

Analyzing Leadership Styles of Incident Commanders

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ABSTRACT

In this mixed methods study, the prevalence of transformational, transactional, and laissez-faire leadership styles among incident commanders during incidents that utilized a unified command (UC) was examined, and differences between disciplines in leadership styles were investigated. The problem addressed was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. The focal events of interest in this study were fatal crashes involving large commercial vehicles in Virginia during 2006 that utilized a UC/team response. The design for studying the relationships encompassed in this research was purposively selected, multi-grouped, and non-experimental. Thirteen agencies with emergency response roles participated in this study. Data were collected from incident commanders representing six police agencies, six fire agencies, and one transportation agency. These agencies were dispersed geographically across the state. The Multifactor Leadership Questionnaire (MLQ) 5X-short was used to assess the frequency of leadership styles. Sixty MLQ 5X-short surveys were sent to incident commanders who indicated a willingness to participate as follows: 13 fire/EMS commanders, 41 police commanders, and six transportation commanders. Thirty-nine (62%) of the surveys were completed. Fire/EMS dominant style was Individualized Consideration ($M = 3.25$, $SD = 0.58$). Police dominant style was Individualized Consideration ($M = 2.88$, $SD = 0.60$). Transportation dominant style was

Contingent Reward ($M = 3.17$, $SD = 0.14$). The least prominent style among all disciplines was Laissez-faire. Fire/EMS utilized more Inspirational Motivation than police and transportation commanders. Police utilized less Inspirational Motivation and Intellectual Stimulation than fire/EMS and transportation commanders. Transportation utilized more Contingent Reward and Management by Exception than fire/EMS and police commanders. The null hypothesis was rejected for each hypothesis. Each hypothesis stated commanders from one discipline used a different leadership style than their counterparts. No commander rated team performance below acceptable. Eighty-three percent rated team performance as good or very good. Future studies should focus on urban versus rural, supervisor versus non-supervisor, and paid versus volunteer fire regarding leadership style and performance.

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CHAPTER 1: INTRODUCTION

According to Canton (2007) and Lindell, Prater, and Perry (2007), acts of terrorism continue to grow more ominous with the possible use of chemical, biological, or nuclear devices. Add catastrophic natural weather events that occur every year and the need for a well-orchestrated response to all hazards remains paramount. The leaders of first responders during an incident must practice command, communication, cooperation, and coordination to maximize the effectiveness and efficiency of any given response (Carlson, 1999).

According to Bullock, Haddow, Coppola, Ergin, Westerman, and Yeletaysi (2006), between 1976 and 2004 there were 1,069 major disaster declarations in the United States. In 1999 there were 50 major disasters declared in 38 states. There is a substantial list of known and potential types of human-made and natural disasters. Bridge collapses, pandemics, major traffic crashes, wildfires, floods, ice storms, earthquakes, hurricanes, tornadoes, chemical spills, school shootings, and any style terrorist attack provide a partial list of the types of incidents those in the emergency response community respond to every day. Failing to properly lead the response and recovery efforts to any one of these events can cause cascading effects resulting in more loss of life, more injuries, more loss of property, and economic loss (Bitto, 2007; Corbin, Vasconez, & Helman, 2007; Howitt, 2004; Sapriel, 2003; Mitroff, 2004; Waugh & Streib, 2006; Weiss, 2002).

The problem that was addressed using this mixed methodology study was that it is currently unknown whether there is a dominant leadership style

associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a Unified Command (UC) is affected positively or negatively by different or specific leadership styles^[10].

Background

Governmental agency personnel respond to incidents, emergencies, and disasters daily in the United States (Boin, Hart, Stern, & Sundelius, 2005; Bourne, 2005). While the dynamics of each incident may differ, there is one common thread: it will take decisive and appropriate leadership to resolve the situation (Bitto, 2007; Bourne, 2005; Howitt, 2004; Mitroff, 2004). Lester (2007) stated that it will take transformational leadership coupled with the National Incident Management System (NIMS) to achieve success during all phases of an emergency. Guidelines have been provided regarding how to prepare for and respond to incidents in a uniform manner throughout the country (Bourne, 2005; Hanneman, 2007; Perry, 2003). What appear to be lacking are guidelines on how to lead during such incidents. Team or group leadership has been the subject of much research (Avolio, Sivasubramaniam, Murray, Jung, & Garger, 2003). What remains to be examined in detail is individual, group, and/or team leadership during a real world incident. Even in the limited number of studies completed regarding team or group leadership, the focus has been on groups who have been established and function in a less than hazardous environment (Avolio et al., 2003; Jung & Sosik, 2002; Kearney & Gebert, 2009; King, 2002).

Canton (2007) stated prior to 9/11 the New York City fire and police departments did not communicate with each other due to mutual animosity.

Technology played a role with internal communications for each agency as well (U.S. Government Printing Office, 2004). Nicholson (2003) buttresses Canton's assertions. According to Nicholson, a police helicopter hovering near the twin towers warned police personnel that the second tower was going to collapse very soon. The warning included a call to evacuate the second building. This warning was clearly captured on the police radio tapes 21 minutes before the second tower collapsed. The firefighters in the second tower were never given this admonition. The two agencies radio systems were not linked together. The police and fire commanders never talked during the crises. Each barely coordinated activities or shared information. Each agency set up its own command post and neither provided a representative to the other's command post for coordination purposes. The National Incident Management System (NIMS) offers no guidance as to what type of leadership model should be followed.

According to Buck, Trainor, and Aguirre (2006), the Incident Command System (ICS), as set out in the NIMS, will not likely work as intended (Lester, 2007). The ICS provides a universal response model to all incidents; however, it is recognized that ICS works best with firefighting organizations and has been less successful with police, public health, and public work-style agencies. The fire service actually created ICS and has used the system the longest. The fire service has long worked in a team environment as opposed to police who typically work and handle calls for service alone.

Transportation agency personnel have typically found themselves on the periphery of emergency response and normally in an assist mode (Allred, 2004;

Buck, 2004; Buck et al., 2006; Cardwell & Cooney, 2000; Helman, 2004; Reardon, 2005; Ruff, 2000; Walsh, Christen, Miller, Callsen, Cilluffo, & Maniscalco, 2005; Weiss, 2002). Social relationships are essential to the success of ICS (Hanneman, 2006; Walsh et al., 2005). Along with social relationships come the styles and attributes of leadership (Avolio et al., 2003; Boin & Hart, 2003). Responses to incidents often have political elements. Hurricane Katrina is cited as a prime example of the wrong combination of ICS preparedness, leadership differences, and politics, which created inadequate decision-making and a poor response (Cooper & Block, 2006; Dixon, 2006; Fisher, 2005; Garcia, 2006; Lester, 2007; Martin, 2007; Weiss, 2002).

Problem Statement

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. Little research exists regarding the cultures of fire/emergency medical services (EMS) or transportation/public works cultures. After 9/11, much work was undertaken to improve teamwork, interagency cooperation and coordination, and the concept of a unified approach or command (U.S. Government Printing Office, 2004). Yet, as noted by Cooper and Block (2006) the response to the aftermath of Hurricane Katrina provided little evidence that significant improvement had occurred. It is surmised that leadership style plays a key role in the level of success of any endeavor

especially activities involving emergency response (Lester, 2007; Lester & Krejci, 2007; Murgallis, 2005). McCreight and Hagen (2007) stated that there is a dearth of information regarding exactly how the UC/ICS structure will drastically improve coordination and communication problems without jeopardizing effective crisis management.

Hurricane Katrina provides an excellent example of inadequate use or understanding of UC, yet the response to the twin towers on 9/11 provides even a more telling example (Lester & Krejci, 2007; Waugh & Streib, 2006). Canton (2007) stated prior to 9/11 the New York City fire and police departments did not communicate with each other due to mutual animosity. The lack of cooperation, communication, and coordination between the fire and police service on 9/11 are not unique. Molino (2006) stated law-enforcement and other responders disciplines have aggressively competed for priorities and resources during the management of emergency incidents. Klann (2003) declared that a leader's influencing skills are critical during a crisis. Murgallis (2005) argued that team confidence begins with those who lead the team. Klann stated leaders should concentrate on three key influencing skills during a crisis: communication, clarity of vision and values, and caring for others. According to Hunter (2006), transformational leaders can transform emergencies into developmental challenges by presenting crisis as intellectual stimulus to encourage followers to seek thoughtful, creative, adaptive solutions to stressful conditions, instead of hasty, defensive, or maladaptive ones.

Purpose

The purpose of the mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during major traffic crashes that utilized a UC approach within the Commonwealth of Virginia. The disciplines that were examined included fire/EMS, police, and transportation or public works organizations. The incidents under examination involved large-scale tractor-trailer crashes, which occurred on the public highways within the Commonwealth of Virginia.

Theoretical Framework

According to Walsh et al. (2005), in early 2003, in an effort to improve the nation's domestic response capabilities, President George W. Bush promulgated Homeland Security Presidential Directive-5 (HSPD-5). The members of the 9/11 Commission called for greater emphasis on Incident Management Systems (U.S. Government Printing Office, 2004; Perry, 2003). According to Miller (2007) and Walsh et al. (2005), the Department of Homeland Security (DHS) implemented the NIMS. The NIMS provides numerous benefits such as the establishment of standards for planning, training, and exercising; interoperability in communications processes, procedures, and systems; equipment acquisition and certification standards; and consistent organizational structures, processes, and procedures. The NIMS requires the use of the ICS at the scene of any incident.

One of the many benefits of the NIMS is the premise that there is and can be only one incident commander at the scene. If more than one agency responds, and they have some legal or functional responsibility at the scene,

they become part of the hierarchy in the ICS (Bitto, 2007; Hanneman, 2007; Ruff, 2000; Walsh et al., 2005). Walsh et al. explained that each agency retains its autonomy. Each agency still has its individual roles and responsibilities. However, there must remain one single primary incident commander. In this situation, the UC system is used. This process places the incident commander, who has the most demanding or obvious immediate task to accomplish, in the lead of the UC. There is no legal or binding document that requires the other commanders to adhere to the decisions of any other incident commander. Hence, cooperation and a team concept remain paramount (Anelli, 2006; Herron, 2004; Jamieson, 2005; Lester, 2007; Molino, 2006; Perry, 2003; Ruff, 2000).

According to Oldham (2003), the first line supervisor sets the tone for his or her unit. Traditional policing has relied on an authoritarian and bureaucratic model, which has been reactionary in nature (Densten, 2003). According to Meese and Ortmeier (2004), the typical police response has often been reactive and bureaucratic and focused on methods and procedures with little ingenuity or strategic thinking to affect results. Efficiency and management received more attention than effectiveness and leadership. This mindset stymied creativity (Bigley & Roberts, 2001; Torpman, 2004). Kappeler (1995) argued that bureaucracies tend to be closed institutions which try to protect their members. This has potential to create a recipe for conflict when collaborating with agencies from other disciplines during incident response. Organizational culture is a

situational variable, which may influence the leader (King, 2002; Stewart & Manz, 1995; Torpman, 2004).

Research Questions and Hypotheses

The following research questions and hypotheses were used to guide the mixed methods dissertation study:

RQ1: What was the dominant leadership style used during an incident by the on-scene fire/EMS incident commanders?

RQ2: What was the dominant leadership style used during an incident by the on-scene police incident commanders?

RQ3: What was the dominant leadership style used during an incident by the on-scene transportation incident commanders?

Regarding Research Questions 4-6, comparative analysis was undertaken for each discipline to clearly delineate results. Response rate were nominal from two disciplines. The independent variable was the discipline and the independent variable was the leadership style.

RQ4: What, if any, difference existed between the leadership styles of the fire/EMS incident commander compared to commanders from other disciplines during similar incidents?

H1_o: Responding fire/EMS commanders will not use different leadership styles than do commanders from other disciplines.

H1_a: Responding fire/EMS commanders will use different leadership styles than do commanders from other disciplines.

RQ5: What, if any, difference existed between the leadership styles of the police incident commander compared to commanders from other disciplines during similar incidents?

H2_o: Responding police commanders will not use different leadership styles than do commanders from other disciplines.

H2_a: Responding police commanders will use different leadership styles than do commanders from other disciplines.

RQ6: What, if any, difference existed between the leadership styles of the transportation incident commander compared to commanders from other disciplines during similar incidents?

H3_o: Responding transportation/public works commanders will not use different leadership styles than do commanders from other disciplines.

H3_a: Responding transportation/public works commanders will use different leadership styles than do commanders from other disciplines.

Nature of the Study

The mixed methodology research study was a non-experimental design. The study did not have random assignment of people to groups. While it may not be a strength, it was a necessity. The non-experimental design was necessary due to the nature of the incidents being examined (Hagan, 2006).

Conceptualization of the study did not call for a stimulus hence there was no need for either randomness or a control group. The design of this study necessitated natural situations, which would have been difficult to simulate in an artificial environment (Champion, 2006). This non-experimental design was not artificial in nature, which could have hindered generalizability. A weakness of the design was that there was no control group.

According to Collard (2002) and Miller (2006), there will be unique circumstances for each situation such as the complexities and hazards involved in the particular situation and the level of experience and expertise of the followers involved. These variables were not examined. However, similar incidents were chosen; all of which provided similar levels of complexity and stressors (Burkle & Hayden, 2001).

Every attempt was made to select incidents with all necessary criteria, which occurred within a one-year period. Data was collected through a preliminary interview, a written survey, and use of the Multifactor Leadership Questionnaire 5X-short. A weakness of the study may be the elapsed time from the incident to the data collection from the leaders. Another concern was the ability to gather enough responses from the subjects to make the data meaningful. Participation

was sought from all incident commanders within a given incident. Verifying or at least obtaining follower perception of observed incident commanders would have enhanced validity but data gathering was problematic.

Significance of the Study

The purpose of this mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during incidents that utilized a UC approach within the Commonwealth of Virginia and investigate differences between disciplines in leadership style. The disciplines that were investigated included police, fire/EMS, and transportation or public works organizations. An examination of IC leadership styles may provide guidance to future commanders of incidents to increase the level of success during a crisis incident. This research was descriptive and comparative in nature.

The data from the mixed methodology dissertation study provided information regarding the prevalence of a particular type of leadership style commonly used by commanders during incidents. A style pattern was found within a single type responding discipline and across some disciplines. Furthermore, data was derived that illustrates the use of one particular style over another, or at least the uniform use of one style, that either enhances, detracts, or has no effect on the success of a particular incident.

The findings of this research will be of interest to all types of responding disciplines in that leadership styles was examined for prevalence and potential effectiveness across and within disciplines. The findings will be of interest to

journals such as Police Chief, FBI Law Enforcement Bulletin, Homeland Defense Journal, Public Roads, Leadership Quarterly, Fire Chief, Fire Engineering, Disaster Prevention and Management, and Security Management. Personnel at all levels from the various disciplines represented read these journals. Training, policy development, and planning initiatives are often derived from the information found in these journals.

Definitions

The study used the following key terms:

Incident Command (IC). “The ICS position responsible for overall incident management. This person establishes all strategic incident objectives and ensures that those objectives are carried out effectively” (Walsh et al., 2005, p. 21).

Incident Command System (ICS). “A system for domestic incident management that is based on an expandable, flexible structure and that uses common terminology, positions, and incident facilities” (Walsh et al., 2005, p. 21).

Single Command Single command is, “A single Incident Commander has sole responsibility for establishing incident objectives and strategies. The single Incident Commander is directly responsible for ensuring that all functional area activities are focused on accomplishing the management strategy” (Walsh et al., 2005, p. 25).

National Incident Management System (NIMS). “The NIMS is the national model for an incident management system that is applicable across jurisdictions and disciplines and functional for all hazards” (Walsh et al., 2005, p. 10).

Unified Command (UC). Unified Command is, “The command structure in which multiple individuals are cooperatively responsible for all strategic objectives of the incident. It is typically used when an incident is within multiple jurisdictions and/or is managed by multiple disciplines” (Walsh et al., 2005, p. 21). Also, “Joint determination of incident objectives, strategies, plans, and priorities. Agencies/jurisdictions work together to achieve objectives and strategies using organization resources. Joint determination of Section Chief positions (as indicated by incident scope)” (Walsh et al., p. 25).

Summary

According to Walsh et al. (2005), NIMS is tied to grant funds from the federal government. The Governor of Virginia has decided that NIMS will be the model followed during an incident. It was important to determine where the NIMS is in Virginia, if UC under the ICS works, is it being used, and finally what type of leadership style is most prevalent and works best during an incident and within the ICS. The leaders of first responders during an incident must practice command (leadership and management), communication, cooperation, and coordination to maximize the effectiveness and efficiency of any given response (e.g., Brown, 2005; Cardwell & Cooney, 2000; Reardon, 2005). Responders deserve as much as those who have succumbed to whatever the incident has wrought, be it a major traffic crash, a hurricane, or a terrorist attack. In a catastrophic event such as Hurricane Katrina, there will be mistakes made and delays will occur due to the sheer magnitude of the event. However, it became

apparent that NIMS and UC failed to function as prescribed during Hurricane Katrina (Cooper & Block, 2006; Lester & Krejci, 2007; Molino, 2006).

In summation, this research was used to examine the various leadership styles commonly used by incident commanders during incidents, which utilize a UC approach within the Commonwealth of Virginia. Three commonly found disciplines at incidents were examined and they included fire/EMS, police, and transportation or public works organizations. Such an examination provides guidance to future commanders of incidents to increase the level of success.

CHAPTER 2: LITERATURE REVIEW

This chapter begins with a discussion of emergency and incident management. The role and importance of ICS is discussed along with the role leadership plays or should play. Likewise, the ramifications of not combining ICS, UC, and leadership are illustrated. Organizational culture, police culture, and leadership are examined. The literature states that police leadership is bureaucratic in nature and does not lend itself to a UC as called for by NIMS and ICS. Leadership, team leadership, and followership are examined as they relate to ICS and UC.

The latter half of the literature review examines specific leadership theories to include Path-Goal, Situational Leadership, Contingency, Transformational Leadership, Leader-Member Exchange, and Multiple-Linkage. The primary focus of each theory is discussed along with strengths and weaknesses. Additionally, quantitative and qualitative instruments and methodologies are examined. Finally, a summary discussion of leadership is offered.

Background

Certain events in history create the impetus for reflection, growth, and change. Change can be referred to as a paradigm shift. Paradigm shifts are not always welcomed or accepted (Covey, 1992; Miller, 2007; Wise & Nader, 2002). Often, the need for change in attitude or behavior preexisted the event. September 11, 2001 (9/11) was one such paradigm-changing event (U.S. Government Printing Office, 2004). Prior to 9/11, leaders of government agencies

at all levels operated within the confines of their own paradigms (U.S. Government Printing Office, 2004). After 9/11, efforts were made to change all aspects of homeland security including response strategies (U.S. Government Printing Office, 2004; Wise & Nader, 2002). One result of these efforts was NIMS and ICS (Walsh et al., 2005; e.g., Anelli, 2006; Herron, 2004; Jamieson, 2005).

According to the U.S. Government Printing Office (2004), bureaucratic policies as well as organizational cultures created independent systems that functioned within their own spheres of influence. Sometimes these agencies cooperated out of necessity, sometimes not even then. This failure of communication, cooperation, and coordination affected the various intelligence communities. When evaluating the events leading up to 9/11 it was determined that bureaucratic rules were instrumental in prohibiting the sharing of valuable intelligence (Bitto, 2007; U.S. Government Printing Office, 2004).

Little research exists regarding the cultures of fire/emergency medical services (EMS) or transportation/public works cultures. After 9/11, much work was undertaken to improve teamwork, interagency cooperation and coordination, and the concept of a unified approach or command (U.S. Government Printing Office, 2004). Yet, as noted by Cooper and Block (2006) the response to the aftermath of Hurricane Katrina provided little evidence that significant improvement had occurred. It is surmised that leadership style plays a key role in the level of success of any endeavor especially activities involving emergency response (Lester, 2007; Lester & Krejci, 2007; Murgallis, 2005).

According to Canton (2007) and Lindell et al. (2007), acts of terrorism continue to grow more ominous with the possible use of chemical, biological, or nuclear devices. Add catastrophic natural weather events that occur every year and the need for a well-orchestrated response to all hazards remains paramount. The leaders of first responders during an incident must practice command, communication, cooperation, and coordination to maximize the effectiveness and efficiency of any given response (Carlson, 1999). First responders deserve and need exemplary leadership during the response and recovery of any incident be it a major traffic crash, a hurricane, or a terrorist attack. For all disaster scenarios it is not if but when they will happen again. In a catastrophic event such as Hurricane Katrina, mistakes were made and delays occurred due to the sheer magnitude of the event. However, it became apparent that the NIMS and UC failed to function as prescribed, even by those who mandated its use (Canton, 2007; Cooper & Block, 2006; Garcia, 2006; Lester, 2007; Lindell, et al., 2007; Waugh & Streib, 2006).

McCreight and Hagen (2007) stated that there is a dearth of information regarding exactly how the UC/ICS structure will drastically improve coordination and communication problems without jeopardizing effective crisis management. However, McCreight and Hagen recognized the need for a team approach regarding risk assessment, response objectives, and prioritizing taskings. Gehl (2004) stated that organizational habits run deep. Tradition and the desire not to change or adapt hampers collaborative team progress. The cultural norms found in police agencies do not support the process of forming teams for interagency

partnerships. Gehl (2004) stated this problem is not confined to policing. Cultural barriers include but are not limited to issues of turf, secrecy, organizational isolation, labor issues, resource issues, policy differences, and communication protocols. The paramilitary structure found in policing is not conducive to multi-agency teams in that it rewards individual effort more so than teamwork. Many of these issues are not limited to policing and may not apply to all agencies (Bigley & Roberts, 2001; Burkle & Hayden, 2001).

While the threat of another terrorist attack is imminent, there are other incidents, which have occurred since 9/11 in the United States. The most prolific disaster since 9/11 has been Hurricane Katrina (Cooper & Block, 2006). Cooper and Block stated the local, state, and federal response to this disaster was disjointed at best (Lester, 2007). Martin (2007) stated the most important lesson learned from the aftermath of Hurricane Katrina was the need for strong leadership. This one event has taught the first responder community that much work still needs to be done. Likewise, incident management must take an all hazards approach to preparedness (Canton, 2007).

