included: apartment complexes, private residences, parks, roadways, and businesses. I was able to shadow, get out of the patrol vehicle and walk along with, the participants in each of these environments and observe how they interacted with technology while conducting assigned duties.

While conducting the observation phase, I was mainly focused on how officers interacted with technology. Inside the vehicle, I observed how and when an officer worked with the tablet computer. I also noted how and when an officer used their cell phone. When an officer used technology, made note of the environment around us and what other stimuli were present. These stimuli could include actions such as driving or completing some other task, activity outside the vehicle, and other persons that were in the vicinity. I also made an attempt to perceive items that could be considered potential officer safety issues.

When outside the vehicle, I observed not only how and when an officer interacted with a tablet or a cell phone but also paid special attention to what other people were

doing when the officer interacted with technology. Inside versus outside the vehicle observations differed mainly in the fact that there were third parties involved with the officer once he/she got out. While outside the vehicle, I also made an effort to listen to conversations that the officer had with others. I noted any perceived officer safety threats over the course of outside-the-vehicle observations.

In an attempt to limit contamination of the data, I constrained my discussions with officers during key observation points. These key points included: driving from call to call, while on the scene of a call, and while watching their interactions with other officers. I informed the officers before the observation that they may notice me writing in a book and that they would be allowed to read the notes at any time in order to confirm the observations. This member check was accomplished mainly through verbal discussion as no officer requested to review my notes in the book. At varying times towards the end of the observation, I would talk with officers about what I observed and solicit their feedback. All observations and pertinent responses were recorded in a notebook by hand and later transcribed digitally. There were no variations from the original data collection plan. The only unusual circumstance of note during the observation phase occurred during a "high risk" encounter with a subject. I was not allowed to shadow the officers while they went inside a private residence to apprehend a potentially armed subject. I was able to have a discussion with officers after the incident but had to rely on their descriptions rather than first-hand knowledge and observation.

The second data collection phase of the study involved interviews. Ten officers were interviewed over a span of five days at varying times. Before beginning the

interviews, participants were asked to review and reacknowledge the consent form and ask any questions. This was completed before any data was collected. The interviews took place within one of two substations, either the Foothills Station or Gateway Station. Vacant offices or small conference rooms were utilized within the stations to conduct the actual interviews. Doors were shut so that privacy could be maximized, distractions minimized, and the best digital recording environment optimized. Each interview lasted for no more than one hour which included: reading the interview script, answering questions, and conducting the actual interview. All interviews were digitally recorded on-site and later transcribed for analysis purposes. In order to aid the transcription process, introductions and initial questions were not recorded.

The interview phase originally had twelve participants who agreed to meet in person and be interviewed. Due to a SWAT activation and a court appearance, two participants were unable to take part in the interviews. The original guidelines for the study stated that ten to twelve interview participants should be utilized in order to have good understanding of the phenomenon (Creswell, 2013). Since ten participants were still available, additional participants were not recruited for the interview phase. There were no other unusual circumstances or deviations from the data collection concerning original guidelines.

All digital data was stored on password protected digital files and all physical data was stored in a secured office location at my house. A digital copy of the interview audio files was sent to the transcriber via a portable, external hard drive device. Upon completion of the transcription, the hard drive device was retrieved and placed in secure

storage with the other physical media. A verbal verification was conducted with the transcriber that any research files used for transcription purposes were to be deleted from their local storage drives. All research data will be maintained for a minimum of five years under current security measures. The Committee Chair for this dissertation team may have access to the data upon request.

The third component of data collection took place in the form of memos written by myself. Birks, Chapman, and Francis (2008) stated that memos are essential in qualitative research in order to make the connection between raw data and full understanding of the phenomenon. Tufford and Newman (2010) stated that memos are a vital part of qualitative research because they allow the researcher to express their thoughts plainly in order to employ bracketing principles across the study. My memos were written in a combination of physical and digital instruments which were later transcribed in complete digital form. The memos were comprised of my thoughts and revelations throughout the study process in an attempt to gain insight and to employ bracketing principles. The memos were written at the end of the day following data collection as well as during data analysis. The data source collections did not vary from original research guidelines nor did I experience any unusual circumstances.

**Data Analysis**

A modified Van Kaam method was used to analyze the data once it had been digitally converted and stored in NVivo. The NVivo for Mac software served as a way to organize data, analyze data, and ultimately develop a deeper understanding of the phenomenon through theme discovery across the group of participants. Moustakas (1994)

stated that these themes represent the phenomenon experienced through the perception of the co-researchers and are suitable for gaining insight into the phenomenon itself.

The systematic process of the modified Van Kaam method provided the footprint for data to be transitioned from raw data to the textural-structural descriptions necessary for deeper understanding. Moustakas (1994) stated that these descriptions represent the essences of the phenomenon. Each step is depicted in the codings within the NVivo software as well as the self-memos also stored in the software. The textural-structural descriptions were the foundation for the themes described in the "Results" section of this chapter.

## Evidence of Trustworthiness

In order for a study's results to be accepted as valid, there must be a certain level of trustworthiness associated with the data. Moustakas (1994) stated that qualitative studies must adhere to certain ideals in order to achieve the desired results. In an effort to increase the overall validity of the study, I incorporated several strategies and procedures.

The issue of credibility was addressed by the strategy of triangulation. I collected data from three points: interviews, observation, and memos-to-self. These data points were all used in conjunction with each other to arrive at the themes and essences of the phenomenon. Member checks also aided in credibility as participants were allowed to review the data and make remarks as needed. Member checks were performed by observation participants, interview participants, and by GPD administrators after data was obtained. This was done so that proper understanding was accomplished.

Transferability was enhanced by purposive sampling. I deliberately sought participants that not only experienced the phenomenon and could provide insight but also officers that represented the department population. I chose an array of qualities based on age, gender, experience, shift, and geographic assignment. I also used rich, thick descriptions to describe the essences of the phenomenon. This was done so that there was no misunderstanding in how the essences could be applied to other situations.

Dependability of the analysis was also aided by member checks. Additionally, I adhered to consistent standards across data collection. All interviews took place in one of two police stations in very similar room types. I utilized an interview script to introduce the study and present the same main research questions, and I made sure that all participants were treated equally in regards to communication and accessibility. The uniformity of the study design and execution should positively affect the dependability of the findings.

Confirmability of the results was enhanced by two main methods: adherence to the modified Van Kaam method and a final member check of the study results by the community partner. The modified Van Kaam method is a proven way to analyze phenomenological data if correctly used (Moustakas, 1994). The steps undertaken in the modified Van Kaam method were: 1) Horizonalization of relative data 2) Reduction and elimination of data 3) Clustering and thematizing invariant constituents 4) Validation of invariant constituents and themes 5) Construction of individual textural descriptions 6) Construction of individual structural descriptions 7) Construction of textural-structural

descriptions for each participant 8) Development of meaning and essences of the phenomenon for the group

The final member check of the data was an important step as it allowed GPD administrators to review the results and provide feedback. While nothing substantially changed within the results, additional clarification and insight was obtained when the results were viewed from administrative members that were not directly involved in the study.

## Results

The following section will review the main themes and phenomenon essences obtained from the study. In order to facilitate better understanding, these themes will be broken down by research question.

### Research Question 1

*What are an officer's perceptions of the department's goals and policies as they relate to mobile technology use during patrol?* RQ 1 sought to explore the officer's perception of departmental goals and policies regarding mobile technology use. This question was posed as a way to assess the organizational environment for unintended consequences. Califf (2006) found that organizations which place unrealistic or encumbering policies in place might be more susceptible to unintended consequences. There was some evidence of this in the perception of studied officers.

An example of unrealistic policy expectations, regarding the use of mobile technology during daily operations, was expressed by P2-6, P2-8, and P2-9.

P2-6 said,

So at first our policy, pretty much stated that you will not utilize your computer or

type on it while you're operating your vehicle. Which is absolutely absurd and

impossible. Nobody from staff, they all know it's ridiculous......and they don't

really enforce it, but yet they still probably would if something did happen

because of it. So they're like yes we know it's there but you know if you got in a

wreck while you were using your computer we could find you within policy

violation. You could get a ding on it. So it's, it's a catch-22 and everybody knows

it but nobody really wanted to fix it

The frustration with policy is clearly evident in P2-6's description of emotion through the

use of words such as "ridiculous" and "absolutely absurd". There is a strong perception

of negative attitude towards the policy as it seems unrealistic by the officer.

P2-8 said,

For instance, the tablets in our cars, we're not supposed to use them while driving,

but it's almost impossible not to. If you're getting a call for service and you're

dispatched to something, the updates are coming via the call screen, so you gotta

scroll down to look through em.

P2-8 recalled a specific instance in which policy did not match expectations. In P2-8's

view, the policy is impossible to follow due to the nature and work flow of the job itself.

Frustration with policy regarding driving and using the tablet was also expressed by P2-9

P2-9 said,

Our policy is not to use the mobile data systems while we're driving but common

sense tells you that in the daily performance of our duties we...we have to. We're

not gonna be able to stop in a parking lot every time we need to touch the system

and that's something that we're gonna have to live with.

P2-9 expressed the term "common sense" in the context of thinking that any person should see the disconnect between policy and realistic application. These comments seem to express the idea of resignation to the fact the officers know the situation is not ideal, but they make the best of it. The sense of resignation caused by over encumber policy is expressed here by the fact that having to pull over to access the technology every time a call comes out is not possible, yet that is what the policy is inferring.

Unrealistic policy expectations, regarding mobile phone technology usage, was also expressed from studied officers. Regarding the policy of using cell phones in vehicles, P2-9 said, "So they're exempt as long as they're doing it with the performance of their duties, within that performance of their duties. Yeah, I want to say (using cell phones) is loosely enforced. Everybody uses their cell phones..." The idea of burdensome policy was specifically expressed by P2-9 who continues, "I think a lot of times these policies burden us 'cause it restricts us from utilizing the technology as we think it should be utilized". These quotes seemed to show that there is some sort of disconnect between existing policies and what is being done at the street level. The idea of unrealistic policy expectations and burdensome policy also highlight the increased risk for unintended consequences. The theme of conflicting policy intent versus realistic application began to emerge from the interviews as an unintended consequence of current policy design.

Compounding the situation was the fact that officers were not fully aware of what the actual policy regarding cell phone use entailed. P2-1 said, "To my knowledge, I don't

know that there's a set policy. They just don't want you on your phone for non-work related stuff while you're on a call".

Regarding specific policy on cell phone use, P2-10 said,

But I don't know what it specifically says. I know we've been told that we're not to be using cell phones. I know briefings, no cell phones. They gotta be turned off. And I've had some supervisors basically say no cell phones in the field, but however, that gets contradicted when you're out on a call and you do have a phone on you. They issue you a personal phone (assigned from the organization) and they want you to carry it...

If the policy intent is to keep officers safe, then officers also wondered why "work" exceptions could be made. P2-10 said, "...and you're on a call, and you're with someone and it's ringing and it's ringing......and then it's your supervisor......you know, if you look, you looked, if you don't look then you might be cleared on the radio, hey, you know I'm trying to 21 you...". There seemed to be some confusion with what the policies were, how and when they were to be applied, and whether or not they were reasonable expectations. The confusion also played into the unrealistic expectations as one officer was told to not use cell phones in the field, but knew of officers that had been issued phones by the department.

Even though officers struggled with realistic application of policy across the spectrum, there were some differences on general mood regarding policy.

P2-3 stated,

I think it's a pretty good balance between the department making sure that it's putting systems in place to ensure the safety of not only us but everyone else that's on the road while we're using these things in our vehicle and us being able to use them to the best of our ability. I think it's a pretty fair balances...I mean, there's always gonna be one side or the other that thinks things could be better for them, but I think the way things are set up now, it's a pretty fair balance for everybody.

P2-7 said, "Yeah, I believe you gotta have some type of parameters so you gotta work within something". These officers seemed to understand that even though policy was difficult to follow, they knew why the policy was in place. The biggest divides occurred over "who" the policy was designed to help.

P2-8 said, "I think the policies are in place to protect the department and not necessarily in place to protect the officer". P2-9 elaborated on this line of thought and said, "So, I think the department, I don't know about other departments, but this department, Glendale, I think it's short-sighted, it's liability protection first, officer efficiency next, and then safety follows…". These two officers felt that the department was only looking out for itself when it came to the unrealistic policies. These statements seem to infer some sort of "us versus them" mentality regarding department policymakers and line level officers. This sentiment was not universal as other officers saw it differently.

