

Controlling Risk Taking Among Firefighters

Identifying key attributes for an incident commander

By David L. Fender

Key factors in firefighter injury and death involve the risks that firefighters are willing to take in the performance of their tasks and supervisor control of risk taking. This study used focus groups made up of paid and volunteer firefighters to define the content domain of the knowledge, attitudes and practices of firefighters toward risk taking in firefighting. Results indicated that firefighters are willing to take a higher level of personal risk and may be willing to violate their training and procedures in order to save lives. The principal factors that affected whether firefighters obeyed an incident commander, even in cases of life and death, were how well they knew the individual and whether they trusted his knowledge, judgment and expertise. To keep risk taking at an acceptable level, researchers recommend that incident commanders possess the following attributes: knowledgeable, experienced, trustworthy, self-confident, level-headed and have mutual trust with the crew.

Introduction

According to the U.S. Fire Administration, 102 firefighters died while on duty in 2000 and 441 firefighters died in 2001 (343 were connected to the World Trade Center attacks) [USFA(a); USFA(b)]. The reasons for the fatalities vary; over the past several years, much of the work on fatality reduction has focused on technology improvements and more-stringent government regulations (Staley). Since

1998, NIOSH has had a program that focuses on firefighter fatalities; its emphasis to date has been on equipment improvements and firefighting procedures [NIOSH(a)]. When firefighting is necessary, normal controls have at least partially failed, and this "uncontrolled" emergency environment makes for a haz-

ardous one [Angulo(a)]. A key factor in firefighter injury and death involves the risks that firefighters are willing to take in performing their duties, and supervisor control and monitoring of risk taking. Fire Chief Bill Peterson says that "there are really three things killing firefighters: adrenaline, testosterone and cholesterol" (Tippett 8). This article addresses the first two issues by examining the human factors behind firefighter fatalities and serious injuries. Although this article focuses on firefighters, it is believed that the results could also apply to other critical situations or emergency teams.