Hurricane Katrina provides an excellent example of inadequate use or understanding of UC, yet the response to the twin towers on 9/11 provides even a more telling example (Lester & Krejci, 2007; Waugh & Streib, 2006). Canton (2007) stated prior to 9/11 the New York City fire and police departments did not communicate with each other due to mutual animosity. Technology played a role with internal communications for each agency as well (U.S. Government Printing Office, 2004). Nicholson (2003) buttresses Canton's assertions. According to

Nicholson, a police helicopter hovering near the twin towers warned police personnel that the second tower was going to collapse very soon. The warning included a call to evacuate the second building. This warning was clearly captured on the police radio tapes 21 minutes before the second tower collapsed. The firefighters in the second tower were never given this admonition. The two agencies radio systems were not linked together. The police and fire commanders never talked during the crises. Each barely coordinated activities or shared information. Each agency set up its own command post and neither provided a representative to the other's command post for coordination purposes. These two agencies personnel worked for the same city every day. Flin (1996) stated communications problems are the most common operational issue in the majority of agencies and effect the responders' ability to begin, coordinate, and complete effective operations (Dixon, 2006). Phillips (1999) pointed out that there have been occasions when leaders who could not agree on issues such as who was in charge have found themselves literally wrestling on the side of highways (Buntin, 2001).

The lack of cooperation, communication, and coordination between the fire and police service on 9/11 are not unique. Molino (2006) stated law-enforcement and other responders disciplines have aggressively competed for priorities and resources during the management of emergency incidents. Unfortunately, such competition, though maybe only subconscious, has demonstrated weakness in the responding agencies abilities to efficiently manage incidents (Canton, 2007; Pilant, 1996).

Understanding Emergency and Incident Management

According to Buck et al. (2006), the ICS, as set out in the NIMS, will not likely work as intended. The ICS provides a universal response model to all incidents; however, it is recognized that ICS works best with firefighting organizations and is less successful with police, public health, and public work-style agencies. The fire service actually created ICS, and has used it the longest (Miller, 2007; Walsh et al., 2005). Social relationships are a key to the success of ICS (Buntin, 2001; Cooper & Block, 2006; Hanneman, 2007; Walsh et al., 2005). Along with social relationships come the styles and attributes of leadership (Avolio et al., 2003). Responses to incidents often have political elements. Hurricane Katrina is cited as a prime example of the wrong combination of ICS preparedness, leadership differences, and politics, which created inadequate decision-making and a poor response (Boin et al., 2005; Burkle & Hayden, 2001; Garcia, 2006; Lester, 2007; Molino, 2006; Rosenthal, 2003).

Kemp (2004) stated there are four phases of emergency management that include mitigation, preparedness, response, and recovery. The NIMS is applicable across all four stages. The ICS is mainly found to function within the response and recovery stages. Kemp went on to state that ICS should not be confused with mutual aid agreements. The ICS provides a structure or framework within which to work. Mutual aid agreements cannot take the place of ICS or NIMS in general. All emergencies are local in nature. Kemp went on to state that local agencies who use the ICS have a functional chain of command, reduce the possibility of duplication of services, and are overall more effective in the

response and recovery phases. Lastly, an all hazards approach must be adopted by all agencies both public and private (Bullock et al., 2006; Lindell, et al., 2007; Walsh et al., 2005; Wise & Nader, 2002).

Command, control, coordination, cooperation, and communications are considered key elements to effective incident management (Brunacini, 1985; Molino, 2006; Rosenthal, 2003; Wise & Nader, 2002). Molino (2006) described the emergency response priorities, which are life safety, incident stabilization, and property conservation (e.g., Brown, 2005; Brunacini, 1985; Reardon, 2005). According to Molino (2006), and Flin (1996), on a small incident, there may be one officer, one fire chief and several firefighters, one transportation supervisor and workers, and one wrecker driver. Incident command could change several times throughout the incident. Yet, there can be disagreements about who does what and when. Individual personalities may play a role along with missions, organizational cultures, past experiences with each other or each other's discipline, levels of experience, and leadership styles, among many other factors (Allred, 2004). What was described here is the simplest of incidents. Extrapolate this into a Washington D. C. sniper style attack or Pentagon attack by terrorists or even a larger in scale crisis event such as Hurricane Katrina and the aforementioned issues increase exponentially. Unified command may be within a single discipline such as a county police force, a state police force, or a federal law enforcement agency (e.g., Allred, 2004; Boin et al., 2005; Brunacini, 1985; Lester & Krejci, 2007; Smits & Ally, 2003).

Governmental agency personnel respond to incidents, emergencies, and disasters daily in the United States (Boin et al., 2005; Bourne, 2005). While the dynamics of each incident may differ, there is one common thread: it will take decisive and appropriate leadership to resolve the situation (Bitto, 2007; Bourne, 2005; Howitt, 2004; Mitroff, 2004). Lester (2007) stated that it will take transformational leadership coupled with NIMS to achieve success during all phases of a disaster. Guidelines have been provided regarding how to prepare for and respond to incidents in a uniform manner throughout the country (Bourne, 2005; Hanneman, 2007; Perry, 2003). What appear to be lacking are guidelines on how to lead during such incidents. Team or group leadership has been the subject of much research (Avolio et al., 2003). What remains to be examined in detail is individual, group, and/or team leadership during an actual incident. Even in the limited number of studies completed regarding team or group leadership, the focus has been on groups who have been established and function in a less than hazardous environment (Avolio et al., 2003; Jung & Sosik, 2002; Kearney & Gebert, 2009; King, 2002).

Phillips (1999) stated that the incident commander is responsible for establishing command, ensuring responder safety, and assessing incident priorities. Further, the incident commander is responsible for developing and implementing the incident action plan, developing as necessary organizational structure, and maintaining a manageable span of control. Finally, the incident commander must manage incident resources and coordinate overall emergency activities. According to Hanneman (2007), most incident commanders initially see

a problem from their own areas of expertise. Incident commanders can easily become fixated on their own perspective and bound by the biases of their discipline. However, visionary or progressive incident commanders can look beyond the paradigms of their discipline and incorporate or understand the views of commanders from other disciplines (Lester & Krejci, 2007; Yukl, 2006).

Klann (2003) declared that a leader's influencing skills are critical during a crisis. Murgallis (2005) argued that team confidence begins with those who lead the team. Klann stated leaders should concentrate on three key influencing skills during a crisis: communication, clarity of vision and values, and caring for others. These influencing skills fit the definition of transformational leadership. When considering crisis, emergency, or incident response the team leader is actually the agency commander on the scene. Hence, UC and IC need more examination in the context of NIMS and ICS (e.g., Lennartsson, 2006; Lester & Krejci, 2007; Moran, Perrin, & Blauth, 2005).

Lindell et al. (2007) set forth the seven basic principles of ICS, which are standardization, functional specificity, manageable span of control, unit integrity, unified command, management by objectives, and comprehensive resource management (Anelli, 2006; Cardwell & Cooney, 2000; Herron, 2004; Jamieson, 2005). Canton (2007) and Connor (1997) stated ICS developed out of the need to manage the response of participating agencies. The fire service was the first to implement and use ICS. It remained solely a use of the fire service for many years. It has only been since the 1990s wherein other disciplines such as some police agencies have adopted ICS. Only since 9/11 has a mandate come down

that all agencies must use ICS. This mandate is tied to federal funding (Brown, 2005; Buntin, 2001; Molino, 2006).

According to Canton (2007), in 1971 Firefighting Resources of Southern California Organized for Potential Emergencies (FIRESCOPE) identified six major problem areas found while fighting California wildfires. These six areas were “lack of common organization, poor on-scene and interagency communications, inadequate joint planning, lack of valid and timely intelligence, inadequate resource management, and limited prediction capability” (p. 286; Buntin, 2001; Cardwell & Cooney, 2000). While commanders are to be guided by the concepts of ICS how they carryout these functions will likely vary (Comfort, 2002; Connor, 1997). Further, it is acknowledged that some will carryout the concepts of ICS rather reluctantly (McCeight & Hagen, 2007). According to Buck (2004), using a UC under NIMS should take into account the missions of all responding agencies.

According to Flin (1996) and Molino (2006), fire/EMS, police, and transportation agencies have various roles, objectives, and/or missions to play in many incidents. However, transportation agencies are sometimes not considered as being on the same response level as fire/EMS and police. Helman (2004) stated that the other participants, labeled as secondary responders, consisted of transportation agencies, towing and recovery service providers, and hazardous material contractors (Corbin et al., 2007; Erdfelder, Faul, & Buchner, 1996; Hopkins, 2007). Typically, in highway incidents fire/EMS personnel may arrive and set up command before the police arrive. Transportation agencies have a

significant stake in highway incident management but usually have no direct control over when to open the highway since statutory authority usually rest with the police or fire agencies (Allred, 2004; Miller, 2007).

Canton (2007) added an opposing view regarding the utility of ICS based on Dr. Russell Dyne's comments concerning community emergency planning. Canton stated the military model assumes that pre-emergency social organizations will collapse and commanders will be incapable of useful personal action. Canton argued that ICS is based on a military model. Canton's argument relies on the assumption that responding agencies had a pre-emergency social relationship to begin with. As was illustrated previously, such a prosocial relationship did not exist between the New York City police and fire agencies on 9/11 (Nicholson, 2003). Canton discussed Botterells Laws of Emergency Management: stress creates an opportunity for unintelligent decisions; the problem is at the starting point; regardless of who one trains, other untrained people will respond; and expectation is reality.

Leadership Examined

Leadership has been one of the most studied areas in business and still one of the most perplexing areas of inquiry (Phills, 2005). Leaders and followers carry out the tasks of organizations. There is little doubt that leaders or those who hold leadership positions affect followers. This impact can be positive, negative, or possibly neutral. While often overlooked, followers can have the same impacts on leaders. In fact, leaders are beholdng to followers. Likewise, the organizational culture can have the same impact on both followers and

leaders. Followers can also be leaders as well as leaders can be followers. Relationships, or the lack thereof, play a key role in the success or failure for leaders, followers, and organizations. Phills (2005) pondered the question of does leadership really matter. Phills said that for leadership to matter the leader must be able to influence the performance of an organization. This means increasing public welfare and social value. This influence should be intentional and rational instead of accidental (e.g., Bass, 1990; Dessler, 2001; Northouse, 2001).

According to McLean (2005), there is much debate as to whether management and leadership are the same. Staveley (2002) stated there are over 500 definitions of leadership. Meese and Ortmeier (2004) provided three overarching theories of leadership each of which has a number of independent theories within the larger theory. Leader-centered theories include trait theories, behavior theories, personal-situational theory, and interaction-expectation theory. Follower and context-centered theories include situational theory, contingency theory, and path-goal theory. Leader-follower interactions-centered theories include leader-follower exchange theory, transformational theory, and the psychodynamic approach (Yukl, Gordon, & Taber, 2002). For the purpose of this research, the term leader and manager was used synonymously.

There are hundreds of definitions of leadership, leader, follower, and manager. Leadership involves the assumption that one person exerts intentional influence over another wherein the leader guides, provides structure, and facilitates activities and relationships within a group (Yukl, 2006). Yukl (2006)

stated that leadership is more of a social process than a specialized role. Yukl added that an individual is likely to be both a leader and follower at the same time (e.g., Bass, 1990; Northouse, 2001).

Yukl (2006) stated leadership is the process of influencing others to understand and agree about what needs to be accomplished and how to do it and the process of facilitating individual and collective efforts to achieve shared goals. Northouse (2001) expanded upon the definition of leadership by stating that leadership is a process, involves influence, occurs in a group context, and involves goal attainment. Leadership has been defined as “the art of influencing, directing, guiding, and controlling others in such a way as to obtain their willing obedience, confidence, respect, and total cooperation in the accomplishment of an objective” (Iannone, 1987, p. 34). Iannone also stated there is considerable resistance to leadership training.

Blanchard and Hersey (1996) discussed situational leadership. Blanchard and Hersey stated that effective leaders must be able to identify the demands of their situation and adjust their leadership style to fit. Alternatively, the leader must change some or all of the variables. These variables include the leader’s organization, supervisors, peers, and the job demands.

Keeping with this analysis of the forms of leadership influence, Fyfe et al. (1997) illustrated 11 forms of leadership influence: legitimate request, instrumental compliance, coercion, rational persuasion, rational faith, inspirational appeal, indoctrination, information distortion, situational engineering, personal identification, and decision identification. Fyfe et al. went on to examine

factors, which affect leadership styles. Individual factors include self-esteem, perceived stress, managerial potential, and interpersonal skills. Work-group factors include leader-member relations, work group norms, and work-group skills. Environmental factors include task clarity, goal clarity, and power position. Task factors include nature of the task, task complexity, time constraints, and criticality of task. Organizational factors include organizational goals, interdependence of units, degree of autonomy, and locus of authority (Mitroff, 2005).

There are many models, theories, and types of leadership. Some of these models, theories, and types or styles lend themselves more toward success and influence than others. According to Choi (2006), charismatic leadership has three core competencies: vision, empathy, and empowerment. It is argued that charismatic leadership is a powerful model for influencing followers. Yet, even this style can have a negative influence if the leaders' motives are exploitative, non-egalitarian, and self-aggrandizing (e.g., Bass, 1990; Northouse, 2001).

Two types of leadership styles often described are transactional and transformational. Tucker and Russell (2004) stated that transformational leaders are innovative in nature and are more concerned with the quality of life of their followers. Transformational leaders provide energy producing characteristics. On the other hand, transactional leaders use power and authority that already exists. Transformational leaders motivate followers to create new and greater change (e.g., Bass, 1990; Dessler, 1995; Northouse, 2001; Stone, Russell, & Patterson, 2004).

Fyfe et al. (1997) discussed several other leadership theories or styles. The well-known leadership grid provides seven styles, which include country club management, impoverished management, middle of the road management, team management, authority-compliance management, paternalism/materialism management, and opportunism management. Lastly, path-goal theories of leadership function from the premise that employees will do what leaders want them to do if the employee understands what to do and the employee sees the attainment of his or her own personal goals in attaining the organization's goal. Four types of leadership were created from path-goal theory: directed leadership, supportive leadership, participative leadership, and achievement-oriented leadership. The leadership styles discussed are in no way limited to policing. Unlike some other fields or professions, police organizations follow a much more militaristic model. This resemblance is both symbolic and functional in nature. Add to this the bureaucratic nature often found in many public agencies and the organizational style of most police agencies can be seen (e.g., Hansen, 1991).

Hansen (1991) stated that team management is the most effective style from the offerings in Blake and Mouton's Managerial Grid. According to Hansen, those who practice team leadership are able to build effective teams, resolve problems and conflicts, and promote employee development. Yukl (2006) listed the determinants of team performance, which included commitment of shared objectives, member skills and role clarity, internal organization and coordination, and external coordination. Yukl also included resources and political support,

mutual trust and cooperation, and collective efficacy and potency. The leader influences team performance by increasing these processes in a positive way. Policing is subject to the same styles and differences in leadership or management as any other profession or organization.

Flin (1996) discussed leadership traits of incident commanders. Flin stated that the military along with the police and fire service look for leadership potential when selecting officers. Flin went on to say that Field Marshall Montgomery considered the ability to make decisions and remain calm as the two most important attributes of a leader. Flin listed personality characteristics of the incident commanders. These characteristics included a willingness to take a leadership role, emotional stability, stress resistance, and decisiveness. Other characteristics include controlled risk taking, self-confidence, and self-awareness (Smallwood & Seemann, 2003). Howard (2005) stated leadership involves verbal and nonverbal communication that involves coaching, motivating, or inspiring, directing or guiding, and supporting or counseling.

According to Densten (2003), transformational leadership incorporates three other types of leadership, which are transactional, transformational, and non-leadership behaviors (*laissez-faire*). Those who use transactional leadership pursue a cost-benefit or economic exchange to meet current material and psychic needs of their employees in return for expected effort. Three types of transactional leadership have been identified. Contingent reward, which represents proactive leadership behaviors which link reward and effort through negotiation is one type. The others are management-by-exception (active) and

management-by-exception (passive), which represents a passive leadership style that is used only when the status quo is rejected or is not functioning (Palmer, Walls, Burgess, & Stough, 2001).

According to Boin et al. (2003), Canton (2007), and Reardon (2005), leadership style may vary due to individual preference, agency preference, or cultural paradigms, and because of the situation itself. Recognition of incident command principles may be affected by an individual leader's familiarity with and understanding of the ICS. Transformational leadership according to Densten (2003) occurs when leaders seek to raise the consciousness of their employees by appealing to higher ideals and values. Transformational leadership has five types of behavior, which are idealized influence (attribute), idealized influence (behavior), individualized consideration, intellectual stimulation, and inspirational motivation. Idealized influence includes leadership behaviors that instill pride, faith, respect, and a sense of mission (Bass, 1990; Fyfe et al., 1997; Kearney & Gebert, 2009; Tucker & Russell, 2004). Morreale and Ortmeier (2004) added that transformational leader's set high standards. Transformation requires change (Lester, 2007).

According to Ahn, Adamson, and Dornbusch (2004), 50 to 70 percent of change fails to take hold. According to Densten (2003), several studies have shown that police agencies and their leaders in general do not practice transformational leadership. Instead, they practice transactional leadership and rational influencing behaviors and the dominant leadership style of police organizations has been management-by-exception. This includes relational

influencing behaviors. According to Hunter (2006), transformational leaders can transform emergencies into developmental challenges by presenting crisis as intellectual stimulus to encourage followers to seek thoughtful, creative, adaptive solutions to stressful conditions, instead of hasty, defensive, or maladaptive ones.

Flin (1996) and Molino (2006) stated NIMS and its IC/UC elements along with most of its program elements are not typical of how police have dealt with incidents in the past. To confound the matter further this model was adopted from the fire service. Police and fire have typically had their friendly differences just as do the branches of the military. Furthermore, NIMS offers no guidance as to what type of leadership model should be followed.

Many styles and theories of leadership exist; however, several styles or theories were examined as they related to the handling of incidents. Yukl (1989) along with Northouse (2001) provided descriptions of several leadership styles, which were considered for examination. The style approach was considered using Blake and Mouton's Managerial (Leadership) Grid. In addition, the style approach was considered using the Leader Behavior Description Questionnaire (LBDQ-XII). Situational leadership was considered using the SLII model that is an extension of Hersey and Blanchard's original situational model. Finally, leadership style was considered using the Path Goal Theory and the Path-Goal Leadership Questionnaire. The Multifactor Leadership Questionnaire (MLQ 5X-short) was considered. This instrument measures and assesses a range of transformational, transactional, and laissez-faire or nonleadership scales. Finally,

the Leadership Practices Inventory (LPI) was considered. This measuring device assesses leadership criteria developed and labeled by Kouzes and Posner (2002). After further examination, only the MLQ 5X-short survey instrument was used in conjunction with a questionnaire developed to capture ancillary data. This integration of conceptual framework approach helped to increase the generalizability of the findings, reduce or recognize rival causal factors, and strengthen the meaningfulness of the findings through interacting variables. Probability was increased by using a multivariate approach (Yukl et al., 2002).

It was surmised based on prior literature research findings (Bass, 1990; Northouse, 2001; Wren, 1995; Yukl, 2006) that most leaders practice transactional, directing, or authority-compliance style leadership traits during a crisis. This is because of the urgency of the incident. There are six leadership theories/models, which provide guidance and are applicable to the questions posed in this study. Yet, as with many disciplines and areas of study, theory integration is lacking or resisted. Theory integration is ideal to blend leadership theories thus increasing the variables examined, reducing causal relationships, and increasing generalizability. However, being a student seeking not only answers to the research questions but a better understanding of the entire research process this endeavor is best saved for the future. Several leading theories and methodological approaches for this research were analyzed and considered. While consideration was given to several theories and their related studies, the focus was on path-goal theory, situational leadership, contingency theory, transformational leadership, and leader-member exchange theory.

Theories, which explain leadership effectiveness in terms of situational moderator variables, are called contingency theories. Most of the theories considered for this research fall within the realm of contingency theories (Goodson, McGee, & Cashman, 1989; Jordan, 1998; Yukl et al., 2002).

Clements and Washbush (1999) discussed the dark side of leadership. Good leadership can create good for the social or organizational order but bad leadership can equally create social disorder. Negative leadership can create or result in bad decision-making, frustration, dysfunctional organizations, and unintentional results. Such negative consequences may result from a leader who fails to look inside, mirroring or acting as they believe followers think they should act, narcissistic behavior, emotional illiteracy, and what is called the Edifice Complex wherein they fear their legacy will be destroyed (e.g., Bass, 1990; Northouse, 2001). Buhler (1993) argued that win-lose situations should be avoided. This is an important task for leaders.

Perkel (2005) explained that when we think of leaders, such terms, or traits as integrity, honesty, wise, ethical, and visionary come to mind. More likely, we hope they come to mind as well as fruition. However, bad leadership can also occur and do great harm. Bad leadership can be seen as a continuum of behavior from plain incompetent, intemperate, callous, and corrupt to pure evil.

According to Yukl (2006), a leader can influence many things. A leader can influence the interpretation of external events for followers, choice of objectives and strategies to pursue, and motivation of followers to achieve objectives. In addition, the leader can influence mutual trust and cooperation, the

organization and coordination of work, and allocation of resources. The leader can influence the development of followers' skills and confidence, learning and sharing of knowledge, and support and cooperation from external sources. Finally, the leader can influence the design of formal structure, programs, and systems and of critical importance; he or she can influence shared beliefs and values of followers (e.g., Bass, 1990; Northouse, 2001).

Yukl (2006) stated that power and influence are distinct concepts. A leader will have some form of power be it personal or positional or both. However, the outcome of leader-influenced behavior on a follower may result in commitment, compliance, or resistance. It is commitment, which leaders should strive to attain. Phills (2005) stated that leadership is or should be linked to the organizational culture, vision, strategy, innovation, and learning. Leadership is important to any organization but followership is equally important. Many companies are relying less on leaders and more on individual employees or teams (e.g., Bass, 1990; Buhler, 1993; Hughes, Ginnett, & Curphy, 1995; Northouse, 2001).