P2-2 said, "They're good. They're out there to protect us, to protect the department". The differences in perception of these officers is critical to morale. It is clear that the studied officers viewed policy intent differently and the emotions of

confusion, frustration, and "us versus them" mentalities are evident in responses. Julseth, Ruiz, and Humme (2011) found that many different types of perceived stresses could affect police officer morale. If an officer views policy as a protection only to the department, and not the individual officer, then work performance could decrease. Understanding how officers perceive policy purpose is important in planning future policy and communication goals. While there may be some disconnect in current policy and realistic application, there is a way to move forward through unified goals.

Perceived goals were an included element of RQ1 as self-perception is a key to phenomenological research (Moustakas, 1994). The perceived goals of the officers regarding technology usage were fairly uniform.

P2-4 stated,

My goals in using it (technology) in a safe manner, is honestly gonna be secondary to my patrol duties. Doing everything in a safe manner is what I'm gonna do, not matter what. My goal with it is just to be able to have information at my fingertips basically.

Officers agreed with P2-4 in that the department was trying to put easily accessible information into their hands when patrol officers needed it.

P2-7 elaborated on this idea by stating,

…so it kind of gives us more information to let us know what we're up against when we come to the door, not just blindly going to a domestic violence (incident) because the neighbors heard somebody screaming inside. So now we know of anybody with any outstanding, felony warrants or misdemeanor warrants

or violent, domestic violence history or ag-assault on police officers and different

things like that.

The technology seemed to serve the purpose of a reassuring tool to the officers. It

was clear that officers viewed the technology as a safety enhance in some situations.

Several participants expressed the idea that officers could offset potentially bad officer

safety issues by accessing technology. P2-1 said, "...so, technology gives us that

compilation of information so us as officers, we have some general idea of what might be

going on or what we could expect to happen when we're there (on an incident scene).."

P2-2 said, And same thing with vehicles, if we're running a license plate it's gonna tell us,

hopefully, if it's stolen, so that we know prior to contact, possibly what we're dealing

with, as far as safety goes. P2-2 was expressing the idea that technology "quickly"

allowed officers to potentially identify dangerous persons and was insinuating that not

having the technology would be detrimental to those efforts.

P2-8 agreed with P2-2 that not having technology would be bad.

P2-8 noted,

I can't imagine just having the radio. That'd be...that'd be crazy. If we just had a

radio, with me, I would have to actually pull over my vehicle, get a notepad out,

write the address where the call's at, write all the information that we see on our

tablets. If we don't have the tablets and just have to go by verbal communication,

for me to retain all that information I'd have to definitely write it out, which slows

our response time.

The powerful statement regarding "I can't imagine just having a radio" is strong evidence towards showing just how deeply rooted technology is within police officers' workflows and perceptions. Being able to access critical information was very important to the participants.

The studied officers expressed concern with current policy expectations and the disconnect with what actually happens in practice. There were also comments regarding the burdensome nature of the policy intent. For these reasons, unintended policy consequences could be occurring in the organization. The officers felt emotional responses to the perceived burdensome nature of the policy in the form of self-resignation to the perceived outcomes of policy and frustration with the way the policy was being applied. Further exploration of the statements showed that even though there is a disconnect in policy application, there is a unified goal of using the technology to increase overall officer safety.

**Research Question 2**

*How does an officer feel about the department's communication in regards to policies and expectations that deal with safety while using mobile technology?* RQ2 was posed as a way to explore the officers' perceptions of communication within the department. From the onset, it was clear that GPD was set up as a paramilitary organization that utilized "chain-of-command" as the primary organizational backdrop. It also became clear that from the officers' perception this organizational structure did not aid in good communication under certain circumstances.

The idea that chain-of-command communication was predominantly one-way oriented was expressed by some officers.

P2-3 stated,

Like anything else with a paramilitary organization, I mean if you have an issue or a comment or maybe an idea, that would be fed up the chain-of-command. Typically, you don't know where that stops. I mean, you would give that information to your supervisor and then it would move on up from his supervisor to whoever is the person that would make the decision. If for some reason it doesn't get fulfilled, or it's just something that's not feasible to make done, you don't always find out when or where that idea may have stopped...

When an organization becomes too dependent on mechanistic thinking and ignores feedback loops, then it can be prone to unintended consequences (Chapman, 2005; Hovmand, Ford, Flam, & Kyriakakis, 2009). One-way communication, or the absence of feedback, was expressed by others.

P2-3 stated,

They will ask us for feedback and stuff like that, but basically I don't know that we have a whole lot of voice in the type of technology or the kind of software or anything else. I know we have some input into it, what would we like this to do, but basically there's still a company that sets this up and we have to be somewhat flexible to understand how it's supposed to work. I honestly don't believe we have a whole lot of input into how the system is designed.

This statement seemed to enforce the idea that officers did not feel like they have input into the technology decisions being made by administrators. The statement inferred a sense of segregation from administrators. One officer stated that the one-way communication orientation was a leadership decision for some personnel.

P2-9 said,

And we don't get any feedback from them. I don't know, maybe it's just lack of experience in...in leadership. I'm a 22-year vet, so, I got 18 years of leadership management supervision. So I kind of know where they are in the beginning stages, but we've got a few that have been supervisors for a number of years and they haven't changed. It's all one way, more authoritative instead of feedback, so, we have our mix. Majority of our supervisors I think are good with communication, going back and forth, as they should be in their position.

Some officers stated that feedback existed, but it was "watered down" from the original message or decision.

P2-6 stated,

I think they do pretty well at relaying it up to the next level but everything gets watered down going up the chain so our lieutenant may hear of it, but then going up to captain or commander and higher than that, we don't know, or ever usually find out how far it goes up. You know, sometimes we'll usually hear an answer back because they will touch base and they'll try to keep us in the loop...

Some of the above statements would make it seem as though the problem is not universal, but may be localized to certain individuals within the chain. Regardless, it is enough of an issue that it was on the minds of the officers.

Landier, Sauvagnat, Sraer, and Thesmar (2012) found that "bottom-up" governance, in the form of independence of top-level executives from a central governing authority, had a positive impact on performance. While this particular leadership style was not part of this study, there was evidence that GPD is making an effort to engage at least some of the lower-level officers within the department in the decision making process and therefore in the feedback loop.

> P2-7 said,
>
> The sergeants are pretty good about letting us have an open forum, discuss things. If we're all, "I'm lost, oh, I'm lost too", you know, if the majority...and the sergeant, if he's like ok, well let me call so-and-so to get you the right answer or to get them to come over here to show us how to do it, or I'll send it up the chain-of-command, send a couple emails over to whoever needs to be notified and we'll get an answer as soon as possible.

P2-6 said, "So I think the communication is pretty good. Back and forth for the most part because we do have a lot of committees in place and it does give that direct officer straight to a very high level person right then and there." P2-6 and P2-7 outlined the fact that outlets such as sergeants and various committees are being used to relay information in some circumstances. This shows the power that lower level input and feedback can have on perceptions.

P2-5 spoke specifically about technology communication and stated, "We have, the nice thing about this department, we really have freedom. Like if I have an issue with my tablet or if I have something, some glitch or something that's not right, we have, there's an email address that we can email." From these responses, it seemed possible that officers perceived and felt differently about technology communication than other operational communication. This was supported by P2-5 when the following statement was made regarding what to do when an issue with technology arises:

> It immediately goes to that group of brainiacs that is creating this and fixing it and making updates and stuff like that. So, there really is no chain-of-command for that. If there's an issue or something that's going on that we, that hey, you guys need to look at this, we have a direct line to that group. That's been as far as technology goes, there's no, there really isn't a chain-of-command for technology. I mean I'm sure they have theirs but for us as patrol, if I have an issue with my tablet I go to our main station where our technology guru guys are and if they're there I say hey, I need this fixed.

While the idea of not having a chain-of-command for technology might seem positive to P2-5, it could lead to confusion for others. For an organization built on chain-of-command, not knowing who to talk to in regards to a problem could lead to uncertainty.

Email was discussed as a communication vehicle that was inadequate in certain regards. P2-4 matter-of-factly said, "Ya know, emails aren't effective, hey, this is the new update, this is what you need to do. Nobody reads 'em, nobody really maybe understands it." This was brought up in the context of using email as a way to provide training

updates on how software or hardware had changed. While officers may be pulled out of service for hands-on-training occasionally, emails were used to try and limit the amount of time officers spent out-of-service. Email, under these circumstances within the chain-of-command structure, created uncertainty as to how officers were supposed to use technology correctly.

RQ2 seemed to reveal the theme of uncertainty with chain-of-command communication among participants. The sense of uncertainty manifested itself in different ways: uncertainty in who to talk too about an issue, uncertainty in how an issue was addressed, and uncertainty in the level of input in decision-making. This sense of uncertainty, combined with the perception of inadequate feedback loops, could indicate that the organization was susceptible to unintended consequences that come about from inadequate communication methods.

**Research Question 3**

*What are the officer's experiences as they relate to the amount and types of tasks being performed that involve mobile technology?* RQ3 sought to explore the officers' perceptions of the amount and types of tasks being performed with mobile technology specifically. The intent of this question was to explore the preliminary concepts of cognitive load theory. Lavie, Hirst, Fockert, and Viding (2004) found that engaging in a high amount of cognitive intensive tasks could increase the risk of distraction. Did the officers feel overloaded? Regarding amount of tasks, all the participants stated that they relied on technology to do their job and admitted to using that technology a lot during their shift.

P2-4 said, "Uh, amounts. It's all night long. My shift is 10 hours. From the time I start my shift I'm logging into our tablets and during our briefings we're using them too. I don't know. It's all night long. It's non-stop just using that tablet." The sentiment of high volume usage was echoed by P2-10 who said, "The amount of tasks...I think that sometimes they expect a little too much from us..." While other participants stated the use rate was high, P2-10 was the sole participant that stated the amount of tasks expected was somewhat overwhelming.

When asked to describe this feeling more, P2-10 described tasks that dispatch used to perform, but have since been designated to the officers. This perceived shift in work duties increased the amount of duties being done by the officers utilizing mobile technology.

P2-10 commented,

Dispatch was getting that information to us and then they would send it to our computer so we could get to it later on. But initially, that way we could interview somebody, be talking to somebody while somebody else was getting that information to us. Now, they expect us to do all the queries on the tablet, which then you have to excuse yourself, you have to have another officer come if you're gonna go back to the tablet, look up the information, then go back to the person, then do your interviews, so it takes away...I guess using the tablet you have to pull other manpower off the street to be safe...

It appears as though P2-10 was recalling a specific type of incident in which she was overwhelmed. This is important because it showed that at least one of the officers was

starting to feel overwhelmed by the amount of tasks involving mobile technology. The fact that at least one officer described this feeling is not surprising. Macdonald and Lavie, (2008) found that an individual's personal ability to divide attention can have a direct effect on interpreting and interacting with their surroundings. Everyone is different in this regard based on their own abilities, so as task amounts change over time, it is reasonable to believe that the officers' reaction to the amounts of tasks will change at a non-universal rate.

When it came to the types of tasks being done, there was little variation in responses. Officers stated that they used tablets, radios, cell phones (personal and departmental issued), radar, and, cameras. When asked to differentiate between items used inside the patrol vehicle versus outside the vehicle, there was one interesting item to note.

While officers felt comfortable using the tablet inside the car, they felt less comfortable using it outside the vehicle. Apprehension due to potential, expensive liability seemed to be a concern with P2-4.

P2-4 said,

I can see an expensive, you know, it's a piece of equipment, just like my baton and my Taser and it's gonna be in my hands during a possible dangerous situation but it's also an extremely expensive piece of equipment. So, until I'm told policy, in training, or whatever, am I able to drop it. Can I drop it like I drop my clipboard. Can I, you know, what am I gonna do in those situations. As far as using it to complete the task, to fill out a report, a face sheet, absolutely, I think

it's gonna be awesome, quick, easy.  Less hand writing, less paperwork is always

better, but until I can see what our guidelines are gonna be, what am I allowed to

do with it… I've used my clipboard to defend myself. Am I gonna be able to use

that tablet to defend myself? I don't know. I It's an expensive piece of...clipboard's

20 bucks, tablets three thousand...So, I think it can be a good thing to finish our

tasks that it's meant to be used, but it could be a hindrance because now are we

more worried about breaking an expensive piece of equipment or are we gonna

worry or focus on safety.

P2-9 was also thinking of potential officer safety issues and said,

Of course I'm gonna have my backup still there but it still becomes an issue.  I

think, majority of us agree and...on that same point, and we would rather gather

the information, go back to the car, move somewhere safer and then do our

reports. When that mobile field reporting module comes online, we'll be able to

do both and I think the department kind of expects us to do the report while we're

still on scene.

The apprehension felt by P2-9 is evident. He understands what the expectations are, but is

reluctant to follow through on the expectations due to safety concerns. P2-6 also

envisioned potential officer safety issues with taking the tablet outside the vehicle.

