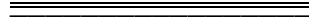
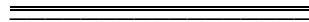


**The Bill Blackwood
Law Enforcement Management Institute of Texas**



Applying Crew Resource Management Principles to Police Work



**A Leadership White Paper
Submitted in Partial Fulfillment
Required for Graduation from the
Leadership Command College**



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ABSTRACT

An airplane crash in 1977, the most lethal in aviation history, prompted research by NASA into the causes of aviation accidents (Hagen, 2013). This, in turn, led to the development of training procedures known as “crew resource management” or CRM. This training focused on communication, leadership, and how to make the best possible decisions when time is short and the stakes are high (Helmreich, Merritt, & Wilhelm, 2001). Police departments should incorporate the principles and techniques of crew resource management when training police officers and supervisors to work as a team during high stress incidents.

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INTRODUCTION

The most lethal airplane crash in aviation history occurred when two Boeing 747 jets collided on a small airfield in the Canary Islands in 1977, resulting in more than 580 fatalities. A number of factors contributed to the crash, including poor radio procedure, lack of ground radar, and fog, but the primary cause was found to be the disastrous decision to take off without clearance, which was made by the captain of KLM Flight 747 (Hagen, 2013). Surprisingly, this decision was made despite the first officer telling the captain that air traffic control had not provided clearance and the statements by the flight engineer that he was uneasy with the situation (Jedick, 2014).

Further research into the causes of aviation accidents conducted by NASA in the late 1970s prompted the development of training procedures known as “cockpit resource management” or CRM. This terminology was later changed to “crew resource management” during a NASA workshop in 1986, reflecting the broader application of CRM throughout the airline industry (Hagen, 2013). This training, focused on communication, leadership, and decision-making under stress, was designed to reduce the possibility of errors when decisions with lethal consequences have to be made under severe time constraints (Helmreich, Merritt, & Wilhelm, 2001).

Police work, like aviation, is a profession in which the practitioners are sometimes faced with high-risk incidents that demand they act as a team and make the very best decisions that can be made in the time available. Some examples include tactical team operations, motor vehicle pursuits, and barricaded persons. These incidents can easily result in loss of life, but “very little research has been conducted into police decision-making, despite its critical role in effective operational policing and

well publicized cases where erroneous decisions have been taken by police officers" (Flin, Pender, Wujec, Grant, & Stewart, 2007, p. 2). More than 35 years after the disaster in the Canary Islands, the police profession has not taken advantage of the concepts and procedures learned at such great cost in the aviation industry. Police departments should incorporate the principles and techniques of crew resource management when training police officers and supervisors to work as a team during high stress incidents.

POSITION

Crew resource management improves communication between team members under stress by encouraging team members to challenge authority when the situation demands they do so. An example of just such a situation occurred in the moments before the crash of United Airlines Flight 173 near Portland, Oregon in 1978 (National Transportation Safety Board, 1979). Investigators cited the need to communicate effectively and challenge authority as a significant factor in the loss of the aircraft and the lives of ten people. The pilot, focused on diagnosing a problem with a landing gear indicator, flew the plane until it ran out of fuel and crashed near the airport. A report by the National Transportation Safety Board noted that a contributing factor to the accident was "the failure of the other two flight crew members either to fully comprehend the criticality of the fuel state or to successfully communicate their concern to the captain" (National Transportation Safety Board, 1979, p. 1). The flight crew, like the crew of KLM flight 747 in the Canary Islands, knew there was a problem but did not communicate this in a direct manner to the captain. Flight crews can be intimidated by the captain because of the rigid hierarchy of in the cockpit (Hood, 1996).

Police work shares this same issue. Almost every police department in the United States is organized into a quasi-military structure, with military-style ranks and an expectation of obedience to supervisors (Adlam & Villiers, 2003). The CRM model is developed to take this into account. Crews are trained in how to appropriately address their concerns. For example, one component of the training in verbal communication stresses the concept of advocacy. Advocacy is “the clear stating of one's position, even if it is contrary to the accepted position. Should a crew member disagree with an action or an intended action, it is the crew member's responsibility to advocate their position” (Krey, 1988, p. 5). Advocacy requires a positive attitude and respect for the perspectives of fellow team members in order to get to the best solution. The emphasis on clear communication is especially important for a jargon-laden profession like police work. Like the airline industry, the failure to communicate clearly in police work can have fatal results. For example, in a 2014 police shootout in Moncton, Canada, failures in radio communication between officers and supervisors was not due primarily to equipment problems, but instead “radio discipline as well as the lack of clear and concise broadcasting of information by the members was more of an issue than the technology” (MacNeil, 2015, section 7). Three officers were killed by the suspect before he was stopped. The independent review of the shooting by the Royal Canadian Mounted Police noted that “situational awareness is paramount in a crisis and it was impeded by lack of clarity in verbal communications and a lack of direction by supervisors to state clearly what was occurring (MacNeil, 2015, section 7).