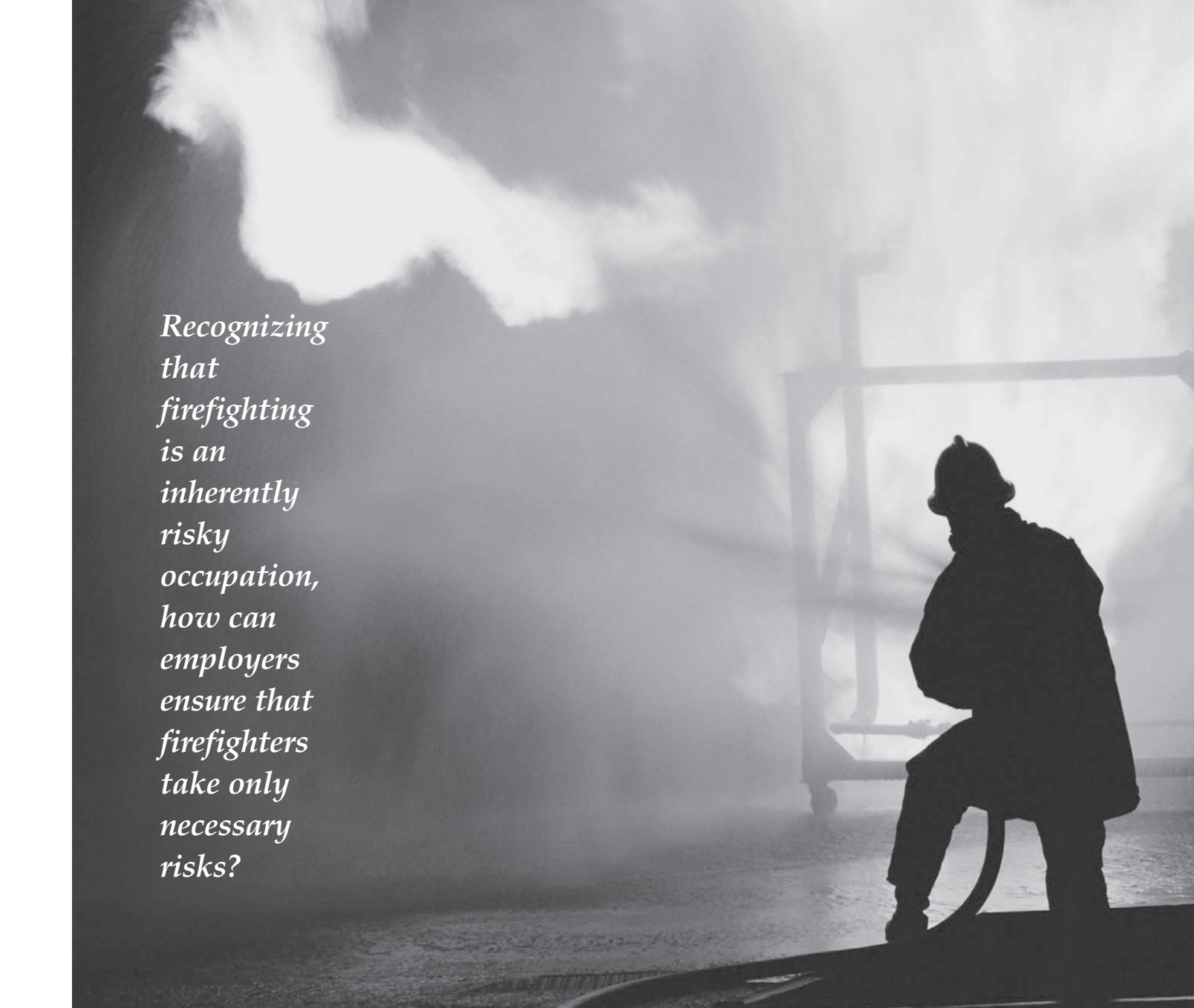
Background

In a letter to the editor of *Fire Engineering* regarding firefighting, a retired fire officer wrote, "Safety must be stressed at all times, but there are times when we have to do what has to be done" (Witt). While this statement could be taken more than one way, sometimes "doing what has to be done" may unnecessarily kill or seriously injure firefighters. This is particularly tragic when a risk need not have been taken or when it was taken improperly.

Firefighters usually focus on the acute hazards and the immediate situation (Klein, et al vii; Norris). Emergencies, by nature, involve unknowns, so it is hard to create procedures that can be followed exactly in every situation to keep firefighters out of danger. Therefore, firefighters tend to operate ad hoc, relying on general principles and procedures, their experience, and predetermined command-and-control measures.

Firefighters take personal risks to save people, property and pets. As a result, they expose themselves to danger, which sometimes results in serious injuries or fatalities (Thompson 323). While this article does not attempt to psychoanalyze firefighters, it is helpful to point out the research that has helped to identify what motivates individuals to become firefighters. Buckman

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identifies three categories of motivation for firefighters: achievement, affiliation and power (123). According to Davis, firefighters take pride in their accomplishments, which can result in taking chances (87).

Firefighters—both paid and volunteer—join firefighting organizations for many reasons. Some want to help fulfill the need for community safety and security, or, in rural areas, to help neighbors. Others are attracted by the excitement, thrill and adventure. Others see firefighting as an opportunity to transform themselves into “a macho, death-defying hero” (Davis 87-90). Davis describes other motivations, including the “hot-rod syndrome,” which involves the thrill of operating fire apparatus, and the “dreams revitalized,” which involves the thrill of driving a large, powerful fire truck. Others enjoy the red lights and sirens, the excitement of legally being able to speed and that people get out of their way. Still others desire recognition from the community as well as many other motivations. Firefighters are generally revered. News reports after a fire typically laud the hard work and bravery of the firefighters.

This was particularly apparent after the events of Sept. 11, 2001, with the great outpouring of compassion and admiration for the members of the New York City Fire Dept.

Firefighters—both paid and volunteer—frequently develop strong kinships and friendships with fellow firefighters (Beaton, et al 298). Corneil’s examination of traumatic stress among firefighters found that social support from coworkers had a strong protective effect from stress disorders. Additionally, teamwork and reliance on fellow firefighters in life-and-death situations provide strong reasons to support their fellow firefighters and to take risks to help them. Another factor involved in firefighter deaths and serious injuries is trust in leadership, which affects whether they follow orders from those leaders. A classic example of this effect is the Mann Gulch wildfire, in which 13 firefighters died when they disobeyed their leader (Staley).

Recognizing that firefighting is an inherently risky occupation, how can employers ensure that firefighters take only necessary risks? Traditionally, this is

“Safety must be stressed at all times, but there are times when we have to do what has to be done.”

addressed through training and command-and-control procedures. But what should the training emphasis and command-and-control considerations be? This article addresses those questions.

Methods & Data Analysis

A small study was conducted; it involved focus group interviews of personnel from two paid and two volunteer fire departments located in Kentucky. Five interviews were held with paid fire department personnel, and three with volunteer fire department personnel. A moderator directed each focus group using pre-established questions to guide the discussion. The interview process was carried out as described by Morgan. The paid departments had no female members, and no females from the volunteer departments chose to participate.

A moderator conducted focus groups in the paid fire departments during each shift. In the first paid group, all three shifts participated. In the second paid group, two of the three shifts participated. A total of 53 paid firefighters participated in the five focus groups.

Two volunteer fire departments were asked to participate. While the fire chiefs agreed to have their personnel participate, individual participation was spotty. One focus group was conducted with the first volunteer fire department, and two with the second department. A total of 15 volunteer personnel participated. The difficulty of getting volunteer firefighters to participate was likely due to their voluntary status—they had to participate on their own time. The chiefs had only minimal influence on participation, whereas the paid fire chiefs had significant influence over personnel.

Interviews lasted approximately one hour; audio recordings were transcribed and examined for common themes and concepts, and summative statements were formulated. The data provide a deeper understanding of the choices that firefighters make and their attitudes toward risk and supervisor directives.

Results

The focus group activities were designed to discover how firefighters felt about taking personal risk, when they were willing to take higher personal risk and the relationship of risk taking to supervision. The attitudes of the two groups of firefighters did not differ significantly except in minor ways that are discussed later.