P2-6 said,

It'll probably be used, I would say less than 25% of the time. It would be in a

situation just only low priority or cold calls, just somebody making a late report,

oh my house got broken into or my car window was damaged last night or there's

just the victim there, there's nothing likely to happen or come up, you know where
we feel comfortable going in there with our clipboard already and paper or report
in hand...and we'll pretty much sit down at their kitchen table to take the info if
we needed to. That type of a comfortable scene, I think would warrant the officer
taking it out, going in there, be able to put it down the first time, or enter at least
some of the information on there while take some notes.

The reasons varied from officer to officer, but there was a definite reluctance to
taking the tablet outside the vehicle while on calls. This is not to say that officers will not
do it. On the contrary P2-8 said, "I think so long as people understand you don't take 'em
out of the car as soon as you get to a call. You get to the call, you ensure that it's safe and
then you remove the tablet to go back in to do the reports. I think they'll be fine." While
the reasons varied, perceived officer safety issues was definitely the underlying reason
for the reluctance.

The theme regarding reluctance to take tablets outside the vehicles became
apparent in this main research question and accompanying probing questions. Officers
expressed uncertainty with policy, procedure, and overall safety when discussing using
the tablet to perform more tasks outside the vehicle. The idea of performing multiple
tasks on the tablet while outside the perceived safety of the vehicle was viewed by the
officers as being potentially detrimental to officer safety. While most officers did not feel
overwhelmed, they did recognize that they were using mobile technology a lot in their
duties and under certain circumstances the technology could be a hindrance. The amount
of tasks, and their increase in frequency of use, could be a catalyst for distraction.

**Research Question 4**

 *What does it feel like to be distracted while using mobile technology devices while on patrol?* RQ4 is the first of three questions to look at distraction more in depth as a single phenomenon. This question sought to understand what distraction felt like from the officers' perception in hopes that it could bring understanding to other elements of distraction. Each officer was able to express the "feeling of distraction" in his or her own words and examples.

 P2-1 described it as the "Oh crap factor" and further elaborated on it by stating, "It's just sometimes frustrating 'cause like I said you wanna do this, you wanna do that right, and you're also being pulled in a whole bunch of different directions that you might not necessarily complete everything or do it to the best that should or can." The first statement could be expressed as almost a sense of surprise while the second emotion is more of an expression of understanding one's limits and the frustration that comes with that. The second expression could be attributable to cognitive load theory elements where a person is unable to keep up with multiple tasks due to overtaxed cognitive resources (Lavie, Hirst, Fockert, & Viding, 2004).

 The idea of frustration was also expressed by P2-3,

 It can be somewhat frustrating at times because you have to turn your attention to multiple things always. But sometimes you're trying to do this or your concentrating, you know, on whatever research you're doing on your tablet but you know there is...this needs to be done, this needs to be done. You're always having to make sure that your safety and peoples' safety around you is paramount.

That's gotta come first. So, sometimes there can be enough tasks to where your

attention gets diverted and you get focused in on just what you're trying to like

research. It can...I mean it can be dangerous but that's the nature of the job too...

P2-3 seemed to be expressing a form of stress that is brought about by splitting attention

across many different elements. P2-10 expressed the emotions of fear and worrying when

describing distraction.

P2-10 said,

Like I said it's scary and then you think, wow, (laughs), there are a number of

things that could have happened just from the time you get the call to the time you

get to the call to, you know, arriving, that you don't think about because you

know, you're worried about, you're trying to prepare your mind for when you get

there and so I guess it makes you uh, a little uhm , when you sit back and have

time to think about it…

P2-2 sated that, "For me it's just a little uncomfortable. You know it's...it's a second of not

being in control of one element, so...yeah." P2-4 said, "It makes me nervous". P2-5 took

a lighter approach and described it as "freaky dude". The emotion of fear was again

expressed by P2-6

P2-6 said,

So I  really like using it and I feel comfortable with it, but there's been a lot of

times where I've kind'a been scared about it, you know, or something's popped up

in front of me. The brake lights quickly appear...You know, and you're like,

alright crap, get your head out of this thing. Start paying attention and I will

always push myself. I'm sitting there typing and entering stuff while I'm driving

and I'm like 'cause you're always fighting the clock. You wanna get everything

done by the time you end your shift......so you can just go home, you're not

holding over

P2-8 continued with the expressions of stress,

Uh, well initially it felt, nerve-racking because you weren't looking out the

window but I think like with everything else, after I started doing it for so long,

you kind of got used to it and you weren't so nervous about it. Now I don't even

think about it.

 P2-7 said, "It's a little scary" while P2-9 described it as being "…kind of eerie".

In looking at all these different descriptions of the emotions associated with

distraction, the theme of stress caused by distraction was fairly constant throughout the

participants. Some participants described the stressful emotions as scary or eerie, but they

also talked about the frustration that these emotions caused. The words used to describe

distraction were all negative and seemed to originate from first-hand experience from the

participants. It is apparent that officers were under a lot of stress that was caused by many

different factors involving mobile technology. There may be an unintended consequence

at work here: work processes meant to increase efficiency and free up officer time are

causing additional stress and frustration (Ioimo & Aronson, 2003).

**Research Question 5**

*What are the officer's perceptions on how mobile technology has affected overall*

*officer safety from the standpoint of distraction?* RQ5 represented the crux of this study

as it sought to explore how officers viewed distraction around their environment.

Concerning situations where officers experienced distraction while using technology,

there were three types of responses.

The most frequently cited scenario involved officers in their cars who were typing

on the tablets and were approached by an unobserved individual. These types of scenarios

were expressed explicitly by participants. The following participants all relayed instances

where they were approached while sitting in their vehicles.

P2-1 stated,

I think just kind'a while trying to do some research on the tablet, we have a

system called CHIPS......that kind'a keeps all of our history, so-to-speak, so if you

wanna get any information on a person, place, location, we can go into the archive

system, enter a name or address and it'll give a history if we've been out with that

person or location in the past and what we've done. Kind'a looking into that, I

mean I don't necessarily do that when it's in an unsafe spot but I kind'a bury my

head in that and I've had people walk up to my vehicle and I didn't realize that

they were there. Which is kind've and oh crap factor after the fact 'cause you

realize what they could have potentially done to you while your heads buried in

the sand, so you kind'a have to learn to focus to be able to look in the system, find

what you need to find in a timely manner but still pay attention to your

surroundings and when you're pretty intent on finding that information it's...that's

kind'a what you're main focus is, so you forget about all the other stuff.

P2-3 stated,

The thing that comes to mind to me, and luckily it hasn't ended in any kind of violence, it's just like I'm focused on, like I'm parked somewhere and I have a bunch of reports to do, and I can't come back to the station to get 'em done, so I'm trying to get the reports done in my vehicle and then I see someone out of the corner of my eye and had no idea they were there until that point. If that person had wished to do me harm that would have been a prime opportunity for 'em. Yeah, I would say that all of us probably go through the same thing.

P2-4 stated,

I've been surprised. I can think of two times where I've been in my vehicle, by myself and I let myself get focused on the tablet, whatever work I was, you know, research or typing a report and I've been surprised by people coming up to my car. I've had one right up to the front of my hood and I've had others come up to the passenger door window and knock and catch me off guard. That's my biggest fear is being caught off guard like that because I'm focused on something that may or may not be able to wait until I can come into the station or something like that.

P2-5 stated,

I mean, let's face it, we've all had those moments where we're in our car...whether we're on a call for service and we're in our car and we're looking, you know, we're looking something up, we're looking...we're doing something where our main focus is on your tablet and even if everything, you know the scene is safe, and then the next thing you know, you're...you're focused on that 'cause you're looking for somebody, you're trying to find information, you're that close to getting what

you need and then someone knocks on your window on the opposite side and

you're just like, wow that's kind've a reality shock 'cause you're like holy crap,

like where'd they come from, you know, and then you think about, and then that's

when for me, I think, I sit there and I think about it, I'm like wow, that's like the

guy (officer) in LA that, you know a guy pulls up beside him and he (officer) gets

shot in the head, it's like, eating lunch in Washington, those three officers that got

shot... it's usually the oh shit moments that get ya, 'cause every officer's you

know, takes the step to be safe. We have our favorite places that we do

paperwork. We have where we're backed in somewhere so people have to come

from the front of us because we, again we get shocked, you know, every so often.

That's enough for us to go ok, not doing that again. 'cause you kind'a get into that,

you do,  it's sad to say but you...I'm not saying you get, you get lulled into being

unsafe, but you get focused on, you know, the task at hand, whether it's you

know, your technology. Again, being the fact that 95% of everything we do at this

point is technology related, you're gonna be distracted. You're gonna have that

focus on that.

This statement my P2-5 is profound as it shows the struggles that police officers battle

with every day. They try to stay safe and get the job done , but they are constantly

bombarded by potential threats. Even when they think they are safe, they can be put into

an unsafe situation. Officers never know who is approaching them. P2-8 relayed a story

in which a self-confessed murderer walked up on him, reiterating the fact that officers

can never let their guard down because they do not know who is walking up to them.

P2-8 stated,

I remember one time I was sitting down and I had a rider with me and I was

typing a report and I was in a...I was in a dirt lot, and I didn't see this guy walking

up on my driver's side until he was already at the rear bumper of my car. I rolled

down the window and he asked me if he could speak with me and I said sure and

he asked me to step out of the car. He didn't want to talk with me in front of my

rider and he actually confessed to a homicide. Of course he said it was defense...a

defense and he was making up his story but uh, ultimately his...his story led to an

actual dead body and it was a homicide. And you know, you think about that,

that's kind of nerve racking.

P2-9 said, "Well, when you're sitting in a car and you turn toward the interior of the car

typing something and you think you're in a quiet safe area and then you turn and look out

your window and there's somebody watching you, it's kind of eerie."

All of these recollections of incidents were very similar from one officer to the

next. The officers were clearly interacting with technology and experienced a form of

tunnel vision that prevented them from being aware of their surroundings. P2-8 had an

interesting take on this type of situation, "Whereas you may not have noticed it before,

but just sitting in your car, uh, I don't think anything in the car enhances situational

awareness." This statement shows that this participant is cognizant of the distraction, but

cannot think of any items that help offset the distraction. The officers were aware that

they got distracted in these types of circumstances, but have not been able to reduce the

risk to zero despite their efforts.

Tunnel vision or "auto-pilot" sensations are an indication of overloaded cognitive abilities (Smith et al., 2011). The tunnel vision theme continued through other explanations. P2-1said, "You're looking on a computer screen, that takes away your line of vision to certain things. You're on your cell phone, texting, playing games, whatever that...something draws your attention away from your surroundings as well so...I think it's certainly a huge distraction." P2-10 said, "For me my biggest thing is the officer safety portion of it. When you look at being on the call or driving to a call or sitting in your car typing, to me that's the biggest thing is the distraction that it takes you away from being vigilant, being aware of your surroundings." P2-4 said, "I constantly keep it my forefront...in front of my head. I've had tunnel vision on dangerous situations and I don't want it to happen anymore."

P2-5 said,

> …it's more of your attention focus on technology versus being distracted by it. And that's where I think officers need to consciously make the decision of how they're going to do that When you're typing out your report, you're gonna be focusing on your tablet and your face sheet and whatever notes you have, that's what your focus is on. So I think each officer has to figure out how they can focus on getting that stuff completed while as keeping themselves safe and being able to know what's going on around them.

P2-8 said, "I think I'm like anybody else. I think I get to typing a report and I don't pay attention to what's going around me, because the department will have a policy that you can't come in to do your reports. You need to stay out on the road." One commonality

among these statements is the fact that typing on the computer seems to be a shared experience of when tunnel vision occurs. This also appears in the situations when officers were approached by undetected subjects while in the car. Officers commented on the fact that they were using the tablet or engaged in the act of typing when the person approached.

Situations involving technology and driving were also related to tunnel vision. The following comments show the fact that multitasking was involved in the tunnel vision experience while driving.

P2-6 stated,

In the car you're, you're forced to check so much different things and to run things and queries and switch screens and look at stuff, that it does distract you from what's going on and just on, being on one call and driving somewhere, you're checking and running so much stuff, you're just paying attention to only that call and then you're using all your technology to make sure you're at 100% that you'll know everything about it going in there, what you're gonna do with it, know everything that you possibly can about the situation. Get it all locked in your head so when you show up, I mean you're just rock solid on what you're gonna do or what's possibly happening. But in doing that, with having all that stuff and being able to check so many things and query everything and to...to know all that, now you're not paying attention to surrounding when you're driving, like I said 5-10 miles to go to that call.

P2-10 said, "So that's distracting 'cause I found at times where I'm listening (radio) and I'm driving and then I'm scrolling and then after I go...ok, I don't remember...you know, you don't remember quite driving there…that's really bad". Both of these officers used the word "distract" in their self-aware perceptions. While not using the word "distract", other officers seemed to be describing the phenomenon in their own way.