Bolman and Deal (2003) illustrated various sources of power. First is position power or authority. Information and expertise are sources of power. Another source involves control of rewards. Coercive power is another source. Alliances and networks also provide a source of power. Along these same lines, access and control of agendas are a source as well. Finally, framing control of meaning and symbols are a source of power. As can be seen, followers can often have many sources of power (e.g., Bass, 1990).

Tucker and Russell (2004) stated that leaders influence the internal mindset of their followers, the culture of the organization, and the external culture. Transformational leaders help followers recognize and achieve their own leadership potential. Likewise, transformational leadership increases productivity and innovation (e.g., Bass, 1990; Dessler, 1995; Northouse, 2001). Stephan and Pace (1991) provided five effective keys to leadership which include leaders should treat others as friends. Leaders should create a positive force. Leaders should invite others to follow. Leaders should empower others to act. Lastly, leaders should strengthen themselves. Stone et al. (2004) offered four primary behaviors of transformational leaders. Transformational leaders have idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Servant leadership is very similar to transformational leadership. However, servant leadership does not rely on charisma.

According to Dessler (1995), charismatic leadership behavior fosters envisioning, energizing, and enabling. Envisioning involves articulating a compelling vision, setting high expectations, and modeling consistent behavior. Energizing involves demonstrating personal excitement, expressing personal confidence, and seeking, finding, and using success. Enabling involves expressing personal support, empathizing, and expressing confidence in people. Mirsalimi and Hunter (2006) described influential leadership as being leadership that relies on leadership not coercion. The influential leadership model consists of core values of authenticity, humility, service, and integrity. Core skills include listening, reflecting, modeling, dialogue, and use of self. From core values and

cores skills comes presence. Trust is then developed followed by influence and ultimately results.

One must be able to exert influence over organizational performance to be a leader (Phills, 2005). Maxwell (1998) stated leadership is nothing more than influence. It has often been thought that leaders are active and followers are passive (In praise of followers, 1992). Such thoughts are a misnomer about the abilities of and relationships between leaders and followers.

Leader/Follower Interaction

According to Yukl (2006), the term follower is used to describe one who acknowledges a leader as the main source of direction regardless of the leaders' actual authority. Followers do not have to be direct reports of the leader. Those who reject the formal leader and purposely attempt to remove the leader from his or her position are described as rebels or insurgents. As can be surmised, leadership does not always come from someone with legitimate authority. Leadership is also about power, which can be interpreted as influence. Yukl discussed different types of power. Positional power includes legitimate, reward, coercive, information, and ecological. Personal power includes referent and expert power (e.g., Bass, 1990; Hughes, Ginnett & Curphy, 1995). Bass (1990) declared that there is not an absolute amount of power. Bass also stated power can and should be shared with followers (e.g., Northouse, 2001). Hence comes the concept of empowerment.

According to Yukl (2006), for many years it was assumed that it was in all followers' best interest to allow themselves to be led. In other words, it was in

everyone's best interest to cooperate to achieve shared objectives. However, in recent years the concept of leadership has changed to recognize more of an emotional influence than just what seems reasonable. The concept argues that it is only through emotional valued based leadership influence that exceptional achievement is recognized. Leaders inspire followers to sacrifice what is in their own interest for a higher cause. In reality, both rational and emotional motives are likely to occur in leader follower relationships (e.g., Bass, 1990; Northouse, 2001). Emotional intelligence includes self-awareness, self-regulation, motivation, empathy, and social skills (Dessler, 1995).

Leadership and followership can bring about good or bad results. Yukl (2006) argued that strong leadership could bring order from chaos. Strong followership can stymie productivity. What matters is what type of strong leadership or followership is involved. Choi (2006) stated charismatic leader's empathetic behavior creates the followers' need for affiliation in several ways. Trust will be created. The follower will believe the leader cares about him or her. The follower will be able to better identify with the leader. Such charisma can be very positive or very negative (e.g., Bass, 1990; Northouse, 2001; Tucker & Russell, 2004).

Followers have the ability to influence as well. Clements and Washbush (1999) described follower behavior using a two-dimensional taxonomy. Five styles are given. Exemplary includes active and independent along with critical thinking. Conformist includes active and dependent along with uncritical thinking. Passive includes passive and dependent along with uncritical thinking. Alienated

includes passive and independent along with critical thinking. Finally, pragmatist includes medium on both dimensions. Clements and Washbush went on to describe follower syndromes. The dispositions or syndromes described are pathological in nature but function on a continuum of behavioral degree. A follower may have a controlling disposition. This person has an authoritarian personality. Often this type ends up in leadership positions. Dysfunctional follower behavior, which is considered the histrionic, is another type. This type seeks attention, is over-reactive, and like the controller is submissive to the leader. This type follower is very impressionable and extremely loyal to charismatic or transformational leaders. The passive-aggressive follower can appear acquiescent. Their pessimism, resentment, and covert resistance makes for a poor follower. The dependent follower will come across as extremely intense and overpowering, and will sacrifice anything for the leader. Finally, the masochistic follower encourages others to take advantage of them and accept blame for things they have not done. As stated, this range of behaviors can go from normal to pathological (e.g., Bass, 1990; Buhler, 1993; Northouse, 2001).

Clements and Washbush (1999) described the Machiavellian personality type. This can be found in the leader or the follower. Such types will deprive leaders of important feedback for their own self-enhancement. Knowledge is power. As was once said by Lord Acton, power corrupts and absolute power corrupts absolutely (Yemm, 2006). Clements and Washbush stated a strong follower can do much to sabotage a leader's efforts for personal gain. Recall, a leader is also a follower to someone else. Followers and leaders can damage or

effect self-esteem, self-efficacy, risk aversion, conflict avoidance, and tolerance (e.g., Bass, 1990; Northouse, 2001).

Often overlooked is the fact that leaders and followers influence each other (Buhler, 1993). Buhler argued that some organizations and or followers do not need leaders as much as others. Those with greater experience or with professional orientations are in less need for leadership. Having said this, organizations are in need of good followers. Buhler (1993) stated good followers should be active and independent critical thinkers (e.g., Bass, 1990; Northouse, 2001).

Maxwell (1998) stated that a follower's capacity to achieve is decided by their leader's ability to empower. Maxwell went on to say that some leaders withhold empowerment out of fear of being dispensable (e.g., Bennis, 1995). Bass (1990) stated that leaders tend to react to followers compliance or noncompliance. These reactions can be positive, negative, or neutral. In essence, neutral would be no reaction by the follower. Leaders do the right thing in lieu of just doing things right. Leaders work on improving the system in lieu of just working within the system. The same can be said for followers (Covey, 1992).

Organizational Culture

Both followers and leaders are affected by the organization for which they work and the situations they find themselves. The amount of influence a leader needs depends on the situation (Yukl, 2006). Tucker and Russell (2004) stated that organizational culture could stymie a leader's ability to influence in a positive

way. Transformational leaders seek to change such organizational cultures. Transactional leaders work within the existing culture (Bass, 1990; Northouse, 2001).

Lewis, Goodman, and Fandt (1998) defined organizational culture as the system of common beliefs and values that develops within an organization. Culture effects how people act in organizations; the way they perform, view their jobs, work with others, and view things. Bass (1998) stated organizational culture is a learned pattern of behavior passed from one generation to the next. Bolman and Deal (2003) stated that culture is a pattern of shared fundamental assumptions that a group learned as it solved its problems that has worked well enough to be considered legitimate hence worthy to be taught to new members as the right way to deal with related problems. Given the definition offered by Bolman and Deal it is surmised that similar disciplines would have similar shared experiences due to the nature of their mission and to some degree similar adaptations with some degree of organizational variance. House and Aditya (1997) reinforced the influence group norms have over leadership style (Torpman, 2004). According to Bass (1998), leadership affects organizational culture as much as organizational culture affects leadership.

Organizational culture is a situational variable, which may influence the leader (King, 2002; Stewart & Manz, 1995; Torpman, 2004). Organizational culture may be dictated by the type discipline or industry, the specific organization, or both (Burkle & Hayden, 2001). Yukl (2006) stated cultural differences might influence the attitudes and behavior of managers in a number

of ways. Organizational values are likely to be internalized by managers who move up in a particular culture. Mitroff (2004) stated that organizations have personalities in the same way people do.

Mitroff (2004) discussed system age versus machine age systems. Mitroff argued that too many organizations remain in a machine age mentality. This includes the handling of emergencies. Mitroff added that crisis management is no longer adequate; what is needed is crisis leadership. Gabris (2004) added that bureaucratically designed organizations function in a system maintenance mode. This system mode operates as a closed system and is entrenched in Machine Age thinking. This philosophy creates a thing mentality and is geared toward management. Transactional leadership fits this style of leadership. Conversely, transformational leadership is more in line with System Age thinking (Bass, 1998). Atwater and Bass (1994) stated organizational culture most likely figures prominently in the effectiveness of those teams that are clearly defined as a work group. Teams typically rely on organizational culture to establish and clarify values that will guide their actions.

Phills (2005) stated that leadership has to be tailored to the specific individual, organization, place, and time. There are many factors, which affect the leader's ability to influence. Phills argued that the two most significant mechanisms are psychological and emotional logic and the economic logic of an organization. Psychological and emotional logic deals with mobilizing the energy of its followers. This includes buy in regarding a sense of purpose. The leader must work with the determinant, which exists at the time, which includes follower

motivation, talent, technology, creativity, capital, and other factors (e.g., Bass, 1990; Northouse, 2001).

Yukl (2006) stated that influence is the core foundation of leadership. Leaders and followers are beholden to one another (In praise of followers, 1992). One major key to leadership is to influence through empowerment (Stephan & Pace, 1991). Leadership and followership are a set of variables and complex relationships. The leader and follower, as well as the organizational culture and situation at hand affect these relationships. Leaders and followers both have the ability to challenge; inspire; enable; model, and encourage each other. In addition, one does not have to be a formal leader with positional power to influence others as a leader who possesses dispositional power and influence. All of the elements found in these relationships can and do spell either success or failure for the work group and or organization as a whole if the roles are sizeable enough.

Unified Command and Teams

The NIMS sets forth the requirement for use of a UC when more than one agency is involved. This amounts to a team. Waldman (1994) argued that when multifunctional teams with dissimilar backgrounds are brought together for a limited amount of time to address a problem of significance the leader's role is critical. Waldman is speaking of members coming together from within the same organization. The importance of leadership is compounded when these members come from different organizations with different cultures, rules, and responsibilities. Waldman stated that individualized consideration, intellectual

stimulation, inspirational motivation, and idealized influence are critical to the success of a multifunctional team.

O'Neill (2008) discussed the fundamental elements of putting a team together. First, relationships must be developed among key team members before an emergency. Identifying other key resources that can be brought to bear if necessary such as logistical support or personnel from other units or agencies. Defining and documenting member's roles and credentials is important. Training and practicing together is critical. Finally, having the ability to share technology such as communications is essential. According to Atwater and Bass (1994), among the most significant aspects of the organizational context that affect team success within the organization are: (a) its culture, (b) the clarity of the mission assigned, (c) the reinforcers provided for successful performance, (d) the availability of resources, (e) the physical environment, and (h) significant outsiders. These factors are all clearly impacted during an emergency. Team effectiveness may depend on having a clearly defined mission or purpose (Atwater & Bass, 1994).

Team conflict can come from a variety of sources. According to Atwater and Bass (1994), common causes of team conflict include: (a) poor communications, (b) disagreement in how to carry out a task, (c) varying beliefs regarding how to operate the team, (d) incompatible personalities and values, (e) perception of unfair reward and or allocations, (f) disagreement over policy, (g) unable to deal with change, (h) inappropriate leadership styles, and (i) competition among members. The best way to overcome these hurdles is for the

team leaders to foster a trusting and open climate where communication flows freely. However, conflict will arise and must be dealt with (Bass, 1998).

Team Leadership.

James (2005) argued that sound teams when properly functioning create synergy. In essence, the sum is greater than their parts. Zaccaro, Rittman, and Marks (2001) addressed team leadership through the concept of reciprocal influence, which dealt with leadership and teams influencing one another. This study came close to examining reciprocal influence on team leaders on one another. The study involved a stable environment where leaders were not thrust together to deal with an emergency (Atwater & Bass, 1994). Zaccaro et al. considered the following team processes: (a) feedback and control, (b) selecting personnel, (c) developing personnel, and (d) utilizing and monitoring personnel resources. Based on this, four outcomes were considered: (a) conflict control, (b) team emotion control norms, (c) presence/absence of emotional contagion, and (d) team emotional composition. All this leads to team effectiveness.

House and Aditya (1997) pointed out that of the 3,000 studies listed by Bass in 1990 the vast majority were related to leader and immediate follower relationships. The relationships between leader and organization, their leader, external stakeholders, and peers had received little to no examination up to that point. The focus on leadership remains leader and immediate subordinate but attention has been given to other variables. Guzzo and Dickson (1996) discussed findings involving teams within organizations by way of performance and effectiveness. Variables include group composition, heterogeneity, and

performance. In this context, heterogeneity consisted of personality types, gender, attitudes, and experience. As has been the case with other studies examined, the focus was on internal teams and not divergent team leaders, which form under emergencies (Zaccaro et al., 2001). Finally, Atwater and Bass (1994) argued that team leaders cannot be experts in every possible area of knowledge hence it is imperative that team leaders develop personal relations with team members and to motivate them.

Police Culture and Leadership

Little research exists regarding the cultures of fire/EMS or transportation/public works. However, a great deal of research has been completed regarding police cultures and leadership. Some of the research and discussion about police leadership and culture can be compared to other disciplines such as fire and EMS with a degree of certainty. One such example is the first line supervisor sets the tone for his or her unit (Oldham, 2003).

Traditional policing has relied on an authoritarian and bureaucratic model, which has been reactionary in nature (Densten, 2003; e.g., Hansen, 1991). According to Meese and Ortmeier (2004), the typical police response has often been reactive and bureaucratic which focused on methods and procedures with little ingenuity or strategic thinking to affect results. Efficiency and management received more attention than effectiveness and leadership. This mindset stymied creativity. Bureaucracies are generally over managed and under lead, creating bored and unmotivated employees (Gabris, 2004; Maccoby, 2000; Wuestewald & Steinheider, 2006). According to Kappeler (1995), two other goals of most

bureaucracies, the police as well, are the maintenance of organizational autonomy and the security of their members (Slahor, 1999).

Alsabrook, Aryani, and Garrett (2001) stated that law enforcement has traditionally been very slow to change. Some agencies are tradition bound and managers feel they are the guardians of the status quos. Fyfe et al. (1997) stated leaders have a zone of influence. This zone is found in the intersection between the goals of the organization and the goals of the individual. Leaders can influence not only individuals but also groups as well (Bono & Llies, 2006). Hilgenfeldt (2001) went as far as to say that police agencies are suffering from a disease, that disease being a lack of leadership. Instead, agencies and those that lead them use window dressing wherein appearance is more important than substance. Vision, character, substance, and values have been replaced with rhetorical rationalizations and false appearances.

Theory Examination

Path-Goal Theory. Path-goal theory appeared to offer much promise in operationalizing the research questions. The theory sets forth four leadership behaviors, which allow for broad inclusion of the various styles, which might be seen. According to Bass (1990), Northouse (2001), and Yukl (1989, 2006), path-goal theory is supported by comprehensive research dealing with what motivates employees. Path-goal theory examines how leaders motivate employees to achieve goals. The goal of this theory is to improve employee performance and satisfaction by focusing on employee motivation. Path-goal theory emphasizes the relationship between the leader's style and the characteristics of the

subordinates and the work setting. This theory is measured by using the path-goal leadership questionnaire (e.g., Butler & Reese, 1991; Jermier, 1996; Podasakoff, MacKenzie, Ahearne, & Bommer, 1995; Wofford & Liska, 1993; Yukl et al., 2002).

Bass (1990), Northouse (2001), and Yukl (1989, 2006), all stated path-goal theory provides four leadership styles: directive, supportive, participative, and achievement-oriented. The causal variable for path-goal theory of leadership is leader behavior. The intervening variables are subordinate expectations and valences. Situational moderator variables include characteristics of task and environment and the characteristic of subordinates. Causal relationships of effects of supportive leadership on subordinates are reducing boredom and making the job more tolerable; increasing the intrinsic valence of work; increasing self-confidence and lowering anxiety; and increasing effort-performance expectancy, which all results in increased effort. Causal relationships for effects of directive leadership on subordinates include reduced role ambiguity and increasing the effort-performance expectancy, increased size of incentive followed by increasing outcome valences for task success, and strengthening required contingencies followed by increasing performance-reward expectancies with all three avenues resulting in increased subordinate effort. As with most of the other theories, arguments are made that the theory has conceptual weaknesses, though, it has been well tested (e.g., Butler & Reese, 1991; Jermier, 1996; Podasakoff et al., 1995; Wofford & Liska, 1993; Yukl et al., 2002).

Of particular interest with path-goal are the situational moderator

variables. In the study at hand, the situational variables involved emergency conditions. According to Yukl (2006), when the task is stressful, boring, tedious, or dangerous supportive leadership is best used. When the task is unstructured and complex, when employees lack experience, and when the rules are unclear directive leadership is best used. The task for participative or directive leadership is not as well developed. Participative leadership increases role clarity. Achievement-oriented leadership increases employee effort and satisfaction (Greene, 1979; Wofford & Liska, 1993).

Yukl (2006) stated that thus far studies on path-goal theory have resulted in mixed results. In one review, 120 studies were analyzed in a meta-analysis. Not enough studies have been done to truly test the situational moderators of directive leadership. Methodological limitations make it difficult to interpret the results of the research involving this theory. The majority of studies involving path-goal theory use subordinate questionnaires to measure leader behavior. A static correlational design is used. Another problem with these studies is that they do not examine the entire theory such as examining intervening motivational processes. With path-goal theory, each type of leadership behavior is considered separately. However, this could be said about most of the theories.

Northouse (2001) described several of the strengths of path-goal theory. The theory provides explanation for understanding how different leadership behaviors affect subordinate satisfaction and performance. The theory helps leaders decide which leadership style to use based on the demands of the situation and type of subordinate handling the task. Expectancy theory is made a

part of path-goal theory. Expectancy theory is of practical use. Conversely, path-goal theory is very complex and can be confusing. The breadth, scope, and complexity involved in the theory makes its use in explaining the leadership process in a particular organizational context difficult. Empirical studies have only provided partial support for the theory. The theory fails to explain fully the relationship between leader behavior and employee motivation. A final criticism is that most of the responsibility for success between the leader and subordinate is placed squarely on the leader. On a final note, Wren (1995) stated that path-goal research has examined the effects of the LBDQ categories of consideration and structuring. Wren also stated that path goal theory is difficult to blend with other more general theories. Likewise, the theory has variable support (Bass, 1990; Wofford & Liska, 1993; Yukl et al., 2002).

Situational Leadership Theory. According to Bass (1990), Northouse (2001), and Yukl (1989, 2006), the style approach was considered by using Blake and Mouton's managerial (leadership) grid. Along with situational leadership style, this is one of the most well known models of leadership. The results of this model are based on how leaders answered a series of questions about management assumptions and beliefs. Concern for people and concern for production create the scale. High concern for people and low concern for production creates the style called country club management. Low concern for people and for production creates an impoverished management style. A mid range of concern for both people and production creates organization management. High concern for people and production creates team

management. Finally, low concern for people and high concern for production creates authority-obedience management. As with nearly all studies involving leadership theories, there are criticisms of this approach. These criticisms include the lack of congruency between leader's styles and how they are associated with performance outcomes; failing to find a universal style to fit all situations; and the assumption that a high-high style is best. Yukl (2006) stated that the situational leadership model fails to provide a clear explanation of the process by which leader behavior affects subordinate performance. Goodson et al. (1989) disagree with the situational leadership approach in that it does not allow for the necessary interaction needed considering the role the individual subordinate plays in any given situation. In other words situational leadership does not allow for consideration of employee readiness at all levels (Blank et al., 1990; Butler & Reese, 1991). Yet, in general, the theory has strength (Chen & Silverthorne, 2005; Ensby, 2005; Goodson et al., 1989; Van Auken, 1992; Yukl et al., 2002).

Northouse (2001) described several of the strengths of situational leadership. Situational leadership appears to function well in the workplace. It provides a credible training model for leaders. Over 400 of the Fortune 500 companies use this model. Situational leadership is practical and prescriptive. It provides for leadership flexibility. Effective leaders can modify their style to fit the situation (Van Auken, 1992). Northouse (2001) went on to state conversely, only a few studies have been conducted which justify the assumptions and propositions just mentioned. Situational leadership lacks a strong body of research. Situational leadership offers ambiguous conceptualization regarding

subordinates' development levels. Furthermore, situational leadership provides for a one on one relationship but not group leadership or relationships. The questionnaires used directly guide the answers to one of four specific choices, which include directing, coaching, supporting, and delegating (e.g., Beck & Yeager, 1996; Blanchard & Hersey, 1996; Chen & Silverthorne, 2005; Ensby, 2005; Goodson et al., 1989).

Atwater and Bass (1994) argued that most leaders do not display a single leadership style at all times. Most leaders display different styles such as directive or participative, task-oriented or relations-oriented, transformational or transactional. Different situations may call for different styles. Blank, Weitzel, and Green (1990) stated that situational leadership focuses only on subordinate maturity as a moderator of two leader behaviors; one behavior is task and relationship and the other leader behavior is leader effectiveness. Blank et al. stated the theory has complex relationships between variables and the theory contains ambiguities and contradictions. Blank et al. stated in order to test the theory's underlying assumptions, psychological and job maturity must be addressed. Situational leadership is very applicable to the study of incident management (Ensby, 2005; Schoenberg, 2005).