Crew resource management improves leadership by reducing barriers between team members and mitigating the negative effects of hazardous mindsets. Pilots, and

by extension leaders in similar professions, may develop a mindset known as “pressing.” This is an “all-consuming desire to get the job done, combined with a conviction that “I can do it” (Hagen, 2013, p. 101). Other problematic mindsets include “a feeling of being untouchable, impulsiveness when confronted with an unclear situation, a feeling of resignation or indifference, a desire to show off, and difficulty coming to terms with past mistakes” (Hagen, 2013, p. 102-103). Police officers and supervisors face similar issues with hazardous mindsets. The best example of this is the high-speed motor vehicle pursuit. The overwhelming mental demands of a high-speed pursuit can lead to the officer becoming emotionally involved to the point that they develop tunnel vision. The high level of emotional involvement means that risks are likely to be ignored because “it takes a great deal of restraint and maturity to discontinue a pursuit when the hazards posed to bystanders become too high” (Bondurant & Sanow, 2000, p. 99). Police pursuits, involving at least two vehicles and conducted under a wide variety of conditions and skills levels, are inherently dangerous activities. This risk includes not only officers and suspects. The motoring public of “innocent third parties who just happened to be in the way constitute 42 percent of persons killed or injured in police pursuits. Further, 1 out of every 100 high-speed pursuits results in a fatality” (Schultz, Hudak, & Alpert, 2010, p. 1).

In addition to the dangers posed by hazardous mindsets and high speed, management controls are not easy to implement because the sources of information regarding the pursuit are usually limited to radio communication and the personal observation by a supervisor who may or may not be able to see the pursuit. Although supervisory control of the pursuit is achievable, research has shown that “officers,

violators and the public are frequently at considerable risk even when management control measures are attempted” (Ashley, 2004, Conclusion section, para. 1). As a further complication, supervisors are still “hampered by the lack of a system for classification of pursuit causation factors, and the reasonable relationship of those factors to available control techniques” (Ashley, 2004, Conclusion section, para. 1). One positive step that could be made to reduce the risk of motor vehicle pursuits is to adapt to the crew resource management techniques and training developed and used in aviation. The crew resource management model encourages supervisors to think of their crew as resources, rather than viewing them as subordinates - the “crew resource” part of CRM. As a parallel, the officers involved in a pursuit can also be thought of as a team of resources. Each team member can contribute valuable information based on their observations, experience, and skills. As a result, “when all information is resourced and analyzed, the likelihood is increased that crew members become aware of potential problems they otherwise would not have appreciated, and thus can take steps to deal with them in a sound way” (Krey, 1988, Decision making section, para. 2).

Crew resource management improves decision-making by encouraging teamwork and more efficient problem solving. As one experienced pilot stated, “Decision making is seldom a precise, rational activity. In reality, it is often plagued with bias, misconception, and poor judgment. Decisions are often poor choices made for expediency or out of ignorance of alternatives” (Mulenburg, 2011, para. 2). The official leader of a team, the person at the top of the organizational chart, is often assumed to be ready to make rational and informed decisions on his or her own. In reality, other members of the team may be ready to offer more accurate information or a better

alternative. A new generation of pilots has grown to accept this concept and has adopted a motto of “authority with participation,” whereas the rest of the crew follows the motto “assertiveness with respect” (Hagen, 2013, p. 104). The reliance on teamwork and consideration of all resources in the cockpit and in the control tower improves the outcomes of decision making without diminishing the authority of decision-makers. In fact, when decision making is done “in this optimum manner based on a maximum of information, there exists a high potential for success, respect among crew members and commitment to full support in implementing the decision” (Royal Aeronautical Society, Decision making section, para. 2). Law enforcement, like aviation, could benefit from having greater information available from their team when critical decisions have to be made. Lieutenant Fred Leland with the Walpole Police Department stated, “law enforcement and security personnel at times make decisions with very little information available and even less time” (Leland, 2008, para. 7). Circumstances can change rapidly or an officer can miss important information and be caught unprepared. When officers are “not prepared through training, education, experience and backed up by strong character leadership time critical decisions do not get made and the advantage goes to the adversary” (Leland, 2008, para. 7).

COUNTER POSITION

One possible criticism of crew resource management for police work is that it erodes command authority. This was certainly a concern in the aviation industry when CRM was first introduced. The flight crews did not take the training seriously. To them, “leadership issues and behavioral analyses seemed utterly trivial and inconsequential to the job of flying. Others found it hard to accept a course that appeared to be a form of

psychotherapy, while the captains saw it as undermining their authority” (Hagen, 2013, p. 91). However, it is important to note that “CRM is not about making friends but about preventing or reducing the prevalence and consequences of error” (Gordon, O’Connor, & Mendenhall, 2013, p. 156). This concern was addressed by a senior flight instructor and CRM consultant, Captain Gary Allen, who stated, “If anything, captains have increased authority as a result of CRM. Although they still bear the ultimate responsibility for the safe outcome of the flight, they now have the confidence that they have the entire crew watching their backs” (Gordon, O’Connor, & Mendenhall, 2013, p. 159). The crew is now able to make appropriate suggestions and contribute to the success of the cockpit team.