P2-2 said,

We're not perfect but I think the more that we multitask in our vehicles, the more aware we are of our surroundings and the cars around us and entering an intersection and you know, just paying attention to traffic signals and people pulling out in front of you or...it's...it's weird, it's almost like you know what you're doing on the way to the call and then all of sudden you're there.

The lost sense of time was also stated by P2-6 who said, "And I'm just running stuff just constantly and I think about it. I'm like I drove 10 miles and I've been on this thing non-stop and you don't even remember almost how you got there." The tunnel vision also turned more serious.

P2-7 said,

There's been a couple times where I'm going along and, you know, traffic may be pretty light and I'm like trying to type in a message or something like that, look up and there's...cars are stopped in front of me because it's a red light or somebody's crossing the street or I've drifted into, you know, another lane, that type of stuff. So, I think that's probably my biggest concern is you're diverting your attention from what needs to be focused.

Traffic accidents, or near misses associated with technology use, were also alluded to in the participant responses. P2-1 said, "Driving, you're staring at a computer screen instead of the street in front of you. I'm sure there's been accidents caused because of that."

P2-5 said,

At some point, I guarantee you, every officer has looked up and either had that oh crap slam on your brakes 'cause the traffics stopping and you didn't see it, to you look up and the lights yellow. Well, how long has that light been yellow. You know, so I mean it's, personally, I don't like doing that. I avoid it as much as I possibly can. Are there times where I'm still gonna use it when I'm driving...absolutely.

P2-5's past experiences seemed to have slightly modified current behavior, but the negative actions continue. P2-6 experienced something similar in regards to vehicle operation.

P2-6 said,

Well, I was in a rear-end like last year and something simple of going to just even a routine call, uh, it was like a burglary call, but it was not in progress it was just a late report but, checking the call, looking at the information. We have history on there so now you can see if this victim or this residence is past suspect house. So I remember checking on that stuff and right as I stopped using it, looking up and somebody saw a yellow light, 'cause I was behind 'em, and slammed their brakes on and it was just too late. Did everything I could......and I was paying attention at

the time but maybe if I wasn't thinking about the call as much, maybe I could have been able to prevent it.

Accidents seemed to be a known consequence of using technology amongst participants. P2-7 said, "I think we've had a few fender benders, backups, bumping into the rear of cars, different things like that where the officer has been at fault, probably from being distracted, whether it be radio, the tablet, whatever, cell phone ringing, that type of stuff." P2-8 said, "Well you know, I've seen officers almost rear-end people when they're talking on their phones, 'cause they're not paying attention. I've heard of other times where people were paying attention to the car computer, not paying attention and rear-end somebody. I haven't personally done that and I haven't personally seen that but I've heard about it. So the biggest thing I've seen is people talking on their phones." P2-9 said, "We haven't really had a lot of accidents where they're on the phone or anything, using technology. We have had a few accidents and I had one where I was actually using the MDC's (mobile data computer), an older one, and the car was rolling and I didn't realize it and then I hit a parked car".

Multiple participants also raised cellphones as an issue. P2-2 said, "It could be distracting all the time. From your cell phone going off, like who's calling me or you look and your sergeants calling you or another officers calling you." The idea of making personal calls outside of work was also discussed. P2-4 thought about the distraction that simple calls to significant others could create.

P2-4 said,

I can see it, and it has happened to me where, especially like with the cell phone, friends, family, somebody can contact us that way and it could be a distraction. Take our mind off what's going on. Have us, you know, take my mind off the focus of what I'm doing and focus on talking to my wife or whatever, you know, texting my wife good night. It's, whatever, or anything like that but that's how I can see a main distraction with that.

Administrators have seen that cell phones are becoming a problem and have tried to deal with the issue.

P2-6 said,

That'll come down the pipeline saying hey, no more texting on your cell phone when you're on this type of a scene it's a distraction an officer's backup wasn't paying attention and something happened.  Someone's texting, we have too many people that were caught texting and that led to an accident, something to that affect.

P2-9 said, "It's always going to be distracting, it's there. I mean, whether it's a cell phone or not. Cell phone rings while you're driving, you wanna answer the phone so now you're fidgeting, looking, you're doing stuff." P2-8 saw the cell phones as a big problem and stated, "So the biggest thing I've seen is people talking on their phones."

This last statement contributed to the development of another emergent theme. Participants pointed out distraction problems in all sorts of circumstances and environments. Occasionally. the experiences were personal in nature but often times they were perceptions of other officers' behaviors around the research participant. The

majority of participants minimized their own level of distraction, but they were quick to

point out that others were very much distracted. People using technology while

attempting to perform a resource intensive cognitive task may downplay the

consequences of their distraction (Strayer, Drews, and Johnston, 2003). The minimization

of self-problems and the highlighting of other occurrences was visible in other

statements.

> P2-10 said,

> When I'm on a call and I've seen them take telephone calls, that you know are
>
> personal calls, or pull out their phone and text or look at something, you know
>
> scrolling, it makes me angry, 'cause they're jeopardizing one, my safety as well as
>
> their safety and maybe that other person's...the citizen's safety by being distracted
>
> from a telephone call. We don't usually take our tablets when we meet someone
>
> but we most always, somebody has a cell phone or it's ringing or that type of thing
>
> and depending on the type of interview or call, it can also be distracting to the
>
> citizen so... I think its affected officer safety quite a bit. Like I said, previously
>
> stated, they're distracted by it, that's...their means of communication with either
>
> their family, friends or family, or even with your direct supervisors and phones
>
> ringing and ringing and they want you to call them when you're on a...a subject
>
> that's some sort of violent call and the supervisor is wanting an update on
>
> something; it's distracting.

P2-4 said, "Outside of the vehicle with the cell phones, I can see it being a distraction and

I have actually seen it being a distraction with newer officers." P2-5 said, "When you're

on a traffic stop and a fellow officer is texting on his cell phone." P2-6 stated, "Oh yeah.

Yeah. A lot of people on their phones with...if they have, you know new boyfriends,

girlfriends or wives or you know, husbands, and I see 'em just on their phones," P2-7

said, "You know, they'll still want to listen to their music or send a text or check their

email or Facebook or whatever, something stupid on their phone." Another element

discovered by these previous statements is that officers are obviously using their cell

phones for all sorts of purposes.

Age was a factor that was touched upon in some of the responses when it came to

assessing other officers' level of distraction.

P2-10 said,

In my opinion, I think it's more younger, less senior officers that are more apt to

pull their phone out. Uh, but I can't say that I haven't done it or other officers that

are more senior haven't, 'cause as I expressed before they issue us a phone and it's

become too common now that a supervisor is calling or sending you a text, call

me when you're done or something like that so, to me it's one of those things that

needs to be looked at overall within the department on how we handle that.

In the previous statement, younger officers are viewed as being more apt to use their cell

phone. The younger officers are viewed as being more comfortable using the technology.

This level of comfortableness is not something perceived as being shared by older

officers and could cause distraction for them while they became comfortable.

P2-2 said,

Oh yeah, oh yeah, oh yeah, definitely. Definitely uh, well, you know when I was...when I was 20 I was doing stuff better than probably 30 and 40 year olds...It's just a generation thing, but now with everything so instantaneous, uh, these new guys coming up, you know, nothing's new to them. They've manipulated everything that's out there, any kind of social network, any type of device, they know how to deal with that. You know, to where a lot of the older officers it's a learning curve.

The comfortableness with technology could be detrimental if it is all that was used and focused on.

P2-4 said,

I only see it mostly with the newer officers 'cause they're more focused on one thing at a time. So learning the new tablet, learning the new system, but not paying attention to what's going on around them. I think that's the main, and I'll probably say it another 10 times, but the main distraction is just becoming more focused on that, dependent on that to get all the information.

P2-7 said,

I'm old and cranky but a lot of the young people they're consumed by technology, so they're doing something, we're going up to a call or we're setting up a parameter or something and they're getting a call from their buddy or from their wife or a text or something like that and they'll stop what they're doing because they've been doing it for so long, and respond to a text.

Age also seemed to be a non-factor in some responses. P2-8 stated that newer officers would have more of a problem with technology. "Newer" does not necessarily translate to age as you can have an older individual that undergoes a career change.

> P2-8 further stated,
>
> I would think because the transition from...from being a non-sworn police officer to being a sworn police officer and going from driving your Honda Civic to a Chevy Tahoe, with all the bells and whistles and all the technology in it, I think that could be overwhelming for a new person. They're trying to learn the job and the technology at the same time. I think with older people, or guys that have been on the department awhile, I don't think it's as much of a distraction.

Some officers thought that older officers would be less distracted by technology.

> P2-9 said,
>
> The older guys would rather not touch it and would rather just do as little as possible with it, whatever they need, and just leave it alone. The guys in the middle, you know, it's...it's an average both ways, so I think from what I've seen, the people that I've trained, if I get a lateral that's had like 10 years on at another department, that really knows technology, but doesn't really care for it kind of thing, they...they grasp more of the...this is what patrol does outside the car. The ones that I train that are brand new and really into technology, they're more apt to use technology to do their work verses looking, using their eyes to do it, you know and, using their senses and their feelings.

Age results, as a factor in this study, were mostly inconclusive. While most participants stated that "younger" or "newer" officers had the most problem with distractions, the reasons given for the distraction were all over the place. The following statements express some of the different thought processes regarding age and distraction susceptibility.

P2-5 stated,

I think the younger officers, whether they have more time on or less time on. I think it's just kind of the age that they were growing up with, so that's all they're used to with all the Facebook, Twitter, whatever else they have now. I think that's...everyone's so focused on social media and doing that, that's how they were raised, so I think that's kind of all-encompassing of what they're used to

P2-7 said,

I think that could be overwhelming for a new person because they're trying to learn the job and the technology at the same time. I think with older people, or guys that have been on the department awhile, I don't think it's as much of a distraction.

P2-8 saw older officers as having a harder time,

It's just a generation thing, but now with everything so instantaneous, uh, these new guys coming up, you know, nothings new to them. They've manipulated everything that's out there, any kind of social network, any type of device, they know how to deal with that. You know, to where a lot of the older officers aren't, you know, it's a learning curve. And then if you don't, if you don't use it, ya know,

you...you don't know how to use it. So definitely these new guys coming up,

they...they know everything. They even think like this new program that we got is

slower than what they expected it to be.

There were multiple problems in trying to look at age specific results through the lens of

this study. The one result apparent from this study was that officers have differing

opinions on the issue of age's relationship with technology distraction and the opinions

were based on different reasoning.

The two emergent themes from this research question were: the prevalence of

tunnel vision associated with technology distraction and the fact that most officers

minimized their level of distraction while interacting with technology but saw others as

being visibly distracted by the same technology. Both of these themes are important in

the concept of distraction and will be discussed further in Chapter 5.

**Research Question 6**

*How does an officer compensate for distraction, in order to increase officer*

*safety, when using mobile technology?* RQ6 explored how officers were compensating

for distraction. This could include a myriad of things, but I was specifically interested in

gaining insight into how officers were dealing with self-aware technology distractions. A

few responses seemed to be prevalent over the participant group.

P2-1 said, "I'd say usually you try to not to use any of that stuff until you know

that the situations safe or there's enough officers there that they can maintain the situation

while you go do that, so, hopefully that's what I can continue to do to prevent anything."

"When" an officer chose to use technology was a very popular way with mitigating the

safety issues associated with technology.

> P2-5 stated,
>
> I usually have most of it, but you know, if I'm stopped at a red light, I will look
>
> and scroll through the call and make sure I've picked up all the information and
>
> I'm not missing the fact that husband now has a gun in his hand or something.  So
>
> a lot of my use of technology is at stop lights. I don't like using stuff while I'm
>
> driving.

P2-9 said, "I do what I teach. If I have to use the tablet for a long period, more than five

seconds, I pull over. I try not to use it unless I'm at a stop sign or stop light and I make

sure that I'm firmly pushing the brake..."

The concept of multiple officers being together when technology was being

heavily utilized also proved to be a common response. P2-8 said, "You know, if you're

gonna type a report in the car you need to pull into a safe place and watch your back or

maybe do it with another officer, so in that instance I guess I can see how it could be

distracting for officer safety in situational awareness." P2-10 said, "Two, if I need it then

I'll make sure there's somebody else there, another officer, and then I'll take the time

when it's safe to do so to go back to the vehicle. So, outside of the car I definitely try not

to utilize it."

> P2-4 stated,
>
> Again, don't let multiple officers be doing it all at the same time with tablets,
>
> phone calls, anything, just there's always gotta be somebody to keep an eye and

watch everybody's back. I think it's all gonna end up being ok as long as...once we get used to it. I think that's what's gonna end up happening. We'll get used to it and then it'll be just another thing that we use and it won't be a problem.