Contingency Theory. According to Yukl (2006), least preferred coworker (LPC) contingency model describes how the situation moderates the relationship between leadership effectiveness and a trait measure called LPC score. To determine the LPC a leader is asked to think of the person who he or she likes least and then rate this person on a bipolar adjective scale using such terms as

friendly-unfriendly. The LPC is supposed to determine the leader's motive hierarchy. Along with the motive hierarchy, the pattern of leadership behavior varies depending upon the situation. An examination of 25 years worth of LPC score testing was undertaken. The conclusion was that the scores better reflected a value-attitude interpretation than the motive hierarchy. Low LPC leaders are supposed to value task success. High LPC leaders are supposed to value interpersonal success. The LPC score and effectiveness is dependent on a complex situational variable called favorability or situational control. The elements considered are leader-member relations, position power, and task structure. The best scenario for the leader and the level of success achieved is when the relationship with the subordinate is good, the leader has substantial power, and the task is highly structured (Yukl et al., 2002).

Yukl (2006) stated a large number of studies tended to offer support to the model. The major criticism of research based on this model was the model failed to achieve statistical significance. Another criticism of the model is that its definition lacks meaning. LPC Contingency is a model and not a theory because it does not explain how a leader's LPC affects group performance. LPC does not help leaders change and grow. It does help to pick particular leaders for particular situations (Yukl et al., 2002).

Northouse (2001) described several of the strengths of contingency theory. Contingency theory is supported by a great deal of empirical research. The situations leaders face are considered a key element of the theory. Contingency theory is predictive, thus providing guidance for leaders as to how to deal with

certain situations. Contingency theory allows leaders to not be successful in all situations. Data for leadership profiles can be built through use of the LPC. Conversely, many studies have shown weaknesses in contingency theory. Contingency theory fails to explain why one leadership style may be better than another in a given situation. The LPC scale has been criticized because it does not correlate well with other leadership measures. The idea of measuring one's own style of leadership through what they think about another style seems illogical to some. Other criticisms of the theory include that the testing mechanism is somewhat cumbersome, the instructions are less than clear, and it does not offer a solid explanation as to what an organization should do to remedy a mismatch between the leader and the task (Yukl et al., 2002). Finally, Wren (1995) stated that the LPC scale has remained a point of contention. There are questions as to the appropriateness of situational variables and the predictive validity of the theory.

Transformational Leadership Theory. According to Bass (1990), Kearney and Gebert (2009), and Yukl (2006), transformational leadership increases follower motivation and performance. Transactional and transformational leadership are not and should not be mutually exclusive. Transformational behaviors include idealized influence (attributed), idealized influence (behavior), individualized considerations, inspirational motivation, and intellectual stimulation. Transactional behaviors include contingent reward, management by exception (active), and management by exception (passive). The aforementioned taxonomy was identified mainly by factor analysis of a behavior description

questionnaire called the MLQ 5X-short (Antonakis, Avolio, & Sivasubramaniam, 2003; Avolio & Bass, 2004; Bass, 1998; Howell & Avolio, 1993; Riggio & Orr, 2004). Bass (1990) and Yukl (2006) stated laissez-faire leadership has been added as a third category. The MLQ 5X-short also measures three outcome factors including: extra effort, effectiveness, and satisfaction (Avolio, Bass, & Jung, 1999; Bass, 1990, 1998; Riggio & Orr, 2004).

Several studies have been undertaken using the factor analysis to determine the construct validity of the MLQ 5X-short. Support was seen showing the difference between transformational and transactional leadership. Yet, as with other theories, weaknesses were found. The MLQ 5X-short has been refined several times in an attempt to strengthen its validity. Transformational leadership is considered effective in any situation. While universally relevant, it does not mean that transformational leadership is effective in all situations. Situational variables may increase or decrease the success of transformational leadership. Transformational leadership is closely akin to charismatic leadership (Lievens, Geit, & Coetsier, 1997; Howell & Avolio, 1993; Riggio & Orr, 2004; Smith, Montagno, & Kuzmenko, 2004; Torpman, 2004; Tucker & Russell, 2004; Yukl et al., 2002). Bass and Riggio (2006) stated transformational leaders may do better in an emergency because, unlike transactional leaders who focus on short-term outcomes and may be more likely to make rushed and poorly thought-out decisions, transformational leaders are more likely to defer from making premature decisions (Kearney & Gebert, 2009).

Avolio and Bass (2004) stated much of the research done involving this theory has focused on one element, that being either transformational or charismatic leadership. Field studies have been the most prevalent method of examining this theory. A meta-analysis was conducted involving 39 studies using the MLQ 5X-short. Transformational leadership behavior correlated more strongly and consistently with leadership effectiveness than did transactional leadership (e.g., Bass, 1990, 1997; Palmer et al., 2001; Riggio & Orr, 2004; Smith et al., 2004; Yukl et al., 2002).

Construct validity of the MLQ 5X-short has been assessed through numerous studies that illustrated support through factor analysis (Yukl, 2006). According to Avolio and Bass (2004) and Rowold (2005), the MLQ 5X-short has been developed, enhanced, and validated over the past 20 years. The validation process has demonstrated both factorial and convergent validity, as well as internal consistency, test-retest-reliability, and interrater agreement. The MLQ 5X-short has nine leadership scales along with three outcome scales. The MLQ 5X-short form analyzes 36 leadership factors (Avolio, Bass, & Jung, 1999; Bass, 1990, 1998; Riggio & Orr, 2004).

Avolio and Bass (2004) and Rowold (2005) offered descriptions for each leadership style and factor as well as outcome. Idealized influence (attributed and behavior) type leaders are individuals who display conviction, trust, and values. These type leaders emphasize the importance of purpose, commitment, and ethics. Inspirational motivation type leaders inspire and motivate by appealing to a vision of the future, inspire high standards, speak optimistically, and provide

encouragement and meaning regarding what needs to be accomplished.

Intellectual stimulation type leaders question assumptions, traditions, and beliefs, and encourage new ways of doing things as well as expressing ideas.

Individualized consideration type leaders deal with individuals by considering their needs, abilities and aspirations, and who listen attentively as well as advise and coach. Contingent reward type leaders engage in a constructive path-goal transaction of reward for performance. The leader clarifies expectations and arranges mutually satisfactory agreements in exchange for assistance and successful performance. Management-by-exception (active) type leaders monitor performance and take corrective action if deviation from standards occurs. This style leader enforces rules to avoid mistakes. Management-by-exception (passive) type leaders wait for mistakes to be brought to their attention. Laissez-faire type leaders are actually non-leaders. This style leader avoids responsibility, is absent, fails to follow up, and resists sharing views on important issues.

Avolio and Bass (2004) and Rowold (2005) offered descriptors of outcome as well. Extra effort is illustrated by getting others to try harder, heightens others to succeed, and gets other to do more than expected. Effectiveness is illustrated by effectively meeting others' job related needs, effectively representing their group to higher authority, and leading a group that is effective. Satisfaction is illustrated by using methods of leadership that are satisfying and working with others in a satisfactory way.

Rowold (2005) stated the MLQ 5X-short was tested for reliability by calculating interrater agreement. Intraclass correlation (ICC) is one possible

indicator for interrater agreement. Test-retest reliability is another indicator of a construct's temporal stability. Hofmann and Jones (2005) discussed the use of analysis of variance (ANOVA), along with ICC, and test-retest. All three methods are employed with the MLQ 5X-short.

Jones, (2001), Northouse (2001), Tucker and Russell (2004) described several strengths of the transformational approach. The transformational approach has been well researched using many methodologies including a number of qualitative studies. Over 200 theses, dissertations, and research projects have been done utilizing this approach. The approach makes sense and treats leadership as a process. The approach augments other leadership models. Finally, the approach focuses on the subordinates needs. Conversely, transformational leadership lacks conceptual clarity. The approach can be seen as too simplistic in some respects. Arguments have been made that the approach relies too much on personality and qualitative analysis. The charismatic element of transformational leadership lends itself to abuse (Bass, 1990; Ohman, 2000; Riggio & Orr, 2004; Smith et al., 2004; Yukl et al., 2002). There have been a voluminous number of studies conducted to test and replicate the results of the MLQ 5X-short and the leadership styles of transformational, transactional, and laissez-faire leaders. Yet, there exist a dearth of studies which address the variables of leadership style, emergency/incident management/response, and a unified or team concept in a commingled analysis (Avolio et al., 2003; House & Aditya, 1997; Yukl, et al., 2002). Jung and Sosik (2002) stated most research regarding transformational leadership has evolved around follower's individual

performance as opposed to the goals found in the collective mission. Collective mission success would depend on outcomes such as empowerment, group cohesion, collective confidence, and group's effectiveness.

Antonakis et al. (2003) discussed environmental risk and leadership hierarchy as each pertains to transformational leadership. Expectations of leaders may be different between stable and crisis situations. Active management-by-exception may be called for in a high-risk situation. Likewise, first line supervisors may be more prone to exhibit individualized consideration as compared to high-level leaders. First line supervisors may also be more task oriented due to the very nature of their jobs as opposed to high-level leaders who are supposed to focus at a more conceptual level (Kearney & Gebert, 2009; Lester & Krejci, 2007; Riggio & Orr, 2004).

Leader-Member Exchange Theory. According to Yukl (2006), leader-member exchange (LMX) theory postulates that leaders develop different exchange relationships with different subordinates as the two parties mutually agree. This relationship evolves based on personal compatibility and subordinate competence. With time, a leader will develop either a high or low exchange relationship with each subordinate. Normally most leaders will develop high exchange relationships with a small number of subordinates. The employees will receive more desirable tasks, be privy to more information, and allowed to participate more and or at a higher level. This theory was modified to include a lifecycle model. LMX theory entails the growth or decline of relationships. LMX research has been examined as it relates to other variables. Research has taken

the form of field studies, some laboratory experiments, and a few studies have used observation and analysis. Ambiguity about the nature of the exchange relationship has been a consistent problem. The theory needs much more work and structure. Attribution processes need to be enhanced. Vertical dyadic relationships have been the primary focus of LMX theory. Most of the reliance on LMX has been based on static field studies with questionnaires. More needs to be done with longitudinal research and the use of other methodologies such as observation, interviews, and analysis of communication (Epitropaki & Martin, 2005; House & Aditya, 1997; Yukl et al., 2002).

Northouse (2001) described several of the strengths of LMX theory. LMX is a strong descriptive theory and makes common sense. LMX theory is the only theory that considers a dyadic relationship as the centerpiece of the leadership process. There is much research that supports this theory. The theory has been validated by linking LMX theory to real outcomes (e.g., Epitropaki & Martin, 2005). Conversely, stated Northouse, the major criticism of the theory is that it goes against the idea of fairness. Discrimination against the out-group is of concern. LMX did not create such discrimination; it only recognizes its existence. Strategies to stop such discrimination of out-group members are not offered. Another criticism of LMX theory is that it is not fully developed. Measurement of exchanges has been questioned since the results were not always comparable. Questions surround the standard scale used to measure exchanges as to whether it is unidimensional or multi-dimensional (Yukl et al., 2002).

Multiple-Linkage Theory. Bass (1990) and Yukl (2006) discussed multiple-linkage theory. For analyzing leadership behavior or traits during an incident, multiple-linkage theory appears to be an excellent choice. While it is more complex, it is much more comprehensive than other theories. Multiple-linkage theory includes more relevant intervening variables, a wider range of leader behaviors, and more situational variables. The multiple-linkage model is more of a general conceptual framework than a definitive theory. Likewise, it is difficult to test in a single study. The limited number of studies completed on this model thus far have resulted in inconsistent findings. However, while the model is congruent with the spirit of this exploration, it does not offer specific leadership traits that can be classified and categorized thus fitting into the typical labeling process such as autocratic, democratic, transactional, transformational, and so forth (Yukl et al., 2002).

Multiple-linkage model may have the soundest framework for the study of leaders interacting with subordinates and other leaders during an incident. Bass (1990), Northouse (2001), and Yukl (1989, 2006) stated this model built on earlier models of leadership and group effectiveness. The model described the interacting variables, which determine the performance of a work unit. Situational variables in the model exert influence at three points. They constrain managerial behavior and moderate its effects. They directly influence intervening variables. In addition, they determine the relative importance of the intervening variables. The casual relationships among types of variables are as follows: leader behavior coupled with situational variables otherwise known as neutralizers and

substitutes as described in leadership substitute theory. Intervening variables include subordinate effort, role clarity and task skills, organization of work, cohesiveness and cooperation, resources and support services, and external coordination. Likewise, other situational variables may come into play. The result being criteria of unit effectiveness. Put another way, based on team leadership the intervening variables are task commitment, ability, role clarity, organization of the work, cooperation and mutual trust, resources and support, and external coordination. The multiple-linkage model is one of the first contingency theories to emphasize leadership processes at the group level instead of the dyadic level (Yukl et al., 2002).

According to Yukl (1989), multiple-linkage theory lacks a large volume of research. The most glaring conceptual weakness is the absence of specific propositions regarding leader behaviors influence with intervening variables in which situations. It is more of a general framework than a formal theory. However, the model fits well with other leadership theories (Yukl et al., 2002).

Leadership Survey Instruments

Quantitative Instruments. According to Bass (1990), Northouse (2001), and Yukl (1989, 2006), the style approach uses Blake and Mouton's Managerial Leadership Grid. In addition, the style approach has used the LBDQ-XII. According to Wren (1995), the most comprehensive study of leadership behavior has used the LBDQ. Situational leadership has used the SLII model that is an extension of Hersey and Blanchard's original situational model. Leadership style has used the Path Goal Theory and the Path-Goal Leadership Questionnaire.

The MLQ 5X-short measures and assesses a range of transformational, transactional, and nonleadership scales. The LPI is a questionnaire, which measures and assesses leadership criteria developed and labeled by Kouzes and Posner (Kouzes & Posner, 2002; Wofford & Liska, 1993).

Blank et al. (1990) conducted a study wherein they tested the situational leadership theory. In this study, a sample consisting of 27 hall directors and 353 resident advisors from two large universities were the participants. The LBDQ-XII was used to measure task and relationship behavior (e.g., Jones, 2001). Blank et al. (1990) stated to capture maturity measures of job and psychological maturity were developed. The LBDQ-XII was administered to 350 upper-class students. Anonymity was assured. The overall response rate was 88%. Overall results offered nominal support for situational leadership theory. Blank et al. concluded by stating that longitudinal data would be a better source of analysis in such behavioral science research. Unlike the cross-sectional study undertaken in this research, a longitudinal study may have provided detailed information over time and changes that may occur within the population (Maxfield & Babbie, 1998).

In a study involving situational leadership Chen and Silverthorne (2005) examined leadership effectiveness. Three hundred and fifty survey instruments were randomly sent to selected managers throughout the United States. These instruments were sent to manufacturing and service companies to reduce bias in the sampling selection process. Twenty-six research hypotheses were examined. The study showed that leaders must be able and willing to adapt their leadership

style to the situation. The questionnaire in this study appeared to have been one created specifically for the study.

Atwater (1988) reported on a study he conducted involving the relative importance of situational and individual variables in predicting leader behavior and the impact on subordinate trust. It was discovered that particular leadership behaviors were not always effective across all situations. Fiedler's model involving contingency theory was the first such contingency theory. In this specific research, participants were drawn from three Navy Public Works Centers where the level of trust and loyalty was thought to play a key role in such contingency theories. The final sample consisted of 98 triads. Each triad consisted of a first-line supervisor, the supervisor's immediate supervisors, and two subordinates working for the first line supervisor. Forty-two questionnaire items were used from the LBDQ and the Supervisor Behavior Description Questionnaire (SBDQ). A composite report was derived from each supervisor and his or her subordinates, which stated what they actually did. The result of the research gives support to Fielder's Contingency Theory. Trust and loyalty are considerable factors involving leader behavior.

Qualitative Instruments. Justis (1975) examined leadership effectiveness from a contingency approach. Justis examined Fiedler's contingency theory. The three primary functions examined were positional power, the nature of the subordinate's task, and the nature of the interpersonal relationship between leader and subordinate. The method involved 84 male undergraduate students. Two assumptions were the basis of the study, which involved the independent

variables of reward dependence and leader competence. Unlike many experiments involving leadership, this was a true experiment involving a control group and test group. The results of this qualitative research experiment indicated that the level of leadership effectiveness is strongly affected by the perceived level of competence of the leader by the subordinate.

Testing instruments are not bound to a particular theory although some are more logically useful and appropriate. For instance, in *The Leadership Challenge*, Kouzes and Posner (2002) stated that the LPI was created to measure the leadership behaviors discussed in the book. Yet, it is not the only tool that can be used. Each research tool or questionnaire appears to be proprietary. This limits some exploration of each tool's usefulness or applicability.

Qualitative Versus Quantitative Methods and Other Methodological Issues

According to Yukl (2006), more studies are conducted on leadership behavior than any other aspect of leadership. Questionnaires wherein either the leader or subordinate are asked a series of questions is the most common method of research. Quantitative leadership studies can be very subjective. More use can and should be made of qualitative research. Lab and field experiments made up less than five percent of all the studies completed on leadership over the past 50 years. Many leadership theories have not been clear regarding the level of conceptualization for each variable. Analyzing multi-level data is beneficial. Often convenience samples are used in leadership studies. Yukl (1989) discussed the limitations of survey research by way of questionnaire-correlated research. Because of the limitations of survey research, some

leadership researchers have turned more toward qualitative descriptive methods such as interviews, intensive case studies, and observation. Qualitative-descriptive research is susceptible to bias and distortions as is any research. Prior researchers primarily used the survey method, which is dependent on the content of the survey in assuring the internal validity of the findings.

Bryman and Stephens (1996) described the importance of qualitative research. They began by illustrating four basic types of qualitative research. A detailed case study of a single organization and or leader is one type of study. This may entail observation, semi-structured interviewing, and examination of documents. Next is the multiple-case-study design. This would include an examination of a small number of organizations and leaders. This type research would most likely draw comparisons. Such research is what the book *Good to Great* was based on. The other methods previously described would also likely be used. The next design is based on a large number of leaders and would be a semi-structured interview process. Lastly, there is the design that invites people to describe specific leaders or leadership practices in detail. Questionnaires, such as the MLQ 5X-short, address specific types of behavior whereas a semi-structured interview allows the respondent to bring forth his or her own traits and preoccupations.

Leadership Model Summation

Yukl (1989) pointed out the limitations of questionnaire-correlational research. Yukl stated that some researchers are using more qualitative and descriptive methods including observations, interviews, and intensive case

studies. Of course, qualitative studies can lend themselves to more subjectivity and create more biases or distortions. Hence, multiple methods in researching leadership reduces methodological errors and increases the operational effectiveness and validity both internal and external of the study. As it stands, research-involving leadership is still heavily weighted toward questionnaires and a quantitative approach.

Having analyzed many leadership theories and data collection options the following were considered potential research methods and theories. According to Bass (1990) and Yukl (2006), path-goal theory offers the intervening variables of subordinate expectations and valences. Situational moderator variables, which include characteristics of task and environment and characteristic of subordinates, are considered. Path-goal theory provides four leadership styles: directive, supportive, participative, and achievement-oriented. Path-goal theory emphasizes the relationship between the leader's style and the characteristics of the subordinates and the work setting. The LPC contingency model considers how the situation moderates the relationship between leadership effectiveness and a trait measure called LPC score are relevant to this study. Along with the motive hierarchy, the pattern of leadership behavior varies depending upon the situation. Low LPC leaders are supposed to value task success. High LPC leaders are supposed to value interpersonal success. The LPC score and effectiveness is dependent on a complex situational variable called favorability or situational control. The elements considered are leader-member relations, position power, and task structure. All of these variables fit nicely into the study.

Leader-member exchange theory model describes the interacting variables, which determine the performance of a work unit.

According to Yagil (2002), situational variables in the model exert influence at three points. They constrain managerial behavior and moderate its effects. They directly influence intervening variables. In addition, they determine the relative importance of the intervening variables. The casual relationships among types of variables are as follows: leader behavior coupled with situational variables, otherwise known as neutralizers and substitutes are described in leadership substitute theory. Intervening variables include subordinate effort, role clarity and task skills, organization of work, cohesiveness and cooperation, resources and support services, and external coordination. Based on team leadership the intervening variables are task commitment, ability, role clarity, organization of the work, cooperation and mutual trust, resources and support, and external coordination. Multiple-linkage model is one of the first contingency theories to emphasize leadership processes at the group level instead of the dyadic level.

Summary

The literature illustrates the role of emergency and incident management leadership when dealing with emergencies. Likewise, the fragmented and disparate use and acceptance of ICS and UC was illustrated. The need for leadership, and more specifically team leadership, involving a multi agency response was discussed. Atwater and Bass (1994) stated transformational leadership works best in a crisis and when ambiguity is high. After examining

various leadership theories it was determined that transformational leadership and use of the MLQ 5X-short would be the best theory and instrument to examine the leadership questions posed (Kearney & Gebert, 2009).

The use of ICS and UC in the Commonwealth of Virginia was examined in this study. The role leadership plays and whether a particular style leadership is dominant when dealing with emergencies is illustrated. Finally, a determination has been made as to the perceived effectiveness of one style of leadership over another when dealing with emergencies. Congruently, these answers will provide important information for future incident commanders when working together during the response and recovery phases of emergencies.

CHAPTER 3: RESEARCH METHOD

According to Canton (2007) and Lindell et al. (2007), acts of terrorism continue to grow more ominous with the possible use of chemical, biological, or nuclear devices. Add catastrophic natural weather events that occur every year and the need for a well-orchestrated response to all hazards remains paramount. The leaders of first responders during an incident must practice command, communication, cooperation, and coordination to maximize the effectiveness and efficiency of any given response (Carlson, 1999).

According to Bullock et al. (2006), between 1976 and 2004, there were 1,069 major disaster declarations in the United States. In 1999 there were 50 major disasters declared in 38 states. There is a substantial list of known and potential types of human-made and natural disasters. Bridge collapses, pandemics, major traffic crashes, wildfires, floods, ice storms, earthquakes, hurricanes, tornadoes, chemical spills, school shootings, and any style terrorist attack provide a partial list of what those in the emergency response community respond to every day. Failing to properly lead the response and recovery efforts to any one of these events can cause cascading effects resulting in more loss of life, more injuries, more loss of property, and economic loss (Howitt, 2004; Sapriel, 2003; Waugh & Streib, 2006; Weiss, 2002).