Another concern is that crew resource management may apply to aviation cockpits, but not crime in the street. It is true that an airplane cockpit is much more technologically complex than the interior of the squad car. However, crew resource management has proven to be effective in reducing aviation accidents not by focusing on aircraft equipment, but instead by focusing on the human factors. Research by the Federal Aviation Administration (2004) showed that many problems encountered in flight operations “have very little to do with the technical aspects of operating in a multi-person cockpit. Instead, problems are associated with poor group decision making, ineffective communication, inadequate leadership, and poor task or resource management” (Federal Aviation Administration, 2004, p. 4). The numbers prove it. Investigations have shown that 60% to 80% of all air carrier crashes and similar failures are caused by human error (Federal Aviation Administration, 2004). Certainly any training or procedure that helps reduce the possibility of human error could have value

for the law enforcement profession. The FBI has noted that “pertaining to law enforcement, a focus on human factors can help substantially increase officer and civic safety, create closer ties between police agencies and the public, and enhance community leadership” (Bone, Normore, & Javidi, 2015, para. 2).

More importantly, CRM has been implemented since the 1980s in related high-risk or high-hazard fields - specifically the medical field, military, and maritime industry - and have produced dramatic results. The U.S. Coast Guard reported “a 74 percent reduction in its injury rate since adopting CRM. U.S. air disasters (not related to terrorism) have fallen from approximately 20 per year to one to two per year” (Tippett, 2012, p. 4). One typical recommendation for adoption was by the railroad industry following a fatal train collision at Butler, Indiana on March 25, 1998. National Transportation Safety Board (NTSB) Recommendation R99-27 urged the industry to “develop, for all train crew members, crew resource management training that addresses crewmember proficiency, situational awareness, effective communication and teamwork, and strategies for appropriately challenging and questioning authority” (Dettmann, 2000, p.107). If leaders in several industries that share the same important burden as the police profession, the need to make decisions with potentially deadly consequences while under time constraints, have adopted crew resource management over the last 30 years without losing command authority, it stands to reason that this training could be successfully adopted by the police profession with similar results.

Another criticism of crew resource management is that it would demand scarce training and budget resources. A 700-agency survey conducted by the Police Executive Research Forum in 2010 showed that, despite some recovery since the recession of

2008, 55% of police agencies still reported a reduction in training programs (PERF, 2013). Indeed, one study asserted that CRM arose, at least in part, from the need to reassure the air travelers. This study states, “the FAA approached the NASA Ames Research Center to help with this problem of eroding public confidence. NASA Ames in conjunction with some in academia developed a new type of training, then called cockpit resource management (CRM) training” (Wang, 2014, p. 331). However, crew resource management training is not any more resource intensive than other police training. A survey of commercial providers of CRM training shows a model that most police trainers will be familiar with; one week for a “train the trainer” school and one day for training. One significant problem will be that there are no courses currently offered tailored to the police profession. The training would have to be developed. Fortunately, the fundamentals of CRM training and the critical components of CRM have already been identified (Federal Aviation Administration, 2004). Therefore, it would require only moderate effort to adapt existing crew resource training to police work.

RECOMMENDATION

The training methodology for improved airline safety that grew from a tragedy on a runway in the Canary Islands nearly 40 years ago can help police officers on the street today. Research has proven its effectiveness in reducing aviation accidents. A study of more than 500 NTSB accident reports from 1983 and 2002 showed “the number of pilot errors contributing toward accidents dropped by 25 percent in the period from 1983 to 1987, that is, following the introduction of CRM. By 2002, it had fallen by 40 percent” (Hagen, 2013, p. 143). Crew resource management improves communication between team members under stress by encouraging team members to

challenge authority when the situation demands they do so. It also improves leadership by reducing barriers between team members and mitigating the negative effects of hazardous mindsets. Finally, crew resource management improves decision-making by encouraging teamwork and more efficient problem solving.

One possible criticism of crew resource management, if it were applied to police work, is that it would erode command authority. This was a complaint by pilots when CRM was first introduced, but that concern has been replaced by a more positive attitude as CRM has proven to be a valuable tool for reducing the possibility of human error under stress. It can also be said that crew resource management applies to aviation cockpits, not crime in the street. However, similar industries, such as firefighting, railroading, and hospital emergency rooms, have adopted it over the last 30 years. Finally, a possible criticism of crew resource management is that it would demand scarce training and budget resources. A CRM curriculum tailored to law enforcement would have to be developed, but usable models already exist and are readily available.

The implementation of crew resource management techniques in the late 1970s resulted in safer aircraft operations. Since then, it has been picked up by similar high-hazard occupations such as firefighting, railroading, and hospital emergency rooms. The evidence shows that the principles of crew resource management can and should be applied to police work to improve communication, leadership, and decision-making.

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