The "where" aspect of technology usage was also discussed. Officers sought secluded areas in order to mitigate risk when they knew that they were going to be distracted. P1-1 made a comment during the observation that while parking in a secluded area was preferable, "the command staff wanted officers to remain visible whenever possible in order to provide police presence to the public". P1-1 admitted that balancing the requests of the command staff with that of the positive attributes of parking in a secluded place to increase officer safety was sometimes difficult.

P2-6 said,

The day to day of passing people, seeing 'em in parking lots, I would say somewhere in the 20 or 30 percentile maybe because it's a distraction and we're not just sitting there looking around. I think most people try to do it safely, you know, we try to go and hide out somewhere, behind a business or in a parking lot or a safe area.

Some officers even went so far as to express a combination of secluded parking and multiple officers. P2-8 said, "If you're gonna type a report in the car you need to pull into a safe place and watch your back or maybe do it with another officer…"

Officers also used "changing focus points" as a compensator. Officers stated that they used a variety of techniques to ensure that they only focused on technology for certain amounts of time. P2-1 said, "I try to look around at my surroundings more...if I

see people coming up I'll take my focus away from the computer and make sure that they go by or if they come up I address them first and then go back to the computer instead of being so focused on what I need to do..." P2-4 said, "Again my head bobs up and down looking at the screen, looking up, looking around, checking my mirrors non-stop. During, let's say a traffic stop, I'll use it as quick as I can, focus, get that information but still try to keep my head on a swivel." P2-6 stated, "….I think I'm pretty good at it, like multitasking and I'd say creating time limits. Reminding myself internally to check my surroundings every once in a while."

Also dealing with "time" as a factor, officers tried to consciously slow down what was happening around them. P2-4 said, "So, I probably even last night responded to a call, I probably went to use my tablet but, slow down, stop if I have to stop, but slow down, use it less until I know it's ok to use." P2-6 stated, "I think some officers just drive in right to it, as they're getting all the information of, you know, I told a lot of people and myself. I'll stop a few blocks away, no matter how bad it sounds, just to make sure I fully got the information I need and then I can disregard all the information…"

One of the most surprising techniques that officers used to mitigate risk associated with distraction was the bringing of personal equipment to the job. It is common knowledge that officers are bringing personal cell phones to work. In fact, all participants in this study stated they used a personal cell phone with a majority of those devices being smartphones. I found that officers were also bringing other types of hardware and software to work. P2-10 stated, "I personally I have a laptop that I'll carry. I didn't bring it today but I have laptop that I carry and it's easier for me to use…" P1-1 had a GPS device

installed in his car on the windshield that was used by another officer that shared the vehicle. P1-1 stated, "They (the other officer) prefer this GPS" when compared to the one installed on the tablet. P2-6 stated, "You know, so having like the little ear piece or something, you know with your phone you got full vision and you can see everything fine."

I also met an officer during the observation periods that not only brought an outside laptop to work, but had dictation software installed on it to aid in the process of writing reports. This officer stated they wanted to avoid, "sitting and typing with their head down while in the car". The officer also admitted to being a bad typist and that in order to sit in the car and type out a report that it would take too long and they would not be able to be aware of their surroundings, thus compromising their safety.

This research question spotlighted the theme that officers were not getting rid of technology that caused distractions they were self-aware of, but rather they were modifying behaviors to mitigate the risks as much as possible. These behaviors could be as simple as modifying parking locations, but also as complex as bringing more potential distractions into the workplace. This manifested in the form of bringing personal laptops and software to work in order to increase their perceived level of officer safety. It became clear that officers knew that technology distracted them under certain circumstances, and they were trying to compensate for the negative effects of that distraction.

## Summary

There were 7 identified themes that arose from data analysis in this phenomenological study:

1. There is a conflict between policy intent and realistic application with regards to technology usage

2. There is uncertainty in chain-of-command communication regarding technology usage

3. There is a reluctance to take tablets outside the patrol vehicle

4. Officers are experiencing stress brought about by distraction from technology

5. The phenomenon of tunnel vision is being experienced by officers in relation to technology distraction

6. Most officers minimized their level of distraction while interacting with technology, but see others as being visibly distracted by the same technology

7. Officers are not getting rid of technology that causes distraction, but rather they are attempting to reduce the risks associated with distraction through a variety of means

These themes will be interpreted and discussed in further detail in Chapter 5.

The preceding themes were developed by gathering data from three data points: interviews – 10 participants, observations – 2 participants, and memos-to-self. The data was collected through collaboration with the Glendale Police Department. The data was analyzed using a modified Van Kaam method in conjunction with NVivo for Mac software. The study was conducted using strict research guidelines and guidance from my dissertation faculty team to include IRB oversight.

Chapter 5: Discussions, Conclusions, and Recommendations

This phenomenological study was conducted in order to explore how U.S. patrol officers perceive distraction while using mobile technology. This was accomplished by first looking at why distraction may exist in the police environment as an unintended consequence of policy. Next, the idea of how distraction manifests itself within police operations was explored through the lens of cognitive load theory. Finally, further understanding of distraction itself is explored by looking at perceptions of the overall phenomenon through the eyes of the police officer.

This chapter expands the themes identified in Chapter 4 in order to understand the distraction phenomenon. This is accomplished by separating each of the seven themes into individual sections and comparing them with the literature presented in Chapter 2. The discussion focuses not only on the similarities with existing literature but speaks to the differences as well. Differences among study results are also discussed and highlighted, along with a discussion of the limitations of the study and a listing of recommendations for future studies. Finally, the implications for the study results as well as the positive social change that can be facilitated by the overall study are presented.

**Interpretation of the Findings**

The goal of this section is to provide deeper understanding of the results highlighted in Chapter 4 and to interpret those results across the entirety of the study. Each theme is broken down, discussed individually, and compared to existing literature. Additionally, themes are be placed against the backdrop of the conceptual framework in order to aid in overall understanding.

**Theme 1: Policy Intent Versus Realistic Application**

Participants in this study gave statements and expressed feelings that show current policy governing technology practice in their patrol operations fell short. The intent of the policy in place at the time of the study was to keep officers safe and limit liability to the officer and the department in the case of an accident. While this is a noble intent, application of the policy is proving to be more difficult. In this context, cognitive load theory suggests that the current policy creates several problems.

Police administrators have created workflows that focus on utilizing technology to complete a myriad of tasks. The tablet, which is installed in all of the GPD police vehicles, is an example of this. The participating officers stated that this tablet is the foundation for many of their tasks; tasks like retrieving data, being dispatched to calls, being routed to a specific place, and communicating are all performed on the tablet routinely. Lavie (1995) found that increased mental load could increase distractibility, which aligns with the officers' anecdotes of instances where they were so focused on typing a report in their car that they did not notice an individual walking up on them. This occurrence also aligns with Mack's (2003) description of phenomena in which a person is so focused on a task that they fail to perceive stimuli around them, which Mack termed load-induced blindness. A person's mental load has a direct bearing on their ability see others around them (Perez-Moreno, Conchillo, & Recarte, 2011), and the anecdotes suggest that the officers were susceptible to load-induced blindness while typing on their computers in the car.

The administrators of the participating department also created policies that governed cell phone use. While there was some confusion as to the specifics of this policy, officers noted that they were advised by supervisors to not use cellphones at certain times, such as driving or while out on calls. However, problems arose because the officers' cellphones are a vital communication tool. Officers use their cellphones to communicate to others as they are going to calls, in order to ask for backup or relay helpful information if they are familiar with a known subject, and to communicate with supervisors once they are out on calls. One officer expressed frustration with the fact that a sergeant would call them on the cellphone and ask for updates while they were actively engaged in handling a situation. Officers also use their cellphones to perform *phone reports* for calls that they do not have to respond to. Sometimes these reports are made outside police stations, in vehicles, and in the public eye. These circumstances invite the unintended consequence of potential officer safety issues as officers expend cognitive resources to focus on the phone call and experience the decreased ability to concentrate on the environment around them.

Byrne and Marx (2011) stated that the lack of research focused specifically on police technology use likely leads to some unforeseen outcomes. In addition to officer safety issues that arise when officers are using technology in the field, the unintended consequence of disregard for policy also seems to be in place in the department studied. In general, the participating officers viewed policy regarding technology usage as incompatible with current task expectations. The policy disregard did not seem to be malicious; rather, it appeared to have arisen out of perceived necessity on the part of the

officers. The participating officers felt that they could not do their job efficiently without technology and that they could not get the information they need without using the available technologies. These feelings have led many officers to use their tablets while driving, use cellphones while on calls, and to use cellphones while driving. The use of policy as a short-term stopgap in liability has had some negative outcomes. Misinformed short-term solutions can have negative long-term unintended consequences (Mackay & Chia, 2013). The conundrum of officer feelings and administration expectations has contributed to the conflict between policy intent and realistic application.

**Theme 2: Uncertainty in Chain-of-Command Communication**

All officers recognized chain-of-command communication as the main way in which lower-level officers communicated with supervisors or administrators. Some officers broached the idea of an open-door policy, but no participant stated that they actively engaged in this form of communication on a regular basis. The way in which officers communicated up the chain differed. Some officers recalled using verbal communication as a method, while others referred to email. The one constant item noted by most officers was a feeling of uncertainty when it came to receiving feedback regarding the item initially relayed up the chain-of-command.

Some officers stated that they were unsure of the status of the item initially addressed in a communication, while others stated that they were unsure of why a certain outcome was reached. Email in particular was brought up as a frustration concerning updates in technology software or hardware. Email was not viewed by the participants as a good way to relay updates and changes to the way that technology was intended to

work. Caution in using email is advisable because oversaturation and inefficient use can result in poor communication (Waldeck, Kearney, & Plax, 2010). GPD officers agreed with study as they found email to be a poor communication tool. Sull, Homkes, and Sull (2015) stated that administrators became too focused on the number of communications sent rather than focusing on whether or not an employee actually understands what is being communicated. Rather than focusing just on getting communications out, GPD administrators could focus on ensuring the message is conveyed clearly. The responses suggest that some officers view the complexity of dealing with technology as a hurdle that cannot be overcome through written communication alone.

In general, officers felt as though they could send information up the chain-of-command with ease but had issues with the way information came back down the chain-of-command. This created a perceived void in the feedback loop, aligning with Chapman's (2005) finding that overly focusing on goals and ignoring feedback loop communications make an organization susceptible to unintended consequences. When viewed from the perspective of systems theory, it appears that chain-of-command communication has become too one-sided to ensure that unintended consequences are not a problem. This connection is supported by research showing that active involvement by all participants limits conflict and misunderstanding (Carver & Scheier, 1981). At the time of this study, communication coming down the chain was viewed with uncertainty by the participating officers.

P2-4 was the only participant who had been involved with technology committees and expressed positivity for overall communication and feedback. This officer

understood what the goals were and how administrators were working towards those goals. The discussion with this officer regarding communication was very different from other participants, which I attribute to the officer's unique insight and involvement in an adequate feedback loop. The presence of adequate feedback loops in organizations, to minimize unintended consequences, is important and may be a reason why the officer had unique insight and understanding. Hovmand, Ford, Flam, and Kyriakakis (2009) reiterated the need for feedback loops in order to understand how individual parts of the larger organization act on one another. Chapman (2005) also expressed the importance of feedback loops to promote organizational understanding. The understanding is not for administrators alone but rather for all the individual units of the organization so that they know how they fit into the larger picture.

**Theme 3: Reluctance to Take Tablets Outside the Patrol Vehicle**

RQ 3 looked at the specific tasks in which officers were using technology during patrol operations. Out of that exploration, it was discovered that officers were apprehensive to take the tablets out of the patrol car to use while on-scene at call locations. The reasons for this apprehension seemed to vary, but with the department pushing towards this type of workflow solution in the future, this apprehension may be a problem.

During the course of the study, I discovered that GPD leadership was planning on creating a significantly new technology use policy. This policy would allow officers to undock their tablets from patrol vehicles, take the tablet to a location outside the patrol vehicle, and then use the tablet to complete a variety of tasks such as writing reports,

doing photo line-ups, researching data, and creating other typed products. While the current policy at the time of this study allowed officers to take the tablets inside locations while on-scene now, this will be greatly expanded in the future. One of the stated goals for this push is efficiency; officers will be able to save time by taking their tablet with them to a call location, inside a house for example, and finish the report there. Ioimo and Aronson (2003) stated that police departments everywhere are using technology to increase efficiency. GPD has adopted technology as a way to increase efficiency.