While the dynamics of each incident may differ, there is one common thread: it will take decisive and appropriate leadership to resolve the situation (Bourne, 2005; Howitt, 2004). Lester (2007) stated that it will take transformational leadership coupled with NIMS to achieve success during all

phases of a disaster. Guidelines have been provided regarding how to prepare for and respond to incidents in a uniform manner throughout the country (Bourne, 2005; Perry, 2003). What appear to be lacking are guidelines on how to lead during such incidents. Team or group leadership has been the subject of much research (Avolio et al., 2003). What remains to be examined in detail is individual, group, and/or team leadership during a real world incident. Even in the limited number of studies completed regarding team or group leadership, the focus has been on groups who have been established and function in a less than hazardous environment (Avolio et al., 2003; King, 2002).

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. According to Buck et al. (2006), the ICS, as set out in the NIMS, will not likely work as intended (Lester, 2007). The ICS provides a universal response model to all incidents; however, it is recognized that ICS works best with firefighting organizations and is less successful with police, public health, and public work-style agencies. The fire service actually created ICS and has used the system the longest. The fire service has long worked in a team environment as opposed to police who typically work and handle calls for service alone. Transportation agency personnel have typically found themselves on the periphery of emergency response and normally in an assist mode (Buck, 2004; Buck et al., 2006;

Cardwell & Cooney, 2000; Helman, 2004; Reardon, 2005; Walsh et al., 2005; Weiss, 2002).

Social relationships are essential to the success of ICS (Walsh et al., 2005). Along with social relationships come the styles and attributes of leadership (Avolio et al., 2003; Boin & Hart, 2003). Responses to incidents often have political elements. Hurricane Katrina is cited as a prime example of the wrong combination of ICS preparedness, leadership differences, and politics, which created inadequate decision-making and a poor response (Cooper & Block, 2006; Dixon, 2006; Fisher, 2005; Garcia, 2006; Lester, 2007; Weiss, 2002).

The purpose of this mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during incidents that utilized a UC approach within the Commonwealth of Virginia and investigate differences between disciplines in leadership style. The disciplines that were examined included fire/EMS, police, and transportation or public works organizations. The incidents under examination involved large-scale tractor-trailer crashes, which occurred on the public highways within the Commonwealth of Virginia.

The following research questions and hypotheses were used to guide the mixed method dissertation study:

RQ1: What was the dominant leadership style used during an incident by the on-scene fire/EMS incident commanders?

RQ2: What was the dominant leadership style used during an incident

by the on-scene police incident commanders?

RQ3: What was the dominant leadership style used during an incident by the on-scene transportation incident commanders?

RQ4: What, if any, difference existed between the leadership styles of the fire/EMS incident commander compared to commanders from other disciplines during similar incidents?

H1_o: Responding fire/EMS commanders will not use different leadership styles than do commanders from other disciplines.

H1_a: Responding fire/EMS commanders will use different leadership styles than do commanders from other disciplines.

RQ5: What, if any, difference existed between the leadership styles of the police incident commander compared to commanders from other disciplines during similar incidents?

H2_o: Responding police commanders will not use different leadership styles than do commanders from other disciplines.

H2_a: Responding police commanders will use different leadership styles than do commanders from other disciplines.

RQ6: What, if any, difference existed between the leadership styles of the transportation incident commander compared to

commanders from other disciplines during similar incidents?

H3_o: Responding transportation/public works commanders will not use different leadership styles than do commanders from other disciplines.

H3_a: Responding transportation/public works commanders will use different leadership styles than do commanders from other disciplines.

Research Methods and Design(s)

The optimal design for studying the relationships encompassed in the research project was a purposively selected, multi-grouped, non-experimental, quantitative, descriptive, correlational design. The mixed methodology dissertation study included three primary disciplines among first responders to most incidents. Some incidents create more of a single command response. For the purpose of this research, only incidents requiring a UC response were examined.

According to Bass (1990), Kearney and Gebert (2009), and Yukl (2006), transformational leadership increases follower motivation and performance. Transactional and transformational leadership are not and should not be mutually exclusive. The aforementioned taxonomy was identified mainly by factor analysis of a behavior description questionnaire called the MLQ 5X-short (Antonakis et al., 2003; Avolio & Bass, 2004; Bass, 1998; Howell & Avolio, 1993; Riggio & Orr, 2004). Bass (1990) and Yukl (2006) stated laissez-faire leadership has been added as a third category. Bass and Riggio (2006) stated transformational

leaders may do better in an emergency because, unlike transactional leaders who focus on short-term outcomes and may be more likely to make rushed and poorly thought-out decisions, transformational leaders are more likely to defer from making premature decisions (Kearney & Gebert, 2009).

According to Bass (1990), Northouse (2001), and Yukl (1989, 2006), the MLQ 5X-short instrument measures and assesses a range of transformational, transactional, and nonleadership scales. Questionnaires, such as the MLQ 5X-short, address specific types of behavior whereas a semi-structured interview allows the respondent to bring forth his or her own traits and preoccupations (Bryman & Stephens, 1996). The MLQ 5X-short has nine leadership scales along with three outcome scales. The MLQ 5X-short form analyzes 36 leadership factors. The survey measures nine factors.

Transformational leadership includes these factors: idealized influence (attributed), idealized influence (behavior), inspirational motivation, intellectual stimulation, and individualized consideration. Transactional leadership includes these factors: contingent reward, management-by-exception (active), management-by-exception (passive). Laissez-faire is the final measure and considered a non-leadership style. The MLQ 5X-short also measures three outcome factors including: extra effort, effectiveness, and satisfaction (Avolio et al., 1999; Bass, 1990, 1998; Riggio & Orr, 2004).

Construct validity of the MLQ 5X-short has been assessed through numerous studies that illustrated support through factor analysis (Yukl, 2006). According to Avolio and Bass (2004) and Rowold (2005), the MLQ 5X-short has

been developed, enhanced, and validated over the past 20 years. The validation process has demonstrated both factorial and convergent validity, as well as internal consistency, test-retest-reliability, and interrater agreement. Atwater and Bass (1994) stated transformational leadership works best in a crisis and when ambiguity is high. After examining various leadership theories it was determined that transformational leadership and use of the MLQ 5X-short would be the best instrument to examine the leadership questions posed (Kearney & Gebert, 2009).

Participants

The focal events of interest in this study were fatal crashes involving large commercial vehicles (including straight trucks, tractor-trailers, and twin trailers) in Virginia during 2006. All crashes that utilized a UC approach were considered for the study. A UC or team approach as conceptualized for this research was one that involved at least two or more leaders or commanders from each of the respective agencies of fire/EMS, police, and transportation/public works. Although the original expectation was to obtain data from multiple commanders from each incident, this proved to be too difficult to obtain. Hence, data was available from only one leader for many of the incidents.

The leadership style of each incident commander as exhibited only during the specific incident under examination was considered. The other responders/followers may routinely had limited exposure to the leaders in question. In some cases, the incident commander of a particular agency may not actually have had subordinates to lead at the scene but would still interact with others. Such exposure may be limited to the one incident in question.

The concept of a UC requires a team approach from the various responding agencies (Flin, 1996; Molino, 2006). A UC or team approach as conceptualized for this research required that at least two or more leaders or commanders from each respective agency were involved in a given incident. Helman (2004) stated that the major participants in traffic incident management are law enforcement, fire and rescue services, and EMS. While it was determined that in all incidents under examination there were at least two leaders this researcher was unable to obtain consent or acknowledgment but by only a few leaders within the same incident.

It was decided early on to limit the type of incident/emergency to be analyzed to a large-scale highway incident. Such incidents create the need for a UC more so than the typical daily emergency. The other types of emergencies requiring a unified response would be fewer in number and cross the expanse of the entire country.

All data were obtained from the Virginia Department of Motor Vehicles 2006 crash database. During 2006, there were 107 such crashes in Virginia. Each crash had an incident commander from the fire/EMS and police disciplines. In 19 of the crashes there was also a transportation leader present and in two cases a leader from another discipline was present.

Materials/Instruments

The MLQ 5X-short questionnaire was the primary survey instrument and was purchased in its entirety for this study. This instrument was used to assess the frequency of the three leadership styles: transformational, transactional, and

laissez-faire. Each commander completed one MLQ 5X-short for himself or herself and was asked to have subordinates who were on scene complete the MLQ 5X-short survey evaluating the commander's leadership style.

The MLQ 5X-short form is commercially available and copyrighted, with complete instructions for standardized administration. This instrument consists of nine leadership scales along with three outcome scales. The nine leadership scales include: idealized influence (attributed), idealized influence (behavior), inspirational motivation, intellectual stimulation, individualized consideration, contingent reward, management-by-exception (active), management-by-exception (passive), and laissez-faire measures (Avolio et al., 1999; Avolio & Bass, 2004; Bass, 1990; Rowold, 2005). The MLQ 5X-short also consists of three outcome scales: extra effort, effectiveness, and satisfaction (Avolio et al., 1999; Avolio & Bass, 2004; Bass, 1990; Rowold, 2005). Appendix E contains a sample of the MLQ 5X-short form.

The survey questions not already found in the MLQ 5X-short were developed into a separate survey. This survey is the Incident Commander Form of the Descriptive Index (Appendix D). This survey instrument captured organization type, individual level of experience, perception of incident difficulty, perception of team performance, and the number of similar incidents the commander had been tasked with handling previously. Organization type possible responses included fire/EMS, police, transportation/public works, and other. Individual level of experience as an incident commander in a UC possible responses included: 0-5 incidents, 6-10 incidents, 11-15 incidents, 16-20 incidents, and 21- plus incidents.

Incident difficulty (complexity) possible responses included not difficult, slightly difficult, difficult, very difficult, and extremely difficult. Anchor definitions were provided for the two ends of the scale. Team/unit (UC) performance possible responses included very poor, poor, average/acceptable, good, and very good. Descriptive statistics were used to answer Research Questions 1-3. Inferential statistics were used to answer Research Question 4-6.

To increase internal validity in the dissertation, potential confounding variables were accounted for by limiting available response to those presented in the survey. To increase the study's construct validity, the research questions were precisely stated to measure what the study sought to measure. In addition to using the well-tested MLQ 5X-short, a survey instrument, Appendix D, which contains demographic/self evaluation data, was carefully designed to reflect the precision of the research questions. To increase study internal validity, participants were asked to respond to a survey that was strictly controlled by response options. That is, respondents could only select between options available and a non-response or a "don't know" response was not allowed.

In order to assess internal consistency reliability, Cronbach's alpha was used to assess how well the items on each subscale reflected unitary constructs (i.e., the extent to which all items measured the same thing). Intraclass correlation (ICC) is one possible indicator for interrater agreement. Test-retest reliability is another indicator of a construct's temporal stability. Hofmann and Jones (2005) discussed the use of ANOVA, along with ICC, and test-retest. All three methods are employed with the MLQ 5X-short.

Measurement elements to support greater external validity in the study was a non-probability purposive sample, using components of a validated survey (MLQ 5X-short), and a statewide sample that was distributed across the Commonwealth, as well as organizational size and type (StatSoft, n.d.; MaCorr Research Solutions Online, n.d.). External validity was enhanced by administering the survey to those with functional and legal authority to act as commanders for their agencies at the scenes of various transportation-related incidents/emergencies of a large scale within the Commonwealth of Virginia.

Operational Definition of Variables

The independent variables in the research were the already formed groups/disciplines, which included fire/EMS, police, and transportation. The dependent variables in the research were leadership style which included transformational, transactional, or laissez-faire leadership styles of the MLQ 5X-short.

The qualitative part of the study explored the question: What was the dominant leadership style used during the incident by the on-scene incident commanders? Descriptive statistics were used to answer this question. The second question was: What was the dominant leadership style used during the incident by the on-scene incident commanders from each discipline? Inferential statistics were used to explore the relationship between the leadership and organization type.

Potential confounding variables in leadership research include subordinate effort, role clarity and task skills, organization of work, cohesiveness and

cooperation, resources and support services, and external coordination. These intervening variables are found in any organizational setting and are magnified during emergencies (Yukl, 2006). Because the present study involved real world incidents, there was no way to control every potential confounding variable. However, the same type incidents were chosen for this reason. Data was aggregated to compare the various disciplines across incidents.

Data Collection, Processing, and Analysis

A timeline was created to act as a guide to administer the survey instruments, to collect, aggregate, and analyze the data, and to interpret and disseminate the results. The Virginia Department of Motor Vehicles (DMV) was contacted to obtain information regarding traffic fatalities involving straight trucks, semitrailers, and twin trailers during 2006. The DMV provided a list of 106 such crashes. In keeping with the Code of Virginia, regarding Freedom of Information material and privacy issues, the following information was requested: date of fatality, county/city of fatality, and name of the investigating officer. Officers' names were determined based on the badge or code number provided by the DMV.

The investigating officers were contacted by phone and asked basic questions to determine who the incident commanders were and to verify the data collected thus far. The investigating officer verified whether a UC or team approach was used, and he or she identified which agencies responded to the crash and who was in charge from each agency. The preliminary questionnaire used for this portion of the data collection can be found in Appendix A. Standard

definitions related to the study were provided in Chapter 1. One additional incident was added to the list as a result of this process. It was likely, based on the type crash, that the investigator only focused on the crash and left the larger scene management to the other incident commanders. This in fact was the case, but in many incidents the investigating officer was the police incident commander. This was the first significant piece of data: whether anyone acted as an incident commander.

Based on the preliminary information collected during the initial phase of this data collection process, 163 surveys were sent out via hard copy by the U.S. Postal Service. From the 107 crashes, one hundred sixty-six leaders were identified, but in three cases the incident commander for one agency played a dual role in another lead agency. The surveys included an informed consent form (Appendix B), a cover letter with instructions (Appendix C), and the Incident Commander Form of the Descriptive Index (Appendix D). Three weeks after the initial survey was sent out, a follow up post card was sent to each incident commander who had not already replied. Based on this phase of data collection it was determined that 60 out of the 163 (37%) leaders were willing to complete the MLQ 5X-short form. This determination was based on the incident commanders completing the Incident Commander Form of the Descriptive Index and consent form. Each leader rated his or her own leadership style that occurred only during the handling of the incident (Flin, 1996). Each incident commander evaluated his or her perceived level of success involving the incident.

The Incident Commander Form of the Descriptive Index questionnaire (Appendix D) was delivered to each incident commander for the respective agency in each particular incident. This took the form of notifying said participant to complete the survey with directions. The responses were tracked by the previously coded number and the date. Three follow-up attempts were made to increase the return rate for the data collection phase, including an email, a post card, and a phone call. The same follow-up process was used regarding the MLQ 5X-short data collection phase.

Each participant was coded with a number in ascending order, along with a letter to identify their professional role. Each commander was contacted by way of a written explanation and request. This written request included an informed consent form providing the necessary information regarding voluntary participation and a no harm statement (Appendix B). Instructions were provided with information as to how the commander could complete the MLQ 5X-short survey online. The MLQ 5X-short survey instrument was presented to leaders to take themselves and distribute to subordinates that worked with them on the incident under examination. When responding to the electronic MLQ 5X-short survey, the incident commanders were asked to complete the self-evaluation based on their leadership style during the incident in question. During the initial development of the research, it was expected that only incidents wherein at least two commanders participated would be included for analysis. However, based on the fragmented responses within incidents, a narrow analysis of those incidents was unable to be conducted; thus, a broader analysis across incidents and disciplines was utilized.

Follow up requests were made to those commanders who had not returned the mailed survey. A post card, email, and phone call were made in that order as needed. The initial follow up took place 15 days from the date the first survey was sent. The final response rate, involving the actual completion of the MLQ 5X-short by the incident commanders, was 62%. Once all of the data had been collected and entered into an electronic database, SPSS was used to analyze and to interpret the data. Correspondence thanking those commanders who participated was sent. The data collected during this research was treated confidentially.

Prior to any analyses, the data for the dependent variables were reviewed for normality and homogeneity to ensure that the assumptions of parametric analyses were met. Normality was tested by skewness > 2 standard errors, Q-Q plots (deviations from the line indicate non-normal distributions). Homogeneity was examined as part of each *t* test via Levene's test of homogeneity of variances. Descriptive statistics (i.e., means and standard deviations) were used to answer Research Questions 1-3, which sought to determine the leadership style most strongly exhibited by each emergency response group. Inferential statistics were used to answer Research Questions 4-6. Specifically, independent samples *t* tests were used to compare each group to the other two. The intention had been to use an ANOVA to compare the mean differences across all three groups. However, there was insufficient data in one group (transportation commanders) to do so.

Internal consistency of the MLQ 5X-short subscales was examined using Cronbach's alpha (SPSS, 2000). The data collection process outlined resulted in

collection of Likert-scale continuous data. It was expected that the use of continuous data would result in parametric distribution of the dissertation data. Data was measured at the interval level and examined to determine if the data was parametric. Parametric data associated with the dependent variables of the dissertation research were evaluated through the SPSS and MLQ 5X-short output for all data. Data screening procedures to examine the data for outliers, normality, and homogeneity was conducted. Descriptive statistics (means, standard deviations) describing the nine leadership styles and 3 outcomes from the MLQ 5X-short for the total sample were utilized. Likewise, descriptive statistics (means, standard deviations) describing the 9 leadership styles and 3 outcomes from the MLQ 5X-short for each subset of participants was examined. Finally, independent samples *t* tests comparing each subset to the other two in terms of differences between groups on the various leadership styles and outcomes on the MLQ 5X-short were completed.

Methodological Assumptions, Limitations, and Delimitations

Not being a true experiment reduced the ability to have rigid control over rival factors in the experiment. Manageable data was not easily accumulated or processed. The study was designed to depict the characteristics of what was observed, to determine settings for investigation, to target particular features involving those settings for special attention, to describe in various ways the findings, and to attempt to reveal dominant leadership traits, which may allow for further investigation.

The research design was descriptive and exploratory in nature for Research Questions 1-3 because so little was known from previous experiments or studies about the topic. The research design was quantitative and correlational/comparative in nature for Research Questions 4-6. The theoretical foundation of the research relied on known leadership principles and experimental research in other fields of study.

The study used the MLQ 5X-short to assess the frequency of the several leadership styles. Construct validity of the MLQ 5X-short has been assessed through numerous studies that have illustrated support through factor analysis (Yukl, 2006). According to Rowold (2005), the MLQ 5X-short has been developed, enhanced, and validated over the past 20 years. The validation process has demonstrated both factorial and convergent validity, as well as internal consistency, test-retest-reliability, and interrater agreement.

There were several limitations in the study. One weakness caused by this lack of randomness was the inability to control confounding extraneous variables (Aczel & Sounderpandian, 2002; Champion, 2006; Hagan, 2006). Participation was sought from at least two incident commanders within each incident. This did not happen in a majority of instances. Verifying or at least obtaining follower perception of the observed incident commanders would have enhanced validity but data gathering was problematic (e.g., Ohman, 2000). Another weakness was having to rely on the self-ratings of MLQ 5X-short ratings from the incident commanders only. This was due to low and fragmented responses and agreement to participate.

Also, MLQ 5X-short ratings submitted by subordinates had to be excluded from analysis to maintain independence for t-testing purposes.

According to Collard (2002) and Miller (2006), there will be unique circumstances for each situation such as the complexities and hazards involved in the particular situation and the level of experience and expertise of the followers involved. These variables were not examined. However, these variables were illustrated. A weakness of the study may be the elapsed time from the incident to the data collection from the leaders. Another concern was the ability to obtain cooperation from the individual incident commanders and/or their agencies. This concern proved to be valid.

There were several delimitations regarding this study. The mixed methodology research study was a non-experimental design. The study did not have random assignment of people to groups. Conceptualization of the study did not call for a stimulus hence there was no need for either randomness or a control group. The design of this study necessitated natural situations, which would have been difficult to simulate in an artificial environment (Champion, 2006). This non-experimental design was not artificial in nature, which could have hindered generalizability. Similar incidents were chosen all of which provided similar levels of complexity and stressors.

Ethical Assurances

The completion of the questionnaires was voluntary. Appendix B contains the informed consent form and cover letter. This research involved no deception and was not experimental in nature. The information gathered was confidential.

Confidentiality was maintained by assigning specific groups of leaders to incident numbers and assigning each leader in the incident an identifying number. The various incident commanders and incidents were not identified by name or other means that would have divulged their identity or specific agency. No foreseeable risks were recognized in this study. The benefits were significant to the participants in that there is potential for enhanced leadership during emergency operations. Informed consent was obtained prior to proceeding with each commander. Permission was obtained from the Northcentral University Internal Review Board prior to initiating data collection.

Summary

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. The purpose of this mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during incidents that utilized a UC approach within the Commonwealth of Virginia and investigate differences between disciplines in leadership style. The research questions guiding this study were: a) What is the dominant leadership style used during an incident by the on-scene incident commander^[0]?; and b) What, if any, differences exist between the leadership styles of the incident commander compared to commanders from other

disciplines during similar incidents? The optimal design for studying the relationships encompassed in the research project was a purposively selected, multi-grouped, non-experimental, quantitative, descriptive, correlational design (Trochim, 2005). The disciplines examined included fire/EMS, police, and transportation or public works organizations.

The MLQ 5X-short form was the primary survey instrument. The MLQ 5X-short was used to assess the frequency of the three leadership styles: transformational, transactional, and laissez-faire. Each commander completed one MLQ 5X-short for him or herself and was asked to have subordinates who were on scene complete the MLQ 5X-short survey. The demographic/self evaluation Likert-type scaled questionnaire was used to collect organization type, perception of team/unit performance, perception of incident difficulty, and number of like incidents the commander has been tasked with handling previously. Once data were collected, SPSS software application was used to examine the distribution of the variables of interest and assumptions of parametric analyses. Descriptive statistics were used to describe the leadership style utilized by each group, and independent samples *t* tests were used to compare each discipline against the other two in terms of their leadership style.

CHAPTER 4: FINDINGS

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. The purpose of this mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during incidents that utilized a UC approach within the Commonwealth of Virginia and investigate differences between disciplines in leadership style. The disciplines that were examined included police, fire/EMS, and transportation or public works organizations. The incidents under examination involved large-scale tractor-trailer crashes that occurred on public highways within the Commonwealth of Virginia.

Results

Data were collected from incident leaders of fire/EMS, police, and transportation disciplines who responded to traffic crashes involving large commercial vehicles including straight trucks, tractor-trailers, and twin trailers. Included in the survey questionnaire were three demographic variables consisting of experience, incident difficulty, and team performance. Since the survey was administered to fire/EMS, police, and transportation officials, all respondents were of adult age and 60 respondents provided their written consent.

Once it was determined who investigated each fatality, attempts were made to contact each investigator multiple times over the next 8 weeks. Each investigator was called at least twice and emailed or called a third time. Of the 107 fatalities, 17 (16%) of the investigators never returned any phone call or email. In addition, one agency refused to answer any question without a Freedom of Information Act request in writing, and two investigators stated they did not investigate the crashes as the records indicated. Hence, these 20 (19%) fatal crashes were excluded from further analysis.

Of the 87 crashes that fit the inclusion criteria for the research, 16 (18%) were not applicable for further examination. The preliminary contacts indicated that UC was not used and that the agencies did not work together. In one of these cases, no vehicles involved fit the definition submitted. This left 71 crashes available for analysis. After having obtained the reports, each report was coded numerically along with a letter of the alphabet corresponding to each discipline under examination.

Thirteen agencies with emergency response roles within the Commonwealth of Virginia participated in this survey. Data were collected from incident commanders representing six police agencies, including one state police agency, four metropolitan/urban police agencies, and one rural police agency. Six fire agencies were represented, including five metropolitan/urban fire agencies and 1 rural fire/public safety agency. All six fire agencies were paid, professional staff; no volunteer fire agencies participated in the study. One state

transportation agency was represented. These agencies were dispersed geographically across the Commonwealth of Virginia.

Sixty MLQ 5X-short surveys were sent electronically to incident commanders as follows: 13 fire/EMS leaders, 41 police leaders, and 6 transportation leaders. Thirty-nine (62%) of the MLQ 5X-short electronic surveys were completed by the incident commanders. Seven out of 13 (54%) fire/EMS leaders completed the survey. Seven fire/EMS subordinates, peers, or supervisors completed surveys. Thirty out of 41 (73%) police leaders completed surveys. Eighteen police subordinates, peers, or supervisors completed surveys. Three out of 6 (50%) transportation leaders completed surveys. No transportation subordinates, peers, or supervisors completed surveys; thus, subordinate ratings across all disciplines were excluded from analysis.

From the 60 responses received, 13 participants (21.7%) were incident leaders from fire/EMS discipline. No respondent indicated a team performance less than average or acceptable. Two (15%) respondents rated team performance as average and 11 (85%) were rated as good (Table 1). One (8%) respondent had 6-10 years of experience. Two (15%) respondents had 11-15 years experience. Ten (77%) respondents had 21 or more years of experience (Table 1).

Tables 1-8 represent the demographic/self evaluation Likert-type scaled questionnaire results which included organization type, perception of team/unit performance, perception of incident difficulty, and number of like incidents the commander has been tasked with handling previously. Tables 1-8 are cross

tabulations of the data, wherein the numbers in each cell represent the frequency, or number of individuals, who responded accordingly. For example, in Table 1, 2 respondents with 21+ years of experience rated their team performance as average/acceptable, whereas 8 respondents with 21+ years of experience rated their team performance as good.

Table 1

Cross-Tabulation of Experience and Team Performance in Fire/EMS Leaders

		Team Performance					Total
		Very poor	Poor	Average/ Acceptable	Good	Very good	
Experience	Years	Very poor	Poor	Average/ Acceptable	Good	Very good	Total
		0-5	0	0	0	0	0
	6-10	0	0	0	1	0	1
	11-15	0	0	0	2	0	2
	16-20	0	0	0	0	0	0
	21+	0	0	2	8	0	10
Total		0	0	2	11	0	13

Within the fire/EMS discipline there were 4 (31%) respondents who indicated the incidents were not difficult, 5 (38%) indicated the incidents were slightly difficult, 3 (23%) indicated the incidents were difficult, and 1 (8%) indicated the incident was very difficult (Table 2).

Table 2

*Cross-Tabulation Indicating Team Performance and Incident Difficulty in
Fire/EMS Leaders*

		Incident Difficulty					Total
		Not Difficult	Slightly Difficult	Very Difficult	Extremely Difficult		
Team Performance	Performance						
		Very Poor	0	0	0	0	0
	Poor	0	0	0	0	0	0
	Average	0	1	1	0	0	2
	Good	4	4	2	1	0	11
	Very Good	0	0	0	0	0	0
Total		4	5	3	1	0	13

From the 60 responses received, 41 participants (68.3%) were incident leaders from the police discipline. No respondents indicated a team performance less than average or acceptable. Eight (20%) leaders rated team performance as average, 20 (49%) rated it as good, and 13 (31%) rated it as very good (Table 3). Six (15%) respondents had 0-5 years of experience. Eight (20%) respondents had 6-10 years experience. Three (7%) respondents had 11-15 years experience. Five (12%) respondents had 16-20 years experience. Nineteen (46%) respondents had 21 or more years of experience (Table 3).

Table 3

Cross-Tabulation of Experience and Team Performance in Police Leaders

Police Experience * Team Performance Cross Tabulation							
		Team Performance					
		Very			Very		
Years		Poor	Poor	Average/Acceptable	Good	Good	Total
	0-5	0	0	1	4	1	6
	6-10	0	0	2	5	1	8
Experience	11-15	0	0	0	1	2	3
	16-20	0	0	2	1	2	5
	21+	0	0	3	9	7	19
Total		0	0	8	20	13	41

Within the police discipline there were 14 (34%) respondents who indicated the incidents were not difficult, 14 (34%) indicated the incidents were slightly difficult, 8 (20%) indicated the incidents were difficult, 3 (7%) indicated the incidents were very difficult, and 2 (5%) indicated the incidents were extremely difficult (Table 4).

Table 4

Cross-Tabulation Indicating Team Performance and Incident Difficulty in Police Leaders

		Police Team Performance * Difficulty Cross Tabulation					
		Difficulty					
		Not	Slightly	Very	Extremely		
	Performance	Difficult	Difficult	Difficult	Difficult	Difficult	Total
Team Performance	Very Poor	0	0	0	0	0	0
	Poor	0	0	0	0	0	0
	Average	2	3	1	1	1	8
	Good	8	7	2	2	1	20
	Very Good	4	4	5	0	0	13
Total		14	14	8	3	2	41

From the 60 responses received, 6 participants (10%) were incident leaders from the transportation discipline. All 6 (100%) leaders indicated a team performance as good (Table 5). Two (33%) respondents had 0-5 years of experience. Four (67%) respondents had 21 or more years of experience (Table 5).

Table 5

*Cross-Tabulation of Experience and Team Performance in Transportation**Leaders*

Transportation Experience * Team Performance Cross Tabulation							
Team Performance							
Years	Very			Very			Total
	Poor	Poor	Average/Acceptable	Good	Good		
0-5	0	0	0	2	0	2	
6-10	0	0	0	0	0	0	
Experience 11-15	0	0	0	0	0	0	
16-20	0	0	0	0	0	0	
21+	0	0	0	4	0	4	
Total	0	0	0	6	0	6	

Within the transportation discipline there was 1 (17%) respondent who rated the incident as not difficult, 2 (33%) who rated it as slightly difficult, and 3 (50%) who rated it as difficult (Table 6).

Table 6

*Cross-Tabulation Indicating Team Performance and Incident Difficulty in
Transportation Leaders*

		Transportation Team Performance * Difficulty Cross Tabulation					Total
		Difficulty					
Performance		Not Difficult	Slightly Difficult	Very Difficult	Extremely Difficult		
	Team Performance	Very Poor	0	0	0	0	0
Poor		0	0	0	0	0	
Average		0	0	0	0	0	
Good		1	2	3	0	6	
Very Good		0	0	0	0	0	
Total		1	2	3	0	6	

From the 60 responses received, 13 participants (21.7%) were incident leaders from fire/EMS discipline, 41 participants (68.3%) were incident leaders from police discipline, and 6 participants (10%) were incident leaders from transportation discipline. No respondents indicated a team performance less than average or acceptable. Ten (17%) leaders rated team performance as average or acceptable, 37 (61%) rated it as good, and 13 (22%) rated it as very good. Eight (14%) respondents had 0-5 years of experience. Nine (15%) respondents had 6-10 years experience. Five (8%) respondents had 11-15 years experience.

Five (8%) respondents had 16-20 years experience. Thirty-three (55%) respondents had 21 or more years of experience (Table 7).

Table 7

Cross-Tabulation of Aggregated Experience and Team Performance in All Disciplines

All Disciplines Experience * Team Performance Cross Tabulation							
		Team Performance					
		Very			Very		
Years	Poor	Poor	Average/Acceptable	Good	Good	Total	
0-5	0	0	1	6	1	8	
6-10	0	0	2	6	1	9	
Experience 11-15	0	0	0	3	2	5	
16-20	0	0	2	1	2	5	
21+	0	0	5	21	7	33	
Total	0	0	10	37	13	60	

Within all disciplines there were 19 (32%) respondents who rated the incident as not difficult, 21 (35%) who rated it as slightly difficult, 14 (23%) who rated it as difficult, 4 (7%) who rated it as very difficult, and 2 (3%) who rated it as extremely difficult (Table 8).

Table 8

Cross-Tabulation Indicating Aggregated Team Performance and Incident Difficulty in All Disciplines

		All Disciplines Team Performance * Difficulty Cross Tabulation					
		Difficulty					
		Not	Slightly	Very	Extremely		
	Performance	Difficult	Difficult	Difficult	Difficult	Difficult	Total
Team Performance	Very Poor	0	0	0	0	0	0
	Poor	0	0	0	0	0	0
	Average	2	4	2	1	1	10
	Good	13	13	7	3	1	37
	Very Good	4	4	5	0	0	13
Total		19	21	14	4	2	60

Evaluation of Findings

Prior to analyzing the six research questions, all data were examined to ensure the variables of interest were appropriately coded; no errors were found. Furthermore, the dependent variables were examined for any unusual data patterns (i.e., outliers) and none was found. Examination of the distributions of the dependent variables revealed that all were normally distributed. Significant outliers were considered to be any case that was 4 plus standard deviations from the mean, per Tabachnik, Fidell, and Fidell (2006).

Research Question 1: What was the dominant leadership style used during the incident by the on-scene fire/EMS incident commanders? To address Research Question 1, descriptive statistics were used to determine what the dominant leadership style of fire/EMS personnel used when responding to large commercial vehicle fatal crashes. Results indicated that Individualized Consideration, with an average score of 3.25 ($SD = 0.58$) was the dominant style for fire/EMS personnel. This was followed closely by Inspirational Motivation, with an average score of 3.21 ($SD = 0.47$). Laissez-faire evidenced the lowest average score of 0.18 ($SD = 0.24$) followed by Management by Exception Passive: 0.57 ($SD = 0.64$). Thus, the dominant leadership style utilized by fire/EMS personnel was Individualized Consideration, which is a transformational leadership style (Table 9).

Table 9

Descriptive Statistics for Fire /EMS Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Attribute		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Idealized	7	2.93	0.61	-0.10	0.79	-0.69	1.59
Influence (Attributed)							
Idealized	7	3.07	0.53	0.34	0.79	1.53	1.59
Influence (Behavior)							
Inspirational	7	3.21	0.47	0.72	0.79	-0.54	1.59
Motivation							
Individualized	7	3.25	0.58	0.11	0.79	-1.92	1.59
Consideration							
Contingent	7	2.82	0.76	-1.83	0.79	3.55	1.59
Reward							
Management	7	1.64	0.85	0.34	0.79	-1.06	1.59
by Exception (Active)							

Table 9 (continued).

Descriptive Statistics for Fire /EMS Leadership Styles on the MLQ 5X-short

Leadership Attribute	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Management by Exception (Passive)	7	0.57	0.64	0.97	0.79	0.83	1.59
Laissez-faire	7	0.18	0.24	0.76	0.79	-1.69	1.59

Table 10 illustrates the leadership outcomes for the fire/EMS discipline.

The MLQ 5X-short has three outcome scales consisting of Extra Effort, Effectiveness, and Satisfaction. Fire/EMS incident commanders had a dominant outcome of Effectiveness ($M = 3.11$, $SD = 0.38$).

Table 10

Descriptive Statistics for Fire /EMS Leadership Outcomes on the MLQ 5X-short

Leadership Outcomes	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
Extra Effort	7	2.93	0.54	0.05	0.79	-1.99	1.59
Effectiveness	7	3.11	0.38	0.19	0.79	1.64	1.59
Satisfaction	7	2.79	0.49	-0.28	0.79	0.04	1.59

Research Question 2: What was the dominant leadership style used during the incident by the on-scene police incident commanders? To address Research Question 2, descriptive statistics were used to determine what the dominant leadership style of police personnel used when responding to fatal large commercial vehicle crashes. Results indicated that Individualized Consideration, with an average score of 2.88 ($SD = 0.60$), was the dominant style for police personnel. This was followed closely by Idealized Influence (Attributed), with an average score of 2.74 ($SD = 0.78$) and Contingent Reward, with an average score of 2.74 ($SD = 0.95$). Laissez-faire evidenced the lowest average score of 0.36 ($SD = 0.50$) followed by Management by Exception (Passive): 0.81 ($SD = 0.65$). Thus, the dominant leadership style utilized by police personnel was Individualized Consideration, which is a transformational leadership style (Table 11).

Table 11

Descriptive Statistics for Police Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Attribute		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Idealized	30	2.74	0.78	-0.67	0.43	-0.11	0.83
Influence (Attributed)							
Idealized	30	2.70	0.73	-0.17	0.43	-0.58	0.83
Influence (Behavior)							
Inspirational	30	2.55	0.76	0.21	0.43	-0.77	0.83
Motivation							
Intellectual	30	2.60	0.85	-0.95	0.43	1.73	0.83
Stimulation							
Individualized	30	2.88	0.60	-0.46	0.43	0.47	0.83
Consideration							
Contingent	30	2.74	0.95	-0.69	0.43	-0.44	0.83
Reward							

Table 11 (continued).

Descriptive Statistics for Police Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Attribute		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Management by Exception (Active)	30	1.86	0.77	-0.07	0.43	-1.01	0.83
Management by Exception (Passive)	30	0.81	0.65	1.02	0.43	0.77	0.83
Laissez-faire	26	0.36	0.50	2.23	0.43	6.28	0.83

Table 12 illustrates the leadership outcomes for the police discipline.

Police incident commanders had a dominant outcome of Satisfaction ($M = 3.17$, $SD = 0.55$).

Table 12

Descriptive Statistics for Police Leadership Outcomes on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Outcomes		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Extra Effort	29	2.71	0.63	-0.10	0.46	-0.03	0.89
Effectiveness	28	3.16	0.67	-0.23	0.43	-0.79	0.85
Satisfaction	25	3.17	0.55	-0.25	0.44	-0.39	0.86

Research Question 3: What was the dominant leadership style used during the incident by the on-scene transportation incident commanders? To address Research Question 3, descriptive statistics were used to determine what the dominant leadership style of transportation personnel used when responding to fatal large commercial vehicle crashes. Results indicated that Contingent Reward with an average score of 3.17 ($SD = 0.14$) was the dominant style for transportation personnel. This was followed closely by Idealized Influence (Attributed), with an average score of 3.11 ($SD = 0.19$). Laissez-faire evidenced the lowest average score of 0.22 ($SD = 0.38$) followed by Management by Exception (Passive): 1.00 ($SD = 0.87$). Thus, the dominant leadership style utilized by transportation personnel was Contingent Reward which is a transactional leadership style (Table 13).

Table 13

Descriptive Statistics for Transportation Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
Attribute		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Idealized Influence (Attributed)	3	3.11	0.19	1.73	1.23	-	-
Idealized Influence (Behavior)	3	3.00	0.25	0.00	1.23	-	-
Inspirational Motivation	3	2.92	0.14	-1.73	1.23	-	-
Intellectual Stimulation	3	2.92	0.14	-1.73	1.23	-	-
Individualized Consideration	3	2.92	0.14	-1.73	1.23	-	-
Contingent Reward	3	3.17	0.14	-1.73	1.23	-	-
Management by Exception (Active)	3	2.25	0.00	-	-	-	-

Table 13 (continued).

Descriptive Statistics for Transportation Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Attribute	Statistic		Statistic	Statistic	Std. Error	Statistic	Std. Error
Management	3	1.00	0.87	1.73	1.23	-	-
by							
Exception							
(Passive)							
Laissez-faire	3	0.22	0.38	1.73	1.23	-	-

Table 14 illustrates the leadership outcomes for the transportation discipline. Transportation incident commanders had a dominant outcome of Effectiveness ($M = 3.25$, $SD = 0.43$).

Table 14

Descriptive Statistics for Transportation Leadership Outcomes on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Outcomes	Statistic		Statistic	Statistic	Std. Error	Statistic	Std. Error
Extra Effort	3	3.11	0.50	0.94	1.23	-	-
Effectiveness	3	3.25	0.43	1.73	1.23	-	-
Satisfaction	3	3.00	0.00	-	-	-	-

Table 15 illustrates the aggregated leadership styles for all disciplines. Individualized Consideration was the dominant aggregated leadership style ($M = 2.95$, $SD = 0.58$). Laissez-faire was the least dominant (weakest) aggregated leadership style ($M = 0.32$, $SD = 0.45$).

Table 15

Descriptive Statistics for Aggregated Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Attribute	Statistic		Statistic	Statistic	Std. Error	Statistic	Std. Error
Idealized Influence (Attributed)	40	2.80	0.73	-0.78	0.37	0.28	0.73
Idealized Influence (Behavior)	40	2.79	0.68	-0.33	0.37	-0.21	0.73
Inspirational Motivation	40	2.70	0.73	-0.10	0.37	-0.65	0.73
Intellectual Stimulation	40	2.71	0.78	-1.21	0.37	2.71	0.73
Individualized Consideration	40	2.95	0.58	-0.37	0.37	0.57	0.73
Contingent Reward	40	2.79	0.88	-0.89	0.37	-0.01	0.73

Table 15 (continued).

Descriptive Statistics for Aggregated Leadership Styles on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness		Kurtosis	
Attribute		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Management by Exception (Active)	40	1.85	0.76	-0.14	0.37	-1.00	0.73
Management by Exception (Passive)	40	0.78	0.65	0.95	0.37	0.40	0.73
Laissez-faire	40	0.32	0.45	2.37	0.37	7.55	0.73

Table 16 illustrates the aggregated leadership outcomes for all disciplines. Effectiveness was the dominant aggregated leadership outcome ($M = 3.15$, $SD = 0.60$). Extra effort was the least dominant (weakest) aggregated leadership outcome ($M = 2.78$, $SD = 0.60$).

Table 16

Descriptive Statistics for Aggregated Leadership Outcomes on the MLQ 5X-short

Leadership	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis		
Outcomes		Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Extra Effort	36	2.78	0.60	-0.19	0.39	-0.14	0.77
Effectiveness	39	3.15	0.60	-0.21	0.38	-0.45	0.74
Satisfaction	38	3.09	0.53	-0.11	0.38	-0.26	0.75

Table 17 illustrates the strongest (dominant) and weakest leadership style for each discipline. Individualized Consideration was the dominant leadership style for fire/EMS ($M = 3.25$, $SD = 0.58$). Individualized Consideration was the dominant leadership style for police ($M = 2.88$, $SD = 0.60$). Contingent Reward was the dominant leadership style for transportation ($M = 3.17$, $SD = 0.14$). Laissez-faire was the least dominant (weakest) leadership style for all three disciplines, Fire/EMS ($M = 0.18$, $SD = 0.24$), police ($M = 0.36$, $SD = 0.50$), and transportation ($M = 0.22$, $SD = 0.38$).

Table 17

Descriptive Table Indicating Weakest and Strongest (Dominant) Leadership Styles Among Fire/EMS, Police, and Transportation Incident Commanders

Fire/EMS * Police * Transportation Leadership Styles Descriptive Table				
		Leadership Style	<i>M</i>	<i>SD</i>
Fire/EMS	Weakest	Laissez-faire	0.18	0.24
	Strongest	Individualized Consideration	3.25	0.58
Police	Weakest	Laissez-faire	0.36	0.50
	Strongest	Individualized Consideration	2.88	0.60
Transportation	Weakest	Laissez-faire	0.22	0.38
	Strongest	Contingent Reward	3.17	0.14

Table 18 illustrates the dominant leadership outcome for each discipline. The dominant leadership outcome for fire/EMS was effective ($M = 3.11$, $SD = 0.38$). The dominant leadership outcome for transportation was effective ($M = 3.25$, $SD = 0.43$). The dominant leadership outcome for police was satisfaction ($M = 3.17$, $SD = 0.55$).

Table 18

Descriptive Table Indicating Dominant Leadership Outcome Among Fire/EMS, Police, and Transportation Incident Commanders

	Leadership Outcomes	<i>M</i>	<i>SD</i>
Fire/EMS	Effectiveness	3.11	0.38
Police	Satisfaction	3.17	0.55
Transportation	Effectiveness	3.25	0.43

Research Question 4: What, if any, difference existed between the leadership styles of the fire/EMS incident commanders compared to commanders from other disciplines during similar incidents? The null (H_{1o}) hypothesis was responding fire/EMS commanders will not use different leadership styles than do commanders from other disciplines. The alternative (H_{1a}) hypothesis was responding fire/EMS commanders will use different leadership styles than do commanders from other disciplines. An independent samples *t* test was conducted to determine whether fire/EMS commanders differed from the other commanders in terms of their leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for one of the leadership styles, Inspirational Motivation; thus, the *t* test results for equal variances not assumed was interpreted. Results revealed that fire/EMS commanders utilized more Inspirational Motivation ($M = 3.21$, $SD = 0.47$) than did police and transportation commanders ($M = 2.59$, $SD = 0.74$), $t(38) = 2.16$, $p > .05$ (Table 19). Thus,

fire/EMS personnel utilized a different leadership style than their police and transportation counterparts. For Research Question 4, the null (H_{1_0}) hypothesis was rejected: fire/EMS personnel utilized a different leadership style than their police and transportation counterparts.