The officers in this study who expressed apprehension about taking the tablets inside call locations cited officer safety as a reason for their apprehension. These officers were relating working on the tablet with the fact that they lose situational awareness while doing so. Lavie, Hirst, Fockert, and Viding (2004) stated that tasks that require intensive cognitive resources might cause distraction; in this case, the distraction in this example would manifest as a lowered ability to recognize surroundings. Officers are constantly tasked with maintaining situational awareness in order to keep officer safety high; because officer safety is one of the most important goals of policing (Herbert, 1998), it is understandable that a distraction in the form of lost situational awareness would cause apprehension.

Another interesting finding, regarding the apprehension in taking tablets outside the car, was related to money. Some officers stated that they were concerned with having a high priced item attached to their hand. If something bad happened, they would be faced with dropping the item on the ground or using it as a weapon. These reactions could result in breaking the tablet. If such an instance occurred, who would be

responsible for the damage? In the officers' minds, it was better to leave the tablet inside the car rather than taking it out of the car and incurring risk. The fear of liability when an outcome is negative has been shown to modify behavior and thoughts (Minkoff, 2012) It is unclear that if a policy protecting officers from liability in such a situation was created, if this would ease this sort of apprehension.

A revealing result was that the research participants stated that only a few officers were currently taking part in the voluntary use of tablets outside patrol vehicles. Current policy allowed officers to take the tablets outside the patrol vehicle, but it was not required. It appears that while some officers are experimenting with using the tablets in different environments, the majority of officers are just leaving it in the car. In my observations, I did not see one instance where an officer used a tablet outside the car. During observation, one officer did state that lower risk-level calls, such as shoplifting, were the main types of calls where taking a tablet inside a building would be beneficial. In the officer's eyes, it was the perfect opportunity where an officer might need access to the tablet's capability but the risk to officer safety was minimal. The officers were making decisions that they feel were best for their own safety. Officers face these types of decisions all the time and their final actions are based on multiple variables (Anderson, Litzenberger, & Plecas, 2002). During the observation period, the shoplifting example was a call type heard on several occasions as an ideal example of tablet use outside the patrol vehicle.

The exception to this rule is the stations. I observed several officers using their tablets inside the stations at the designated docking areas. Officers had access to printers, monitors, keyboards, and other equipment in these settings (see Figure 1).



*Figure 1.* An example of a tablet docking unit inside a GPD station.

Participants stated that the department needed more of these docking units because they were in demand during quitting time and at the start of shifts. Results show that for now, officers prefer to use the tablets in a similar manner to already existing PC workstations if given the choice.

**Theme 4: Stress Caused by Distraction**

It was clear from the results that officers experienced stress caused by distraction. One of the most discussed set of circumstances regarding distraction centered on officers being walked up on while they were working on the tablet in their patrol vehicle. The anxiety that this perceived distraction caused was expressed in such terms as "freaky", "scared", "nervous", "apprehensive", "eerie", and "the oh crap factor". The one word that resonated loud and clear was "frustrating". Apprehension about something is different than frustration. Frustration implies that something may have happened more than once, and there is a lack of control in the situation. Chen and Spector (1992) found a correlation between stress and frustration and certain behaviors at the work place. When a person is frustrated, there is a clear level of stress that accompanies the frustration. Another outcome to consider is stress. When a person is stressed continually over time, it can decrease the feeling of fear (Raio & Phelps, 2015). It is possible that officers could lose their sense of fear as it relates to distraction and this could have adverse consequences due to decreased situational awareness.

Most and Astur (2007) found that load-induced blindness can negatively influence a person's ability to avoid accidents. Officers performing high cognitive tasks, such as typing on a tablet while attempting to drive in order to get call information, could be

experiencing load-induced blindness. Likewise, Lewis-Evans, Waard, and Brookhuis (2011) found that persons under high cognitive loads might inadvertently speed while driving. No participant stated that they actively try to break policy or engage in risky behavior for the pleasure of it. Rather, officers engage in tasks that have potentially negative consequences, such as stress or situational blindness, because the results outweigh the risks in their minds. However, this thought process could lead to frustration. Officers can get frustrated when their car speeds up inadvertently or when someone walks up on them unnoticed while they are engaging the tablet because of distraction.

The stress does not end with just personal use of technology. Some officers expressed "anger" at seeing their fellow officers distracted by technology. Officer safety is something that is a shared responsibility by all officers, not just individuals. The anger expressed by participants stems from the fact that not only are other officers affecting their own officer safety when they are distracted by technology, but they are also negatively affecting the officer safety of their fellow officers. Participants stated that if they saw another officer distracted by technology they would notify the officer of the incident. No officer stated that they would ignore the situation. Mowday, Porter, and Steers (1982) expressed the importance of the individual as a valued part of the organization as a whole. If the smaller pieces do not function well, then the larger organization fails. In the officers' eyes, it is better to correct one another and watch each other's backs, because each individual has responsibility in overall officer safety. For this reason, it is stressful to know that other officers could be distracted and their distraction could adversely affect another individual's safety.

**Theme 5: Tunnel Vision during Technology Distraction**

Officers frequently described tunnel vision symptoms during the course of this study. Mack (2003) stated that load-induced blindness occurs when persons are unable to detect outside stimuli due to split attention. For the purposes of this study, whenever an officer talked about tunnel vision, it was always in the context of using technology. It is clear that under certain circumstances, technology use increases the likelihood of experiencing self-described tunnel vision.

Officers primarily attributed tunnel vision to the tablet. There were several scenarios in which officers realized that interacting with the tablet might cause tunnel vision and they were hesitant about using it. One example of this was when an officer was arriving at a scene. He purposefully did not use the tablet at a certain time because he was concerned that he may not pay attention to their surroundings and miss something. Another stated example was limiting use of the tablet when multiple officers were together. The participant stated that not all the officers should be using the tablet at once, because then no one would be paying attention to the surroundings.

Cell phone tunnel vision was not discussed by officers. Interestingly, no scenarios were raised in which officers attributed tunnel vision to cell phone use. There were instances in which officers observed others on cellphones and instances in which they admitted to using their own phones, but nothing specific to tunnel vision symptoms. One participant did state that younger officers can focus too much on Facebook or their significant others, but this was an observation on their part and not a first-hand account of their own experiences. During my observations, I did notice an incident where an officer

while on the scene with a suspicious person used her cellphone. There were multiple officers there and the suspicious person was secured, but the officer seemed to be fairly focused on the phone call. She started by walking around the patrol vehicle, not really paying attention to the other officers or the suspect, and ended up sitting in the patrol vehicle typing on the tablet while talking on the phone. Hyman et al. (2010) described incidents in which people on foot, which were using cellphones, showed distraction seventy-five percent of the time. I did not see one time where the officer looked up from the tablet to check her surroundings or the suspect. Officers on foot while using cell phones appear to be susceptible to distraction.

Officers also experienced tunnel vision while they were driving. One officer noted an accident they were involved in which they attributed to working on the tablet. Hatfield and Murphy (2007) found that individuals using technology could engage in unsafe behaviors. Lundälv, Philipson, and Sarre (2010) stated that lack of attention while driving can lead to traffic accidents. The one officer that admitted to technology use being directly attributable to the accident confirms previous studies. Even though there was only one officer who admitted to technology use playing a part in a traffic accident, other officers alluded to the fact that technology plays a part in some accidents. There were no specific instances cited, but some officers "were sure" that some officer involved accidents were caused by technology use.

The other iteration of tunnel vision symptoms was noted on "autopilot" discussions. Smith et al. (2011) described the phenomenon of auto-pilot driving by individuals who were using cell phones. This research applies to officers as well. Some

officers stated they experienced autopilot symptoms when they engaged with technology while they were driving. In these instances, officers were engrossed with something on the tablet and they arrived at their destination while being completely unaware of their current surroundings or what they had driven past. Officers also hinted at blindly following the directions of the GPS built onto the tablet and not really remembering the way they got to the call location. Strayer and Drews (2007) stated that using a cell phone while driving inhibits a person's ability to assess items outside their current focus. "Auto-pilot driving" would describe such a set of circumstances. These autopilot symptoms are closely related to the tunnel vision symptoms. In both previously described instances, officers were interacting with the tablet and they were unaware of some aspect of their surroundings. The main difference was that autopilot symptoms were specific to driving while tunnel vision symptoms could take place inside the vehicle or outside. Regardless of being described as tunnel vision or autopilot, these symptoms are likely attributable to load-induced blindness phenomenon.

**Theme 6: Minimization of Personal Distraction**

While conducting the interviews it became apparent that most participants did not feel as though distraction was a huge problem for them. At the beginning of the conversations, there was a certain level of minimization that took place regarding how officers self-identified as distracted. I noticed that as the interviews went on, officers were more likely to realize their distraction and talk more openly about it. The reasons for this are unclear but self-realization could play a part. An officer may have never thought

about the fact that certain activities involving technology could have unintended

consequences. Sitting down and discussing these issues may have brought them to light.

Another possibility was noted in the literature review. Drivers who used

cellphones while driving gave inaccurate accounts of their overall ability to operate the

vehicle in a safe manner (Strayer, Drews, & Johnston, 2003). Technology use could have

some inherit depressant on one's ability to properly assess self-performance. It is also

possible that cognitive load concepts are compounding the effect. Perez-Moreno,

Conchillo, and Recarte (2011) found that increased cognitive load decreases the ability of

a person to detect visual stimuli. Officers are so engrossed in the technology that they do

not see the distractions around them and thus cannot accurately report their experiences.

This was supported by the interview responses that affirm distraction in co-

workers. While officers were sometimes hesitant to describe self-distraction, they all

agreed that they had seen some level of distraction in other officers. These responses

show that officers are aware of the distraction that technology can cause and observe the

distraction in others on a routine basis. Officers pointed out a variety of observed

distractions that include using the tablet while driving, talking on the cell phone while

driving or at scenes, and not being aware of surroundings while parked and using the

tablet.

There were exceptions to the minimization of self-distraction. P2-10 made

statements that expressed a great self-awareness of distraction in different circumstances

while using technology but was also able to relay experiences involving other officers. It

is unclear why some officers were able to self-assess better than others. Interviews

revealed that officers were able to accurately assess distraction after a negative outcome. Officers that had a subject walk up on them while they were typing on the tablet were able to understand that distraction caused by the interfacing with the tablet was the reason for not being aware of their surroundings. Likewise, officers that were involved in traffic accidents or near misses were also able to attribute distraction to technology use. The day-to-day mundane operations, such as driving the car or typing a report in the field, seem to be the most overlooked distraction prone events. This is dangerous because overlooked, mundane tasks can be susceptible to IB negative outcomes (Cosman & Vecera, 2012). Even though officers did show limited ability to recognize distraction, in general, officers lack the ability to self-assess the full scope of their own distraction caused by technology use.

**Theme 7: Self-Reduction of Risk**

One of the more surprising outcomes of this study was the realization as to the extent that officers are going in order to reduce risk. It is clear that officers are not shunning technology. Age related questions revealed that while age generations may experience different levels of resistance to technology, there is an overall positive mood towards technology. The officers use it and they have embraced its capabilities and possibilities. While some participants did state that they used it minimally, no one stated that they shunned away from it all together. While some of this is attributable to the fact that administrators mandate some technology usage, I was unable to detect any sentiments of abhorrence towards the technology.

While officers are not shunning the technology, they are finding alternatives to aspects of it that they do not like or that come with unacceptable risks. The scenario of a subject walking up on an officer who is typing a report in the patrol vehicle has been cited several times in this study. While taking part in observations I met an officer who described a similar incident happening to them in the past. Rather than changing parking habits or locations, such as other officers stated they did, this officer purchased a personal laptop and put a dictation software program on it so they could write reports while increasing situational awareness. An interview participant also stated that they bought a laptop so that they could move it around the vehicle and keep their head up in a more aware manner.

These revelations do bring up several potential pitfalls. The clearest pitfall is the intermingling of police data with personal property. Since officers are using personal property to type police reports and other documents, there is the clear possibility that the data may not be protected and that it could be the subject of a legal discovery process. These same concerns are extended to cell phone use as well. Every research participant carried a personal cell phone to work and used it at some point in time to make personal and work related phone calls. The intermingling of personal property with official police duties is a troubling aspect of technology use.

The study revealed that officers are creating these alternatives in order to reduce self-risk. I observed a personal GPS unit in one of the patrol vehicles. The department issued tablets had a GPS device already installed on them so the question was asked as to

why an officer would want an additional GPS unit. I discovered that the officer preferred their own device because it was "more accurate" and they were familiar with it.

Multiple officers stated that they changed how and where they parked their car when they got ready to write a report inside the vehicle. Officers understood the risk associated with losing situational awareness and were trying to limit the risk. One aspect of the change in parking was that some officers tried to meet in groups so that some officers could write reports while others paid attention to the surroundings. This act centralizes officers at one location and decreases some of the positive aspects of one-man patrol units such as increased visibility.