Table 19

Independent Samples t Test Results for Fire/EMS Versus Police and Transportation Leadership Styles

Leadership Attribute	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Idealized Influence (Attributed)	Fire/EMS	7	2.93	0.61	0.51	38	0.62
	Police & Transportation	33	2.77	0.76			
Idealized Influence (Behavior)	Fire/EMS	7	3.07	0.53	1.21	38	0.23
	Police & Transportation	33	2.73	0.70			
Inspirational Motivation	Fire/EMS	7	3.21	0.47	2.16	38	0.04*
	Police & Transportation	33	2.59	0.74			
Intellectual Stimulation	Fire/EMS	7	3.12	0.40	1.51	38	0.14
	Police & Transportation	33	2.63	0.82			

Table 19 (continued).

*Independent Samples t Test Results for Fire/EMS Versus Police and
Transportation Leadership Styles*

Leadership Attribute	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Individualized	Fire/EMS	7	3.25	0.58	1.52	38	0.14
Consideration	Police & Transportation	33	2.89	0.57			
Contingent	Fire/EMS	7	2.82	0.76	0.12	38	0.91
Reward	Police & Transportation	33	2.78	0.91			
Management by Exception (Active)	Fire/EMS	7	1.64	0.85	-0.79	38	0.44
	Police & Transportation	33	1.89	0.74			
Management by Exception (Passive)	Fire/EMS	7	0.57	0.64	-0.94	38	0.35
	Police & Transportation	33	0.83	0.65			
Laissez-faire	Fire/EMS	7	0.18	0.24	-0.88	38	0.38
	Police & Transportation	33	0.35	0.49			

*Denotes significant *t* value

Table 20 illustrates the Independent Samples t test results for fire/EMS versus police and transportation leadership outcomes. Based on Independent Samples t test results, the dominant leadership outcome for fire/EMS was Effective ($M = 3.11$, $SD = 0.38$) when compared with police and transportation ($M = 3.16$, $SD = 0.65$).

Table 20

Independent Samples t Test Results for Fire/EMS Versus Police and Transportation Leadership Outcomes

Leadership Outcome	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Extra Effort	Fire/EMS	7	2.93	0.54	0.71	34	0.48
	Police & Transportation	29	2.75	0.62			
Effectiveness	Fire/EMS	7	3.11	0.38	-0.22	37	0.83
	Police & Transportation	32	3.16	0.65			
Satisfaction	Fire/EMS	7	2.79	0.49	-1.71	36	0.10
	Police & Transportation	31	3.16	0.52			

*Denotes significant *t* value

Research Question 5: What, if any, difference existed between the leadership styles of the police incident commanders compared to commanders from other disciplines during similar incidents? The null (H_{2o}) hypothesis was

responding police commanders will not use different leadership styles than commanders from other disciplines. The alternative (H_{2a}) hypothesis was responding police commanders will use different leadership styles than commanders from other disciplines. An independent samples t test was conducted to determine whether police commanders differed from the other commanders in terms of their leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for two of the leadership styles, Inspirational Motivation and Intellectual Stimulation; thus, the t test results for equal variances not assumed was interpreted. Results revealed that police commanders utilized less Inspirational Motivation ($M = 2.55$, $SD = 0.76$) than fire/EMS and transportation commanders ($M = 3.13$, $SD = 0.41$), $t(29.39) = -3.00$, $p > .05$. Similarly, police commanders utilized less Intellectual Stimulation ($M = 2.60$, $SD = 0.85$) than fire/EMS and transportation commanders ($M = 3.05$, $SD = 0.35$), $t(36.02) = -2.38$, $p > .05$ (Table 21). Thus, police personnel utilized a different leadership style than their fire/EMS and transportation counterparts. For Research Question 5, the null (H_{2o}) hypothesis was rejected: police personnel utilized a different leadership style than their fire/EMS and transportation counterparts.

Table 21

*Independent Samples t Test Results for Police Versus Fire/EMS and
Transportation Leadership Styles*

Leadership Attribute	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Idealized	Police	30	2.74	0.79	-0.91	38	0.37
Influence (Attributed)	Fire/EMS & Transportation	10	2.98	0.51			
Idealized	Police	30	2.70	0.73	-1.41	38	0.17
Influence (Behavior)	Fire/EMS & Transportation	10	3.05	0.45			
Inspirational	Police	30	2.55	0.76	-2.25	38	0.03*
Motivation	Fire/EMS & Transportation	10	3.13	0.41	-3.00	29.39	
Intellectual	Police	30	2.60	0.85	-1.63	38	0.11
Stimulation	Fire/EMS & Transportation	10	3.05	0.35	-2.38	36.02	0.02*
Individualized	Police	30	2.88	0.60	-1.26	38	0.22
Consideration	Fire/EMS & Transportation	10	3.15	0.50			
Contingent	Police	30	2.74	0.95	-0.56	38	0.57
Reward	Fire/EMS & Transportation	10	2.93	0.65			

Table 21 (continued).

*Independent Samples t Test Results for Police Versus Fire/EMS and**Transportation Leadership Styles*

Leadership Attribute	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Management by Exception (Active)	Police	30	1.86	0.77	-0.11	38	0.91
	Fire/EMS & Transportation	10	1.83	0.76			
Management by Exception (Passive)	Police	30	0.81	0.65	0.45	38	0.65
	Fire/EMS & Transportation	10	0.70	0.70			
Laissez-faire	Police	30	0.36	0.50	1.00	38	0.32
	Fire/EMS & Transportation	10	0.19	0.27			

*Denotes significant *t* value

Table 22 illustrates the Independent Samples *t* test results for police versus fire/EMS and transportation leadership outcomes. Based on Independent Samples *t* test results, the dominant leadership outcome for police was Satisfaction ($M = 3.17$, $SD = 0.55$) when compared with fire/EMS and transportation ($M = 2.85$, $SD = 0.41$).

Table 22

*Independent Samples t Test Results for Police Versus Fire/EMS and
Transportation Leadership Outcomes*

Leadership Outcome	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Extra Effort	Police	26	2.71	0.63	-1.25	34	0.22
	Fire/EMS & Transportation	10	2.98	0.51			
Effectiveness	Police	29	3.16	0.67	0.02	37	0.98
	Fire/EMS & Transportation	10	3.15	0.38			
Satisfaction	Police	28	3.17	0.55	1.69	36	0.09
	Fire/EMS & Transportation	10	2.85	0.41			

*Denotes significant *t* value

Research Question 6: What, if any, difference existed between the leadership styles of the transportation incident commanders compared to commanders from other disciplines during similar incidents? The null (H_{3o}) hypothesis was responding transportation/public works commanders will not use different leadership styles than commanders from other disciplines. The alternative (H_{3a}) hypothesis was responding transportation/public works commanders will use different leadership styles than commanders from other disciplines. An independent samples *t* test was conducted to determine whether transportation commanders differed from the other commanders in terms of their

leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for two of the leadership styles, Contingent Reward and Management by Exception; thus, the *t* test results for equal variances not assumed was interpreted. Results revealed that transportation commanders utilized more Contingent Reward ($M = 3.17$, $SD = 0.14$) than did fire/EMS and police commanders ($M = 2.75$, $SD = 0.90$), $t(22.37) = 2.42$, $p > .05$. Similarly, transportation commanders utilized more Management by Exception ($M = 2.25$, $SD = 0.00$) than did fire/EMS and police commanders ($M = 1.82$, $SD = 0.78$), $t(36.00) = 3.40$, $p > .05$ (Table 23). Thus, transportation personnel utilized a different leadership style than their fire/EMS and police counterparts. For Research Question 6, the null (H_{3_0}) hypothesis was rejected: transportation personnel utilized a different leadership style than their fire/EMS and police counterparts.

Table 23

Independent Samples t Test Results for Transportation Versus Police and Fire/EMS Leadership Styles

Leadership Attribute	Role	N	M	SD	t	df	p
Idealized (Attributed)	Transportation	3	3.11	0.19	0.76	38	0.45
	Police & Fire/EMS	37	2.77	0.75			
Idealized (Behavior)	Transportation	3	3.00	0.25	0.55	38	0.59
	Police & Fire/EMS	37	2.77	0.71			
Inspirational Motivation	Transportation	3	2.92	0.14	0.54	38	0.59
	Police & Fire/EMS	37	2.68	0.76			
Intellectual Stimulation	Transportation	3	2.92	0.14	0.47	38	0.64
	Police & Fire/EMS	37	2.69	0.81			
Individualized Consideration	Transportation	3	2.92	0.14	-0.10	38	0.92
	Police & Fire/EMS	37	2.95	0.61			
Contingent Reward	Transportation	3	3.17	0.14	0.78	38	0.44
	Police & Fire/EMS	37	2.75	0.90			
Management by Exception (Active)	Transportation	3	2.25	0.00	0.96	38	0.35
	Police & Fire/EMS	37	1.82	0.78			

Table 23 (continued).

Independent Samples t Test Results for Transportation Versus Police and Fire/EMS Leadership Styles

Leadership Attribute	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Management by Exception (Passive)	Transportation	3	1.00	0.87	0.60	38	0.47
	Police & Fire/EMS	37	0.76	0.64			
Laissez-faire	Transportation	3	0.22	0.38	-0.37	38	0.71
	Police & Fire/EMS	37	0.32	0.46			

*Denotes significant *t* value

Table 24 illustrates the Independent Samples *t* test results for transportation versus police and fire/EMS leadership outcomes. Based on the Independent Samples *t* test results, the dominant leadership outcome for transportation was Effectiveness ($M = 3.25$, $SD = 0.43$) when compared with fire/EMS and police ($M = 3.15$, $SD = 0.62$).

Table 24

Independent Samples t Test Results for Transportation Versus Police and Fire/EMS Leadership Outcomes

Leadership Outcome	Role	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Extra Effort	Transportation	3	3.11	0.51	0.98	34	0.33
	Police & Fire/EMS	33	2.75	0.61			
Effectiveness	Transportation	3	3.25	0.43	0.28	37	0.78
	Police & Fire/EMS	36	3.15	0.62			
Satisfaction	Transportation	3	3.00	0.00	-0.30	36	0.77
	Police & Fire/EMS	35	3.10	0.55			

*Denotes significant *t* value

Summary

The findings of the perceptions of commanders of large scale vehicle fatal crashes were discussed in this chapter. Respondents generally assessed the difficulty level of these incidents as not difficult or slightly difficult. No respondent rated his or her team performance as poor or very poor. Descriptive statistics to identify the weakest and strongest (dominant) leadership styles indicated all three disciplines ranked lowest in the Laissez-faire leadership style. Fire/EMS and police commanders' strongest (dominant) leadership style was Individualized Consideration, which is a transformational leadership style. Transportation commanders' strongest (dominant) leadership style was Contingent Reward, which is a transactional leadership style. Independent samples *t* tests revealed

significant differences between the agencies in terms of the individual leadership styles.

CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. According to Buck et al. (2006), the ICS, as set out in the NIMS, will not likely work as intended (Lester, 2007). The ICS provides a universal response model to all incidents; however, it is recognized that ICS works best with firefighting organizations and is less successful with police, public health, and public work-style agencies. The fire service personnel have long worked in a team environment as opposed to the police who typically work and handle calls for service alone. Transportation agency personnel have typically found themselves on the periphery of emergency response and are normally in an assist mode (Buck, 2004, Buck et al., 2006; Cardwell & Cooney, 2000; Helman, 2004; Reardon, 2005; Walsh et al., 2005; Weiss, 2002). Social relationships are essential to the success of ICS (Walsh et al., 2005). Along with social relationships come the styles and attributes of leadership (Avolio et al., 2003; Boin & Hart, 2003).

Lester (2007) stated that it will take transformational leadership coupled with NIMS to achieve success during all phases of a disaster. Guidelines have been provided regarding how to prepare for and respond to incidents in a uniform manner throughout the country (Bourne, 2005; Perry, 2003). What appear to be lacking are guidelines on how to lead during such incidents. Team or group

leadership has been the subject of much research (Avolio et al., 2003). What remains to be examined in detail is individual, group, and/or team leadership during a real world incident. Even in the limited number of studies completed regarding team or group leadership, the focus has been on groups who have been established and who function in a less than hazardous environment (Avolio et al., 2003; King, 2002).

The lack of cooperation, communication, and coordination between the fire and police service on 9/11 are not unique. Molino (2006) stated law-enforcement and other responders disciplines have aggressively competed for priorities and resources during the management of emergency incidents. Unfortunately, such competition, though maybe only subconscious, has demonstrated weakness in the responding agencies abilities to efficiently manage incidents (Bitto, 2007; Canton, 2007).

The purpose of this mixed methodology dissertation study was to examine the prevalence of transformational, transactional, and laissez faire leadership styles among incident commanders during incidents that utilized a UC approach within the Commonwealth of Virginia and investigate differences between disciplines in leadership style. The disciplines that were investigated included police, fire/EMS, and transportation or public works organizations. An examination of IC leadership styles may provide guidance to future commanders of incidents to increase the level of success during a crisis incident.

The data from the study provided information regarding the prevalence of a particular type of leadership style commonly used by commanders during

incidents. A style pattern was found within a single type responding discipline or across disciplines. Furthermore, data may be derived that illustrates the use of one particular style over another, or at least the uniform use of one style, that either enhances, detracts, or has no effect on the success of a particular incident.

The research study was a non-experimental design. The study did not have a random assignment of people to groups. While it may not be a strength, it was a necessity. One weakness caused by this lack of randomness was the inability to control confounding extraneous variables (Champion, 2006; Hagan, 2006). The non-experimental design was necessary due to the nature of the incidents being examined. Conceptualization of the study did not call for a stimulus hence there was no need for either randomness or a control group. The design of this study necessitated natural situations, which would have been difficult to simulate in an artificial environment (Champion, 2006). This non-experimental design was not artificial in nature, which could have hindered generalizability. A weakness of the design was that there was no control group.

The study was designed to depict the characteristics of what was observed, determine settings for investigation, target particular features involving those settings for special attention, and describe in various ways the findings, and attempt to reveal possible relationships between variables, which allows for further investigation. The research design was exploratory in nature because so little was known from previous experiments or studies about the topic (Stewart & Manz, 1995).

According to Collard (2002) and Miller (2006), there will be unique circumstances for each situation such as the complexities and hazards involved in the particular situation and the level of experience and expertise of the followers involved. These variables were not examined; however, similar incidents were chosen all of which provided similar levels of complexity and stressors (e.g., Burkle & Hayden, 2001). There were several limitations to this study. Transformational leadership lacks conceptual clarity. The approach can be seen as too simplistic in some respects. Arguments have been made that the approach relies too much on personality and qualitative analysis (Bass, 1990; Ohman, 2000; Smith et al., 2004; Yukl et al., 2002). Yukl (1989) discussed the limitations of survey research by way of questionnaire-correlated research. Because of the limitations of survey research, some leadership researchers have turned more toward qualitative descriptive methods such as interviews, intensive case studies, and observation. Qualitative-descriptive research is susceptible to bias and distortions as is other types of research. Prior researchers primarily used the survey method, which is dependent on the content of the survey in assuring the internal validity of the findings. Hence, multiple methods in researching leadership reduces methodological errors and increases the operational effectiveness and validity, both internal and external of the study. Research-involving leadership is still heavily weighted toward questionnaires and quantitative approaches.

According to Bass (1990) and Yukl (2006), studies have been undertaken using the factor analysis to determine the construct validity of the MLQ 5X-short. Support was seen showing the difference between transformational and

transactional leadership. Yet, as with other leadership theories, weaknesses were found. The MLQ 5X-short has been refined in an attempt to strengthen its validity. Transformational leadership is considered effective in any situation (Bass, 1998; Bass & Riggio, 2006). While universally relevant, it does not mean that transformational leadership is effective in all situations. Situational variables may increase or decrease the success of transformational leadership (Kearney & Gebert, 2009; Lievens et al., 1997; Smith et al., 2004; Torpman, 2004; Tucker & Russell, 2004; Yukl et al., 2002).

Every attempt was made to select incidents with all necessary criteria, which occurred within a 1-year period. A weakness of the study was the elapsed time from the incident to the data collection from the leaders. Another concern was the ability to gather enough responses from the subjects to make the data meaningful. Another limitation of the study was that no volunteer fire fighting agency leaders participated in the MLQ 5X-short portion of the research, this decreased the generalizability. Having to exclude subordinates, peers, and supervisors evaluations was another limitation. Many incident commanders had no one complete MLQ 5X-short evaluations on them. Further, for t-test purposes these fragmented independent evaluations had to be excluded for statistical purposes. A final limitation of this study was the limited response to the MLQ 5X-short survey in several ways. A higher overall response, more responses from on scene subordinates, and specifically more fire and especially more transportation incident commander responses would have strengthened the generalizability of the research.

The completion of the questionnaires was voluntary. Appendix B contains the informed consent form cover letter. This research involved no deception and was not experimental in nature. The information gathered was confidential. Confidentiality was maintained by assigning specific groups of leaders to incident numbers and assigning each leader in the incident an identifying number. The various incident commanders and incidents were not identified by name or other means that would have divulged their identity or specific agency. The risks involved in this research were nominal whereas the benefits were significant. Informed consent was obtained prior to proceeding with each incident commander.

The remainder of this chapter will address, in detail, the implications the study may have. Further, recommendations will be made based on the findings regarding future research and observations that may be of use to practitioners, policymakers, and researchers. Finally, concluding remarks will be made.

Implications

The problem that was addressed using the mixed methodology study was that it is currently unknown whether there is a dominant leadership style associated with incident commanders during an incident. The problem this creates is that it cannot be determined if a UC is affected positively or negatively by different or specific leadership styles^[0]. According to Buck et al. (2006), the ICS as set out in the NIMS, will not likely work as intended (Lester, 2007). The ICS provides a universal response model to all incidents; however, it is recognized that ICS works best with firefighting organizations and is less

successful with police, public health, and public work-style agencies. The fire service has long worked in a team environment as opposed to police who typically work and handle calls for service alone. Transportation agencies have typically found themselves on the periphery of emergency response and normally in an assist mode (Buck, 2004; Buck et al., 2006; Cardwell & Cooney, 2000; Helman, 2004; Reardon, 2005; Walsh, et al., 2005; Weiss, 2002).

Social relationships are essential to the success of ICS (Walsh et al., 2005). Along with social relationships come the styles and attributes of leadership (Avolio, et al., 2003; Boin & Hart, 2003). Hurricane Katrina is cited as a prime example of the wrong combination of ICS preparedness, leadership differences, and politics, which created inadequate decision-making and a poor response (Garcia, 2006; Lester, 2007). Prior to delving into the six specific research questions posed it would be instructive to briefly discuss several general findings and or observations from the initial phase of the research.

Of the 107 fatalities, 87 (81%) of the investigators were contacted to verify that the commercial vehicle fatality crash under examination fit the definition used for the research. Numerous attempts were made to contact all 107 investigators. In three cases the crash data was found to be incorrect. Two investigators who had been listed did not work the crashes. In another case, the vehicle was improperly listed as a commercial vehicle. When the investigators were asked if a UC was used during the incident 39 (49%) said yes, 40 (51%) said no. Each investigator was asked if they understood the UC concept based on required NIMS training. Each investigator understood. The same question was framed

another way. Each investigator was asked if at least two agencies leaders worked together during the incident. This time 70 (89%) of the investigators said yes and 9 (11%) responded no. When discussing the different responses with the investigators, the primary reason for the higher response to working together versus wanting to call it a true UC was a matter of semantics mainly because no one officially declared there was a UC in operation. It is important to note that in 11% of the incidents examined agencies leaders did not work together. Within this 11% in two of these incidents the circumstances did not dictate or require a team effort since the incident created minimal impact and most of the investigation was after the fact. Based on the preliminary research 71 (66%) crashes fit the criteria for further examination. Those cases where neither a UC nor team approach was used were excluded from further consideration.

Based on the preliminary interviews with the investigating officers, a member of the fire/EMS and police disciplines was on scene in a leadership role in all 71 incidents. There were 19 (27%) instances where a transportation leader was present in a leadership role. In almost all incidents transportation workers were present but in only 19 instances was someone identified in a leadership role. Of importance to this research was the fact that in the great majority of cases the police investigator did not know who the various leaders were by name. In most cases the investigator could say which agency had the lead but in only a few cases did they know the leader by name. The leaders' names were known more often in the rural settings versus urban settings. In two instances transportation leaders were acting in a dual leadership role as fire/EMS and

transportation leader. However, in 31 (44%) of the incidents the investigating officer was also the police leader on scene. In 40 (56%) of the incidents a police supervisor arrived and took over the leadership of the overall incident in the UC. In each incident the fire/EMS and transportation leaders were all actually supervisors within their agencies. Only two other leaders were identified from other disciplines, and neither leader responded to the requests to participate.

In 51 (63%) instances the highway was closed in at least one direction. The average (mean) closure time was 3.2 hours. The closure time by mode was 2 hours and by median 3 hours. The longest closure was 12 hours. Each crash averaged one fatality. The time of closure is important for two reasons. First, closing the highway adds anxiety and hazard for everyone. However, knowing how long the highway was closed does not equate to the total duration of the event. This is a limitation to this research. In no instance did a respondent score team performance as very poor or poor. Ten (17%) respondents rated team performance as average or acceptable, 37 (61%) rated team performance as good, and 13 (22%) rated team performance as very good. In response to incident difficulty, nineteen (32%) of the respondents stated the incident was not difficult, 21 (35%) classified the incident as slightly difficult, 14 (23%) classified the incident as difficult, 4 (7%) classified the incident as very difficult, and 2 (3%) classified the incident as extremely difficult.