Unintended consequences can come in many forms. Califf (2006) described how regulations put in place to help regulate the drug industry actually ended up driving the business elsewhere to where the regulations did not exist. The intent of the regulations was noble, but the outcomes were unfortunate. GPD administrators introduced technology as a way to help officers in the field. Unfortunately, some officers deemed the self-risk caused by these devices as unacceptable and found ways, in their opinion, to reduce the risk. The problem with this self-reduction of risk is that it may inadvertently introduce more risk. Once again, insufficiently researched, short sighted goals may yield unintended consequences if not properly explored (Chapman, 2005). For example, having an additional personal laptop in the car not only introduces additional liability but it also increases cognitive loads. The officer now has a tablet and a laptop to interface with while on patrol. The unintended consequences for the department and the individual officers are clearly present.

**Limitations of the Study**

The main limitation of this study is transferability to other police departments. The study was designed to explore technology distraction within GPD. GPD is a unique police department with policies and workflow processes that may not be present in other police departments. Purposive sampling and multilayered description were used to increase external validity, but caution should still be used when trying to transfer all aspects of this study to other departments.

The other previously stated limitation to this study was sample size. Sample size was addressed by purposive sampling and during the recruiting process of research participants. Efforts were made to obtain a sample that represented the department as a whole by using a variety of characteristics and demographics.

**Recommendations**

The focus of this study explored technology distractions at GPD. Future studies should look at exploring the results within the context of other departments. It is quite possible that other departments are experiencing unintended consequences associated with technology distraction, but until this can be substantiated, it is mere conjecture. The proliferation of law enforcement technology does not appear to be scaling back at any time in the future. As more and more devices come online that require increased cognitive resources, it becomes more important to understand how pervasive phenomenon such as load-induced blindness are affecting officers' safety within the context of different communities.

Research into the ways that officers interface with technology may also be helpful. It appears that officers are attempting to reduce risk by changing the way they interface with technology. The change was found to be as simple as moving the device to different locations in the car to being as complex as buying a dictation program that frees up their hands. During interviews, officers recommended technology interface changes as a way to increase officer safety.

Finally, additional research should be undertaken in order to explore the age factor more in depth. Age was used as an outlying demographic variable and in some probing questions to see if there was any relationship between distraction and age. A study that focuses specifically on officer age within the context of officer technology distraction is advisable. Age may affect such principles as policy and training if a correlation can be identified. The data received from this study is inconclusive as to the exact nature that officer age affects distraction.

## Implications

The intent of this study was to explore officer safety issues that arise when patrol officers interact with mobile technology. The results of this study show that officer safety is being negatively affected by mobile technology. Officers are experiencing differing degrees of distraction while interacting with these devices. The implications for these results are many.

### Social Change

Positive social change can be implemented on many different levels. The results regarding proper feedback loop utilization (Chapman, 2005), alignment of policy with

realistic outcomes to bring about positive system refinement (Pieters, Dimkov, &

Pavlovic, 2013), and considerations to be made with chain-of-command communication

to encourage better communication understanding (Sull, Homkes, & Sull, 2015) should

help police departmental policy makers refine existing policies and aid in the creation of

future policies. The study showed that noble intent within policy is not enough to have a

positive outcome. Unintended consequences can occur if adequate communication is not

maintained among all parties, if individuals do not understand organizational goals, or if

individuals feel like their self-risk is too high under current policies. Fostering better

communication methods by using best-practice policy is another positive change that

departmental administrators can implement. Facilitating better communication and

creating better policy should enable police departments to be better public servants by

increasing efficiency (Zbirenko & Andersson, 2014), limiting liability (Pettker et al.,

2014), and enabling individual officers to contribute positively to the organization as a

whole.

Another positive social change aspect that could be guided by this study centers

on the interactions that police officers have with citizens. Results from this study showed

that presently, police officers are more comfortable sitting beyond the view of the public

in order to complete resource intensive tasks such as typing a report. Management of

GPD is attempting to counter this thinking by promoting the high visibility of officers by

creating hot spots and areas that officers are encouraged to park their vehicles in. This is

done not only to be a visible deterrent to crime, but also to give the community a sense of

security and a pathway to communication (Sindall & Sturgis, 2013). The communication

between police departments and communities are important for many reasons. One of the

most important reasons is the necessity of community communication in order to solve

and prevent crime (Myhill & Bradford, 2013). While police departments may feel an

initial urge to create policy that takes officers outside the view of the public in order to

complete tasks such as report writing for the sake of safety concerns, this should first be

examined from multiple points of view so that unintended consequences involving

adverse communication paths are not created.

Positive change related to workplace relationships is also a consideration from

this study. Paramilitary organizations demand a certain type of workplace relationship

between superiors and subordinates, one of quick response and respect for authority.

Modern day police departments are starting to see a degradation of the militarized stigma

with organizational shifts towards a more democratic policing model becoming more

prevalent. Bradford and Quinton (2014) found that police officers' views of the overall

police organization directly affected their sense of self-legitimacy and sense of authority.

GPD appears to be going through a time of transition where the old model of "just do as I

say" is not enough to stand on its on merit. Interviewed officers expressed their

displeasure with rules and regulations that made no sense, such as the policy regarding

mobile technology while driving. The organizational shift was also seen in the call for

greater communication feedback. Officers expressed the idea that one way

communication is not enough and they wanted their voiced heard. This is more

reminiscent of a democratic policing model rather than a paramilitary model. The

findings of this study could help other departments navigate their own organizational shifts and could serve as an omen of what some departments can expect in the future.

Administrators and policy makers could benefit from this study by gaining additional insight and knowledge into policy creation and implementation. Technology forces change in workflows all the time due to the speed of adoption (Lee, Trimi, & Kim, 2013) and the monumental shift in operations it can impart. In early police operations an officer had to stop at a pole with a flashing light to make a call to see if any calls for service had come in (Scheindlin & Manning, 2015). Officers then started using radios to communicate with dispatch as well as each other and finally, officers started using smartphones as well as computers and other devices to communicate with everyone to include the community. Each new technology brought on new benefits as well as potential pitfalls. Policy is still developing for the mobile technology studied in my research. While the results of my study may not serve as the blueprint for future policy development, it could serve as a positive social change catalyst for guidance on the subject. Studied officers felt very strongly about the positive impact that technology had on their jobs, but it is evident that there are some safety issues that must be considered as well.

Individual officers can also benefit from the results of this study. It was shown that officers underestimate the affect that technology has on their distraction level. Officers may think that it is safe to engage in some behaviors while using technology, but it is quite possible that their feeling of safety is false. This is especially applicable to scenarios that require an officer to take note of visual stimuli around them while

simultaneously working on cognitive intense tasks. Positive social change could occur if officers change behaviors and limit those activities outlined in this study as having the most negative effect on officer safety. Specific changes include: modifying when and where an officer types on the computer while in a vehicle due to load-induced blindness susceptibility (Perez-Moreno, Conchillo, & Recarte, 2011), recognize auto-pilot driving tendencies (Smith et al., 2011) while attempting to avoid tendencies through training (Birzer, 2003), and attempt to minimize unintended consequences by sufficiently researching planned policy changes (Chapman, 2005).

This study also highlights the negative attributes that technology can levy on police organizations. Technology is a beneficial part of police operations (Ioimo & Aronson, 2003). Administrators understand technology's worth and are designing new and efficient ways to leverage technology on the street. My research showed that officers use the technology and cannot comprehend what they would do without the technology. Technology is a tool and any tool, while beneficial, must be used in a safe manner. By understanding the potential dangers that technology can introduce to police departments, organizations should be better equipped to handle technology in a safe way. Potential negative attributes brought to light by this study include: the reluctance to take tablets outside the patrol vehicle due to officer safety concerns, officers use technology in circumstances that put them at risk such as driving or while on the scene of a call even though policy dictates otherwise, and there is a demonstrated inability to self-assess the effects that technology distraction has on an officer while driving. The self-assessment

deficiency has been demonstrated in other persons (Strayer, Drews, & Johnston, 2003) but has not been demonstrated to this point in the police profession.

Researchers should also derive some worth from this study. Positive change can be enacted if the results of this study serve as a catalyst to guide future studies. An example of this worth could be found in the exploration of the way in which officers interact with tablets. Typing was shown to have negative consequences on officers but voice control integration may help negate that. Policies regarding one-man versus two-man patrol configurations could also be explored. If a one-man unit finds it hard to drive and interact with technology, then perhaps a two-man configuration could allow one officer to drive while the other interacts with the technology. Future research could explore this possibility.

Independent companies are the key creators for the technology devices that officers use. Many times, the devices officers use are not designed specifically for them; rather they are consumer grade products designed for the masses. In developing products for police officers, companies should consider alternative interfaces to offset unique officer environments. Research could be undertaken to further expand the knowledge base for product development and best practices regarding mobile technology.

**Recommendations for Practice**

Based on the findings of this study, the following items should be noted for law enforcement entities:

- Departments should reevaluate existing policies governing technology to ensure that intent is matching outcomes

- Officers should be reminded of the distraction capability that mobile technology may facilitate and that individuals may not be able to accurately comprehend their level of distraction. Specifically, typing on the computer while parked in the vehicle should be addressed.

- Communication pathways should be reexamined in order to limit unintended consequences regarding technology use and increase feedback loops

- Officer safety, from the standpoint of technology interaction, should be prioritized so that officers will remain safe and can continue to be public servants to their community

- Administrators should look at internal mechanisms to address stress caused by technology distraction in order to promote officer health and well-being

**Conclusion**

Technology distraction is a genuine concern for organizations and individuals everywhere. Previous research focused on different organizations and scenarios outside the realm of law enforcement. This study looked specifically at the Glendale Police Department and its patrol officers who are given a variety of tasks and are asked to put their lives in danger for the betterment of society. In order to help officers be more efficient, and have access to more data, police administrators introduced mobile technology.

The workflows that have been developed around this technology include everything from data retrieval to document production. Officers must balance the completion of these tasks with their own safety out in the field. In order to be visible,

officers have to complete the tasks within their patrol vehicle or within an environment outside their stations or buildings. Officers also engage in the tasks when enroute to calls or when on-scene at an incident. Technology workflows have caused some officers to take part in risky behavior either by choice or inadvertently by being unaware of their distraction level. The drive for efficiency and instantaneous data has caused some unintended consequences.

The study showed that there is conflicting policy intent, originated from administrators, versus patrol officers' perception of realistic application. Patrol officers feel as though current policy governing technology does not allow them to realistically complete their assignments. For example, policy may not allow officers to use their tablets while driving, but officers do not feel as though they can pull over on the side of the road to interface with the tablet when going to an important call. The tablet is viewed as the main portal of information, and it is where calls are updated the quickest. The disconnect between administrators and officers has led to uncertainty and risky behavior.

Some of the uncertainty stems from chain-of-command communication. From the officers' standpoint, this communication method is very efficient at passing information up, but there is a lack of information coming back down the chain. Officers felt unsure on outcomes of specific requests or incidents. Officers that engaged in small group discussions appear to be better informed and understood why the organization was engaging in a certain behavior.

Officers expressed a reluctance to take tablet computers outside the patrol vehicle. The reasoning behind this reluctance stemmed from officer safety concerns. Officers

were not comfortable taking the tablet inside a potentially dangerous scene, nor were they comfortable with the idea of breaking an expensive piece of equipment if they had to react quickly. Officers were most comfortable bringing the tablet outside the patrol vehicle if the scene was low risk and the tablet could be utilized in a very meaningful way such as multiple data queries.

Technology distraction caused the officers stress. The stress manifested itself in such ways as anger, frustration, fear, and general anxiety. Officers are aware of the distraction caused by technology and experience incidents where the distraction causes them unease. The most cited examples of distraction were officers being walked up on by a subject while in the car working on the tablet and working on the tablet while driving. Other examples included talking on the phone and driving or using the phone while on the scene of a call.

Officers experienced tunnel vision and/or auto pilot symptoms while utilizing technology. Multiple officers in a variety of scenarios described the concepts of load-induced blindness. Officers were unable to recognize visual stimuli in their environment when enroute to a call if they were interacting with the tablet while driving. They also experienced negative driving consequences such as traffic accidents or unsafe driving actions. Officers were also unable to identify subjects walking towards the patrol vehicle if the officer was inside working on the tablet. When on the scene of a call, officers appeared to lose situational awareness while talking on their cellphone.

There is a depressing effect on an officer's ability to comprehend the full level of their distraction when interacting with technology. Results showed that officers are more

likely to recognize distraction in others rather than themselves. Officers also tried to downplay the level of their distraction or increase their perceived abilities to handle the distraction.

Finally, the results revealed that officers view technology as a necessary part of their job, but they will go to great lengths to limit the risk they are exposed to. Officers bought personal laptops, dictation software, GPS devices, and changed work habits in order to deal with distraction risks. The way that officers are dealing with these risks may have unintended consequences for the individuals and the organization.

Positive social change can be enacted for organizations, policy makers, administrators, officers, and researchers if the results of this study are applied to current workflows and if the results are tested against different organizations for larger transferability. This study helped to highlight the fact that technology can be a beneficial tool but it can also be distracting to patrol officers. This distraction can have a negative impact on officer safety. In order to reduce risk, administrators should reexamine current policies and reassess organizational communication pathways in order to improve technology use feedback loops. Additionally, officers should be reminded that distraction is a possibility when interacting with technology and their ability to self-assess distraction consequences is depressed.

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Appendix A: Guide Questions for Patrol Officers

Today's Date:
Place:
Time:
Interviewer's Name:
Participant's Name:

What do you believe the goals are for using mobile technology during patrol operations in a safe manner?

      How have these goals affected your ability to do your job?

      How are you able to communicate with management regarding your ability to meet their stated goals?

      What are your thoughts on the success or failure of the technology integration?

How does departmental leadership communicate with you its policies and expectations regarding safety while using mobile technology?

      How has management expressed itself on how technology is to be used during daily duties?

      How do your direct supervisors ensure that your thoughts and feedback are being heard by upper management?

      How do you feel about these policies and expectations?

How would you describe the amount of tasks that you are performing on duty that involves mobile technology?

      When inside your patrol car, what are some specific tasks that involve mobile technology?

      When outside your patrol car, what are some specific tasks that involve mobile technology?

      How do these tasks affect your overall ability to perform your job?

      How have the amount/types of tasks changed over time?

What does it feel like to be distracted while using mobile technology devices while on patrol?

      Please describe your feelings and perceptions while you were distracted.

      How does being distracted make you feel?

      Have you seen other officers distracted by mobile technology?

      How does it make you feel when you see fellow officers distracted?

How have mobile technology devices affected overall officer safety?

      How can technology be distracting in the patrol environment?

      Describe an incident in which technology has been a distraction.

      How does technology affect situational awareness?

When using mobile technology, describe your ability to assess threats and dangers.

How do you feel about mobile technology and its effect on safety?

How does an officer's age affect distraction with technology?

What types of self-imposed efforts do you put on yourself to increase officer safety when using mobile technology?

How did you develop these efforts?

How has training help develop these efforts?

Describe an incident when your efforts did not work the way you intended.

Appendix B: Biographical Sketch of Officer Questionnaire

(Demographics)

Name_____

Number of years in law enforcement (total) _____

Number of years on patrol _____

Have you experienced a distraction associated with technology while on

patrol?_____

Age_____

Gender_____

Rank_____

Self-described level of confidence with technology_____

_____

Self-described level of use of technology_____

_____

Types of mobile devices used while on patrol _____

_____

Do you want to gain understanding into how distraction affects officers while using

mobile technology on patrol?_____

Contact email_____

Appendix C: Informed Consent

**CONSENT FORM**

You are invited to take part in a research study of technology distraction in the patrol environment. The researcher is inviting police officers who have experienced technology distraction, are currently assigned to patrol, use technology daily, and have a good understanding of technology to be in the study. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Andrew Dasher, who is a doctoral student at Walden University.

**Background Information:**
The purpose of this study is to gain insight into mobile technology distraction through police officers in the patrol environment.

**Participant Selection**
Participants will be selected based off several criteria. These include: assigned to patrol with at least two years of experience, must have experienced some form of distraction while using technology in the field (interviews only), age, and use of technology during patrol operations. The researcher will select participants for the study based of these criteria and the research guidelines. If there are more than twelve potential participants, then the researcher reserves the right to purposefully select participants in order to gain a representative sample of the listed criteria. This discretion will be based on biographical sketch responses. It is possible that not all persons who submit sketches and consent will be selected to participate in the study. Chosen participants may be asked to participate in the observation and/or interview phases of the study.

**Procedures:**
If you agree to be in this study, you will be asked to:
Prior to participating in the study, all potential participants will be asked to complete a biographical sketch and sign a consent form. These items will take no longer than 30 minutes to complete and should be returned together.
Observation Phase
Allow the researcher to take notes while observing you on patrol
Review findings at the end of the observation period in order to confirm interpretation
Interview Phase
Respond to the researcher through email or phone at various times throughout the study
Take part in a maximum sixty minute interview that discusses your experience with technology distraction and departmental policies
This interview will take place in a room provided at the Glendale Police Department that ensures privacy and is freely accessible to all participants

Allow the researcher to record digital audio

Here are some sample questions:
How have mobile technology devices affected overall officer safety?
How can technology be distracting in the patrol environment?
Describe an incident in which technology has been a distraction.

Time Commitment:
Total Study Time (Interview): 2.5 Hours
(30 min) Preliminary processing to include biographical sketches and consent forms
(1 Hour) For interview
(1 Hour) Review interview transcripts and provide clarification if needed
Total Study Time (Observation): 8-12 hours (dependent on assigned shift)

**Voluntary Nature of the Study:**
This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at the Glendale Police Department will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

**Risks and Benefits of Being in the Study:**
Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as normal work related stress and time constraint aspects. Being in this study would not pose risk to your safety or wellbeing outside of your normal duties as a law enforcement officer.

The main benefit of this study is that it will allow the research participants to offer insight into how technology affects distraction in the patrol environment and how police officers deal with the distraction. This study has the potential to shape future law enforcement products and policies.

**Payment:**
There is no compensation for participation in this study.

**Privacy:**
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Each participant will be assigned a pseudonym and numerical identifier for study reports. Data will be kept secure by locking a physical copy of all data in a secured office and cabinet. The digital data will be kept in a password protected file. Data will be kept for a period of at least 5 years, as required by the university.

**Contacts and Questions:**

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email at Andrew.Dasher@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210. Walden University's approval number for this study is 01-22-15-0323058 and it expires on January 21, 2016.

The researcher will give you a copy of this form to keep.

**Statement of Consent:**

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant

_____

Date of consent

_____

Participant's Signature

_____

Researcher's Signature

_____

Appendix D: Introductory Letter

Date:

Dear (Name),

My name is Andrew Dasher and I am a doctoral candidate at Walden University. I am currently conducting research for a dissertation on the topic of distraction as caused by mobile technology. The purpose of this study is to gain insight into mobile technology distraction through police officers in the patrol environment.

I want to understand the viewpoint of police officers that work with mobile technology out in the field. For this reason, my study will be comprised of two main components: an observation phase and an interview phase. I am currently looking for participants to take part in the interview phase. I will need to make contact with interview participants approximately three times. The first contact will be to review the consent form, go over confidentiality protocols, set up an interview date/time, and answer any questions you may have. The second contact will be the actual interview that lasts approximately one hour. The third contact will be a request to look over the transcribed interview and make any corrections if needed. The total time commitment for this study is approximately 3 hours.

As a participant, you have the freedom and the right to withdraw from the study at any time during the process without any adverse events. To protect your rights, all information shared during and after the completion of the study will remain confidential and will not be connected to your true identity. Neither your name nor any other identifying information will be included in the study. There is no monetary compensation for participation in the study.

If you are interested in taking part in this study please email me back a statement of interest.

Thank you for your time and consideration.

Sincerely,

Andrew D Dasher
Doctoral Candidate
Walden University

Appendix E: Interview Script

**Introduction**

Thank you for agreeing to be interviewed today. At this time, please turn off your cell phone so that there are no interruptions. My name is Andrew Dasher and I am a doctoral student at Walden University. I am working on a research study for completion of my dissertation. I am looking to explore the viewpoint of patrol officers as it pertains to mobile technology and distraction. As part of that study, you have been brought here today to give insight into the phenomenon via an interview about your experiences.

The information you share with me today is completely confidential. You will be assigned (or you can give me one) a pseudonym and numerical identifier. Your responses will not have any identifying information within the completed study.

To ensure that I am able to acquire accurate and complete responses, I would like to record the audio of this interview. As mentioned earlier, the recording will be transcribed and all names and places will be removed so as to protect your identity. <u>Do I have permission to digitally record the audio of this session?</u>

Please answer the questions to the best of your knowledge and as completely as possible. Details are very important in this kind of study.

**Closing**

This completes the interview. After all the interviews are completed they will be transcribed. After transcription I will email you a copy to look over and make corrections if needed. I expect to have all transcriptions completed within two months from this date.

Do you have any questions that I can answer at this time?

If you think of any questions or wish to get in contact with me in the future, please see the information provided in your copy of the Informed Consent document. Thank you for your time and insight.

Appendix F: Citizen Ride-Along Form

Revised 6//18/2013

**GLENDALE POLICE DEPARTMENT**

CITIZEN OBSERVER WAIVER OF LIABILITY FORM

FIRST NAME: _Andrew_ M/I: _D_ LAST NAME. _Dasher_

ADDRESS: _____ PHONE: _____

DATE CF BIRTH: _3-11-79_ SOCIAL SECURITY NUMBER: _____

BUSINESS ORGANIZATION: _UT Police · Houston_ OCCUPATION: _Analyst_

TOUR DESIRED: DAY OF WEEK: _____ TIME OF DAY: _____ AREA / OFFICER: _____

In consideration of my being permitted to ride upon the motor vehicles of the City of Glendale Police Department, I hereby release and agree to hold harmless the said City of Glendale, it's employees and agents from any and all liability for any damage or injury which I may receive while riding upon said motor vehicles or receive accompanying City of Glendale Police Officers from any cause whatsoever. This release of liability and' agreement given by me to the said City of Glendale, it's employees and agents shall apply to any right of action that might accrue to myself, my heirs and my personal representatives. Further, I agree to assume all risks in riding in the said City of Glendale Police Department vehicles and in accompanying its Police Officers and am fully aware personal danger may be involved.

DATE: _4-7-15_ SIGNATURE: _____ WITNESS: _____
(To be signed in Police personnel presence)

I, the parent, guardian, or Legal custodian of the minor signing above, do hereby assent n the above waiver and agree to the terms stated above. (If guardian or legal custodian is signing, a copy of the court order showing legal custody must be attached to this document.)

DATE_____ SIGNATURE: _____ WITNESS _____
(To be completed if the applicant is under the age of eighteen (18) years.)

**POLICE DEPARTMENT USE ONLY**

DATE OF TOUR: ___ TIME:___ OFFICER:___ SERIAL # ___

COMMENTS: _____

RECORD CHECK: ☒ ACIC ☒ NCIC ☒ GPD/LIST ADDITIONAL INFORMATION: _CHIPS_

SUPERVISOR APPROVAL: _____ DATE: _____

COMMANDER APPROVAL: _C. Briggs_ DATE: _4/7/15_

**VEST POLICY**

Glendale Police Department Operations Order 50.050
C. Officers who have a citizen observer assigned to ride will:
1. Be provided a bright orange "Citizen Observer" vest by their supervisor (Federal Register, ANSI approved safety traffic vest). The 'Citizen Observer' vest is designed to allow immediate recognition of the citizen Observer in our care. Citizen Observers will be required to wear the 'Citizen Observer' vest when they are with the officer in the following situations:
   a. Any Traffic accident.
   b. Any scene being investigated where there are multiple officers present.
   c. Any other situations where the officer or a supervisor believes it is necessary.

Appendix G: Transcriber Confidentiality Agreement

<u>Confidentiality Agreement</u>

**Name of Signer:**

*Marie Mathine*

During the course of my activity in collecting data for this research: "Technology Distraction on Patrol: Giving Police Officers a Voice" I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

***By signing this Confidentiality Agreement I acknowledge and agree that:***

1. I will not disclose or discuss any confidential information with others, including friends or family.

2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.

3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.

4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.

5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.

6. I understand that violation of this agreement will have legal implications.

7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

*Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.*

**Signature:**               **Date:**

*Maria Mathure*        12/8/14

## Appendix H: Letter of Cooperation

Glendale Police Department Letter of Cooperation
Glendale Police Department
Assistant Chief Rick St. John
Rstjohn@glendaleaz.com
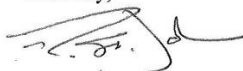623-930-3210


December 2, 2014


Dear Andrew Dasher,


Based on my review of your research proposal, I give permission for you to conduct the study entitled "Technology Distraction on Patrol: Giving Police Officers a Voice" within the Glendale Police Department. As part of this study, I authorize you to contact police officers within the department to recruit research participants and to engage in two ride-alongs. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: 1) Providing an appropriate room to carry out the interviews 2) Providing a list of emails of potential research participants so that they may be contacted regarding participation in interviews 3) Providing a point of contact to answer any questions during the research process We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.


Sincerely,

Assistant Chief Rick St. John

623-930-3210