To address Research Question 1, what was the dominant leadership style used during an incident by the on-scene fire/EMS incident commanders, descriptive statistics was used. There were 7 on-scene fire/EMS incident

commanders who replied to the survey. Results indicated that Individualized Consideration with an average score of 3.25 ($SD = 0.58$) was the dominant style for fire/EMS personnel. This was followed closely by Inspirational Motivation, with an average score of 3.21 ($SD = 0.47$). Laissez-faire evidenced the lowest average score of 0.18 ($SD = 0.24$), followed by Management by Exception Passive: 0.57 ($SD = 0.64$). Fire/EMS incident commanders had a dominant outcome of Effectiveness ($M = 3.11$, $SD = 0.38$). Thus, the dominant leadership style utilized by fire/EMS personnel was Individualized Consideration, which is a transformational leadership style (Table 9).

To address Research Question 2, what was the dominant leadership style used during an incident by the on-scene police incident commanders, descriptive statistics were used. There were a total of thirty (30) on-scene police incident commanders who replied to the survey. Results indicated that Individualized Consideration with an average score of 2.88 ($SD = 0.60$) was the dominant style for police personnel. This was followed closely by Idealized Influence (Attributed), with an average score of 2.74 ($SD = 0.78$) and Contingent Reward, with an average score of 2.74 ($SD = 0.95$). Laissez-faire evidenced the lowest average score of 0.36 ($SD = 0.50$) followed by Management by Exception (Passive): 0.81 ($SD = 0.65$). Police incident commanders had a dominant outcome of Satisfaction ($M = 3.17$, $SD = 0.55$). Thus, the dominant leadership style utilized by police personnel was Individualized Consideration, which is a transformational leadership style (Table 11).

To address Research Question 3, what was the dominant leadership style used during an incident by the on-scene transportation incident commanders, descriptive statistics were used. There were a total of three (3) on-scene transportation incident commanders who replied to the survey. Results indicated that Contingent Reward with an average score of 3.17 ($SD = 0.14$) was the dominant style for transportation personnel. This was followed closely by Idealized Influence (Attributed), with an average score of 3.11 ($SD = 0.19$). Laissez-faire evidenced the lowest average score of 0.22 ($SD = 0.38$) followed by Management by Exception (Passive): 1.00 ($SD = 0.87$). Transportation incident commanders had a dominant outcome of Effectiveness ($M = 3.25$, $SD = 0.43$). Thus, the dominant leadership style utilized by transportation personnel is Contingent Reward, which is a transactional leadership style (Table 13).

To address Research Question 4, what if any, difference existed between the leadership styles of the fire/EMS incident commanders compared to commanders from other disciplines during similar incidents, inferential statistics were used. The null ($H1_o$) hypothesis was responding fire/EMS commanders will not use different leadership styles than do commanders from other disciplines. The alternative ($H1_a$) hypothesis was responding fire/EMS commanders will use different leadership styles than do commanders from other disciplines. A series of independent samples t tests was conducted to determine whether fire/EMS commanders differed from the other commanders in terms of their leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for one of the leadership

styles, Inspirational Motivation; thus, the t test results for equal variances not assumed was interpreted. Results revealed that fire/EMS commanders utilized more Inspirational Motivation ($M = 3.21$, $SD = 0.47$) than did police and transportation commanders ($M = 2.59$, $SD = 0.74$), $t(38) = 2.16$, $p > .05$ (Table 19). Thus, fire/EMS personnel utilized a different leadership style than their police and transportation counterparts. For Research Question 4, the null ($H1_o$) hypothesis was rejected: fire/EMS personnel utilized a different leadership style than their police and transportation counterparts.

To address Research Question 5, what if any, difference existed between the leadership styles of the police incident commanders compared to commanders from other disciplines during similar incidents, inferential statistics were used. The null ($H2_o$) hypothesis was responding police commanders will not use different leadership styles than do commanders from other disciplines. The alternative ($H2_a$) hypothesis was responding police commanders will use different leadership styles than do commanders from other disciplines. A series of independent samples t tests was conducted to determine whether police commanders differed from the other commanders in terms of their leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for two of the leadership styles, Inspirational Motivation and Intellectual Stimulation; thus, the t test results for equal variances not assumed was interpreted. Results revealed that police commanders utilized less Inspirational Motivation ($M = 2.55$, $SD = 0.76$) than did fire/EMS and transportation commanders ($M = 3.13$, $SD = 0.41$), $t(29.39) = -3.00$,

$p > .05$. Similarly, police commanders utilized less Intellectual Stimulation ($M = 2.60$, $SD = 0.85$) than did fire/EMS commanders ($M = 3.05$, $SD = 0.35$), $t(36.02) = -2.38$, $p > .05$ (Table 21). Thus, police personnel utilized a different leadership style than their fire/EMS and transportation counterparts. For Research Question 5, the null (H_{2o}) hypothesis was rejected: police personnel utilized a different leadership style than their fire/EMS and transportation counterparts.

To address Research Question 6, what if any, difference existed between the leadership styles of the transportation incident commanders compared to commanders from other disciplines during similar incidents, inferential statistics were used. The null (H_{3o}) hypothesis was responding transportation/public works commanders will not use different leadership styles than do commanders from other disciplines. The alternative (H_{3a}) hypothesis was responding transportation/public works commanders will use different leadership styles than do commanders from other disciplines. A series of independent samples t tests was conducted to determine whether police commanders differed from the other commanders in terms of their leadership style on the MLQ 5X-short. Levene's test for equality of variances revealed that the assumption of homogeneity of variance was violated for two of the leadership styles, Contingent Reward and Management by Exception; thus, the t test results for equal variances not assumed was interpreted. Results revealed that transportation commanders utilized more Contingent Reward ($M = 3.17$, $SD = 0.14$) than did fire/EMS and police commanders ($M = 2.75$, $SD = 0.90$), $t(38.00) = 0.78$, $p > .05$. Similarly, transportation commanders utilized more Management by Exception ($M = 2.25$,

$SD = 0.00$) than did fire/EMS or police commanders ($M = 1.82$, $SD = 0.78$), $t(38.00) = 0.96$, $p > .05$ (Table 23). Thus, transportation personnel utilized a different leadership style than their fire/EMS and police counterparts. For Research Question 6, the null (H_{3o}) hypothesis was rejected: transportation personnel utilized a different leadership style than their fire/EMS and police counterparts.

According to Bass (1990) and Yukl (2006), transactional and transformational leadership are not and should not be mutually exclusive. Transformational behaviors include idealized influence (attributed), idealized influence (behavior), individualized considerations, inspirational motivation, and intellectual stimulation. Transactional behaviors include contingent reward, management by exception (active), and management by exception (passive). The dominant leadership style used by the on-scene fire/EMS incident commanders was Individualized Consideration followed closely by Inspirational Motivation. The dominant leadership style used by the on-scene police incident commanders was Individualized Consideration followed by Idealized Influence (Attributed). The dominant leadership style used by the on-scene transportation incident commanders was Contingent Reward followed by Idealized Influence (Attributed). Hence, the dominant leadership style used by the on-scene fire/EMS and police incident commanders was transformational. The dominant leadership style used by the on-scene transportation incident commanders was transactional. The dominant outcome for fire/EMS and transportation was

Effectiveness, and for police it was Satisfaction. Of significant interest was the leadership style least prominent among all three disciplines was Laissez-faire.

When using descriptive statistics the mean indicated both fire/EMS and police incident commanders used Individualized Consideration, which is transformational leadership. However, when testing the hypothesis using the t-test, the finding that fire/EMS and police used the same style was rejected based on statistical differences. Transportation commanders' dominant style was Contingent Reward, which is a transactional style. Bass (1990) and Yukl (2006) stated that transactional and transformational leadership are not and should not be mutually exclusive. The data across disciplines supports this assertion.

Lester (2007) surmised that leadership style plays a key role in the level of success of any endeavor especially activities involving emergency response. Lester stated that it will take transformational leadership coupled with NIMS to achieve success during all phases of a disaster. Guidelines have been provided regarding how to prepare for and respond to incidents in a uniform manner throughout the country (Bourne, 2005; Perry, 2003). The results of this study buttress Lester's assertion regarding leadership style and the level of success. The data indicated that the two disciplines with the highest level of involvement both practiced transformational leadership styles. The transportation discipline practiced transactional leadership. The data further reflects that Laissez-faire leadership was the least dominant leadership style. Couple this with the limited amount of road closure time, which is always a goal for safety, along with the fact that not one incident commander rated team performance below the acceptable

or average level and in fact 83% rated team performance as good or very good. These results are in keeping with a dominant usage of transformational leadership style behaviors and the fact that Laissez-faire leadership was the least dominant or prevalent of all styles used (Bass 1998; Bass & Riggio, 2006).

Like Lester (2007), Bass and Riggio (2006) found merit with the use of transformational leadership during crises. Bass and Riggio stated that, unlike transactional leaders who focus on short-term outcomes and may be more likely to make rushed and poorly thought-out decisions, transformational leaders are apt to make more thought out and appropriate decisions. Conversely, transformational leaders are more likely to defer from making premature decisions. The results of this study tend to refute the assertions made by Bass (1990), Northouse (2001), Wren (1995), and Yukl (2006) that most leaders practice transactional, directing, or authority-compliance style leadership during a crisis because of the urgency of the incident.

The significance of the results of this research is that now there is a better idea of the various leadership styles used at the scene of emergencies by the leaders of responding agencies. Even though the police and fire used transformational style leadership most often and transportation leaders used the transactional style of leadership most often, team performance was good or very good across all incidents. As shown in the literature review, transformational and transactional leadership can be blended dependent upon the circumstances and transformational leadership does not always have to be the prevalent style in all cases. On its face, the results confirm that transformational possibly coupled with

transactional leadership offers better results than Laissez-faire leadership. The other significant fact derived from the research is that the Laissez-faire leadership style was the least used style. This bodes well for leadership in general and specifically for emergency response style leadership. Laissez-faire leadership style is actually non-leadership. Transformational leadership possibly mixed with transactional leadership is what is needed in almost all cases to effectively and efficiently manage and resolve emergencies (Bass, 1998; Bass & Riggio, 2006).

Another significant fact derived from the research was that all agencies worked well together or better than average in the great majority of incidents. The research also indicated that transportation appeared to play more of a support role in the vast majority of incidents. Transportation leadership was active in a small number of incidents. According to Densten (2003), those who use transactional leadership pursue a cost-benefit or economic exchange to meet current material and psychic needs of their employees in return for expected effort. Contingent reward, which represents proactive leadership behaviors that link reward and effort through negotiation, is a type of transactional leadership (Palmer et al., 2001). Note that the transportation leaders dominant leadership style was Contingent reward which is a transactional style. The study appeared to confirm the perceived leadership style and role of the fire discipline. The results of this study somewhat contradict existing literature regarding the police leadership style and role in emergencies. The police appeared to function well in a team situation. The results of the study appeared to validate the style and

function of transportation agencies in that in most cases they appeared to function in a support role.

Recommendations

Based on the findings of this study, the following recommendations are made regarding practical applications involving the four phases of emergency management with emphasis on the response and recovery phases of incident management and leadership.

1. Transportation style disciplines should examine their legal and functional duties during incidents and evaluate if their current dominant leadership style and the current support role-played is conducive to their needs and responsibilities. In this same vein, the police discipline should monitor or consider the need to have a supervisor respond to be the police incident commander and free up the investigator to focus solely on the investigation if the circumstances dictate (Atwater & Bass, 1994).

2. All responder disciplines should continue to foster a unified and or team approach to all such incidents wherein at least two or more disciplines come together. There appears to already exist a foundation of transformational with a mix of transactional leadership being applied. Building upon this foundation should only enhance the overall team performance (Bitto, 2007).

3. All responding disciplines should continue to work closely together during all phases of emergency management so when the emergency does take place there is a strong air of familiarity and a bond of trust exists prior to the incident. In most of the incidents under examination, the investigators, who were

often the leader, did not know or recall the other leaders names. Training, exercising, and planning together should increase trust and familiarity (Bitto, 2007; Lester & Krejci, 2007; Pilant, 1996).

4. In addition to continuing to train in all facets of NIMS and ICS requirements, leaders and future leaders should receive leadership training which should include transformational and transactional aspects of leadership. Helping leaders understand their leadership style through use of the MLQ 5X-short would be advantageous to leadership growth and development (Bass, 1998).

Based on the findings of this study, the following recommendations for future research are offered.

1. This study should be replicated with a focus on several variables including urban versus rural locations, formal supervisor versus non-supervisor acting as incident commander, and paid professional fire fighters versus volunteer fire fighters each as they pertain to leadership style and team performance.

2. Further exploration should take place wherein a more focused analysis may be undertaken within each incident instead of across disciplines as was done. This will require fewer incidents but much more participation among all of the incident commanders within a given incident. Likewise, such a methodology would allow for the use of MLQ 5X-short subordinate, peer, and supervisors ratings to be incorporated and evaluated.

3. Consideration should be given to use of a true experiment wherein a control group is used. This would work best with new leaders wherein one group received purposeful transformational leadership style training whereas the other group did not.

4. Consideration should be given to using other multiple research methodologies since multiple methods in researching leadership helps to reduce methodological errors and increases the operational effectiveness and validity, both internal and external of the study. Such methodologies should include more qualitative and descriptive methods including observations, interviews, and intensive case studies (Yukl, 1989). Likewise, replication of this study should be considered in an effort to obtain a higher response rate.

5. Further exploration should take place regarding the use and or prevalence of NIMS requirements focusing on ICS and UC in general. In addition, the use of ICS should be compared to any specific correlations found to a particular or dominant leadership style if one exists. Lester's (2007) assertion that it is recognized that ICS works best with firefighting organizations and is less successful with police, public health, and public work-style agencies deserves further exploration.

Conclusions

The results of this study add insight regarding the use of ICS and UC in the Commonwealth of Virginia. The role leadership plays and whether a particular style leadership is dominant when dealing with emergencies was illustrated. Finally, a determination has been made as to the perceived

effectiveness of one style of leadership over another when dealing with emergencies. Congruently, these answers will provide important information for future incident commanders when working together with other agencies during the response and recovery phases of emergencies.

The results of this research showed that the police and fire disciplines used transformational style leadership most often, and transportation leaders used transactional leadership most often. Fire/EMS and police dominant style was Individualized Consideration, a transformational style. Transportation's dominant style was Contingent Reward, a transactional style. Further, the dominant response regarding team performance was good or very good. The results of this research showed that all agencies worked well together or better than average in the great majority of incidents. The results of this research also indicated that transportation appeared to play more of a support role in the vast majority of incidents. Transportation leadership was active in a small number of incidents.

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APPENDIXES

Appendix A

Initial Data Collection Interview Form

Crash #	Crash Date:	County/City	Crash Location:
Investigators Name:		Investigating Agency:	
Investigators office #: Cell #:		Investigators email:	
Was there a fatality? Yes No (If no stop)		How many fatalities? _____ How many injured? _____	
How many vehicles? _____		How many CMVs? _____ (If none stop)	
Was the highway closed? Yes No		How long was it closed? _____ hours	
Was a unified command used? Yes No (If no to both of these stop)		Were there at least two agencies leaders working together? Yes No	
Fire/EMS leader (IC) – Name			
Agency			
Office phone			
Cell phone			
Email			
Were you part of a unified command (did you and any other leader work together on this crash)? Yes No			
Would you be willing to participate in a leadership study? Yes No			
Contact date: _____			
Police leader (IC) – Name			
Agency			
Office phone			
Cell phone			
Email			
Were you part of a unified command (did you and any other leader work together on this crash)? Yes No			
Would you be willing to participate in a leadership study? Yes No			
Contact date: _____			
Transportation (IC) – Name			
Agency			
Office phone			
Cell phone			
Email			
Were you part of a unified command (did you and any other leader work together on this crash)? Yes No			
Would you be willing to participate in a leadership study? Yes No			
Contact date: _____			
Other leader (IC) – Name			
Agency			
Office phone			
Cell phone			
Email			
Were you part of a unified command (did you and any other leader work together on this crash)? Yes No			
Would you be willing to participate in a leadership study? Yes No			
Contact date: _____			
Other comments:			
Crash number assigned for evaluation #			

Appendix B
Informed Consent Form

1. INFORMED CONSENT FORM

Dear Incident Commander Participant,

I am a doctoral candidate at Northcentral University in Prescott, Arizona who is currently conducting research on incident commander leadership styles. At the completion of my matriculation, I expect to be awarded a Doctor of Philosophy (Ph. D.) in Business Administration with a specialization in Homeland Security.

The purpose of this dissertation study is to research, analyze, and compare the leadership styles of incident commanders while engaged in a unified command during response, mitigation, and recovery of major traffic crashes in the Commonwealth of Virginia.

Participation in this study is voluntary, and strict confidentiality will be maintained. Your participation will involve an online survey interview process that is expected to take approximately 30 minutes to complete.

You may choose not to participate and/or withdraw from the study at any time.

In this research, there are no foreseeable risks to you. There will be no costs associated with your participation in this study. Although there may be no direct benefit to you, the possible benefit of your participation is that the research is expected to contribute significantly to the study of leadership issues for the emergency response community and to society as a whole.

Please feel free to ask questions regarding this study. You are welcome to contact Jeffrey C. Fox, the Principal Researcher, with questions at (540) 489-7423 or cell at (540) 4207423 or e-mail: jcfpdf@msn.com.

SIGNATURES:

Kindly respond to the Agree/Disagree to participate question below. Thank you.

Researcher's Name: **Jeffrey C. Fox**, Northcentral University

I have read the above description of the dissertation study and understand the conditions of my participation.

1. Consent Authorization

Agree

Disagree

Appendix C

Cover Letter / Instructions

1. INTRODUCTION

Thank you for participating in my doctoral dissertation research survey. This survey is not affiliated with, or sponsored by, any public or private organization. Once I have completed my dissertation, I will provide an e-mail address for participants to contact if you would like to receive an electronic version of the research results. Again, thank you for your participation.

Gratefully,
Jeff Fox

2. INSTRUCTIONS

Two surveys will be used to collect research data. Part 1 is a short survey wherein you would provide demographic data and several perception responses. Part 2 is a survey instrument called the Multifactor Leadership Questionnaire (MLQ). This part of the survey may require up to three surveys being completed. The surveys contain the same questions. One survey will be completed wherein you will answer questions about yourself as they specifically relate to the incident under examination. The other surveys will be completed regarding your perception of the other incident commanders who worked with you in the unified command process.

ALL SURVEYS ARE COMPLETELY CONFIDENTIAL

On the following pages, you will find a series of descriptive terms. Some of these terms are positive in connotation, others are negative, and some are neither positive nor negative.

Please respond to each question to the best of your ability. Please do not leave any portion blank. Answers should be completely based on the interactions, which took place only during the management of the incident in question.

ANSWER FORMAT EXAMPLE – Ratings on INCIDENT COMMANDERS
IN GENERAL

Fire/EMS Police Transportation/Public Works Other

Appendix D

Incident Commander Form of the Descriptive Index

ALL SURVEYS ARE COMPLETELY CONFIDENTIAL

On the following pages, you will find a series of descriptive terms used to characterize you and your perception of the specific incident being studied. Some of these terms are positive in connotation, others are negative, and some are neutral.

This is part one of a two part survey. For each of these responses please answer based on the specific circumstances that took place during the incident (motor vehicle crash) in question.

<i>Code</i>	
<i>This section contains identifying information regarding the motor vehicle crash response/investigation/recovery that you took part in as an incident commander for your agency.</i>	
<i>County/City:</i>	
<i>Date:</i>	
<i>Investigating Officer:</i>	
<i>Primary Fire/EMS Agency Leader:</i>	
<i>Primary Police Agency Leader:</i>	
<i>Primary Transportation/Public Works Agency Leader:</i>	
<i>Other Legal/Functional Primary Agency Leader:</i>	

If a name is left blank or incorrect please feel free to correct or fill in the name. If you were not the incident commander/person in charge for your agency at the scene of the crash in question would you be so kind as to either give this to the proper person or return this to me with his or her contact information.

The preliminary investigation of this crash revealed that you were the incident commander/person in charge for your respective agency. Likewise, it was determined that a unified command was used and/or a team effort was undertaken between participating agencies at the scene.

Section 1: Survey Questions

1. Organization Type

- Fire/EMS
 Police
 Transportation/Public works
 Other

2. Individual Level of Experience as an Incident Commander in a Unified Command

- 0-5 Incidents
 6-10 Incidents
 11-15 Incidents
 16-20 Incidents
 21-Plus Incidents

3. Incident Difficulty (Complexity)

- Not Difficult
 Slightly Difficult
 Difficult
 Very Difficult
 Extremely Difficult

Guidance: For incident difficulty (complexity), this response is based on your perception alone. Please be guided by the following criteria: **Not Difficult** would mean that everything went as well as it could. There were no unique challenges, the situation itself required minimal responding agency resources, and the stress level was very low. At the other end of the spectrum would be **Extremely Difficult**. This would mean that the incident was very much out of the ordinary and might include a hazardous material release with evacuation, injuries to responders, multiple fatalities or injuries with entrapment. There might be tremendous media attention and political pressure to reopen the highway quickly. An extended highway closure would be likely and the stress level high. Please consider this answer based only on the crash under examination.

4. Team/Unit (Unified Command) Performance

- Very poor
 Poor
 Average/Acceptable
 Good
 Very good

Guidance: For team/unit performance, this response is based on your perception alone. Please base your answer on the entire incident and considering the entire unified command team (not individuals alone). Only consider the aggregate performance of the incident commanders and not the followers or subordinate responders. Please consider this answer based only on the crash under examination.

This concludes part 1 of the survey. Part 2 will consist of completing the Multifactor Leadership Questionnaire (MLQ) which I will need to email you. When you receive the MLQ please complete each document fully. The results are confidential.

Please provide me with the email address which will be capable of receiving the questionnaire(s). Please note the official Virginia State Government email address may not have the character capacity to receive the questionnaire.

Email: _____

Best phone number to be reached for questions:

Within the coming weeks you will receive an email which will be the electronic survey. The email will come from invite@mindgarden.com.

THANK YOU

**Sincerely,
Jeff Fox**

Appendix E

Multifactor Leadership Questionnaires (MLQ 5X-short)

The Multifactor Leadership Questionnaire (MLQ) 5X-short is Copyrighted ©
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MLQ contact Mind Garden at www.mindgarden.com.