Common themes regarding firefighting were:

- recognize the generally high risk and risk of death they face;
- many unknowns in firefighting;
- unusual hours;
- sense of pride;
- saving lives is satisfying;
- helping people is satisfying;
- sense of teamwork (paid);
- lack of respect from public (volunteer moreso than paid);
- lack of respect from government entities (paid moreso than volunteer);
- teamwork very important;

- saving lives is primary objective, then property;
- no building is worth a human life;
- dream to be a firefighter;
- take the most risk to save a life;
- take more risk for younger victims (mixed opinion);
- take the least amount of risk to save property;
- always assume the worst at the scene;
- highest risk taking involves saving lives;
- highest routine risk taken is driving to the fire/accident.

Common themes regarding obeying incident commanders were:

- incident commander is responsible; follow his/her orders;
- incident commander is responsible for the safety of everyone at the scene;
- must trust the incident commander and do what he says—lives depend on it;
- would disobey if a life could be saved;
- only disobey the incident commander for a very good reason;
- more likely to obey commander if he is:
 - experienced;
 - knowledgeable;
 - respected as an individual;
 - trustworthy;
 - self-confident;
 - level-headed;
 - willing to listen.
- more likely to disobey incident commander because of the following:
 - lack of experience;
 - not part of team;
 - has a quick temper;
 - noncommunicator;
 - made too many past mistakes;
 - indecisive;
 - lack confidence in individual;
 - inattention to detail;
 - too willing to put crew in danger.

A common theme throughout the interviews was that individual risk taking was higher if it was perceived that a life was in danger. One individual said that if he thought someone's life were in danger, he "would run directly into the house just like in the movies." Much discussion centered on whether the age of the victim made any difference as to how much risk would be taken. Firefighters are trained that a victim's age makes no difference in how they perform the job, but many individuals indicated that the younger the victim, the more personal risk they would be willing to take.

Discussion

Only minor differences existed between the paid and volunteer firefighters in the focus groups. Both groups felt a lack of respect—the paid firefighters from government officials (their bosses), volunteers from the general public. Other differences were that the paid firefighters indicated a willingness to take higher risks, and the importance and connection they felt toward their team. Paid firefighters felt strongly that their job is to save lives and failing to do so means that they are not doing their job. They also take great

pride in who they are and what they do. The focus groups were conducted approximately seven months after the 2001 terrorist attacks and the resulting general praise of firefighters was mentioned at several of the focus groups and obviously affected the firefighters. One paid firefighter stated, "Everyone seems to like us now except the politicians" (who determine pay, benefits and equipment). In comparison, the volunteer firefighters appeared to be somewhat more cautious in their approach to risk. Some possible reasons for this are that they may have less training; do not work in set teams; the nature of their call-outs means that circumstances vary dramatically; and they do not fight fires for a living, rather as a community service. Additionally, the volunteers did not seem to perceive themselves as firefighters, rather as someone who does firefighting, whereas paid firefighters frequently get their sense of who they are from their profession.

One goal of this study was to define the knowledge, attitudes and practices of firefighters toward risk taking in firefighting. This was examined with regard to two elements: personal risk and following orders.

Personal Risk

One objective was to discover how firefighters perceive personal risk and under what circumstances they would take a higher personal risk. They are trained to avoid unnecessary risks and that it is not acceptable to lose a firefighter's life in order to save a victim. They are also trained that property is secondary—it can always be replaced. However, a dichotomy appeared to exist between how they were trained and what they said they would do. Although most participants were quick to repeat procedure, there was a significant number who said that "in a real situation you don't always do it exactly that way." This attitude is likely at least a partial contributor to the findings of a study that identified risk factors for firefighter injury. That study found a four-fold increase in the likelihood of a firefighter injury occurring if a civilian injury or fatality occurred in connection with the fire (Fabio, et al 1061).

The focus group interviews clearly indicated that some firefighters would act in opposition to their training. For example, firefighters are trained that age makes no difference—a life is a life and they should take the same risks and follow the same procedures regardless of the victim's age. Within each focus group, at least one or two participants indicated that they would take more personal risk for a younger victim, particularly if the situation involved small children or infants. In many cases, others nodded in agreement, despite having just stated that age makes no difference in the personal risk they were willing to take.

Following Orders

The second issue was how firefighters perceived risk with regard to obeying supervisors' orders. Firefighters generally felt that it is critical for the incident commander to be in charge and that it is important to obey his orders. However, participants clearly indicated that they would protect themselves as best they could, and many were willing to defy an inci-

dent commander's directives if they believed he was unnecessarily putting them at too high a risk of injury or death, or if they believed they could rescue someone in danger. Participants indicated that the principal factor in whether they obeyed the incident commander—even in cases of life and death—was how well they knew the individual and whether they trusted his knowledge, judgment and expertise.

An interesting real-life example of these results is the 1949 Mann Gulch fire. Mann Gulch is located in a remote part of Montana. Responding to what they thought would be a fairly easily controlled fire that started from lightning, 15 trained U.S. Forest Service smokejumpers entered the area. After landing and gathering their equipment, they ate lunch, then started moving toward an area to contain the fire. When he realized that the fire was getting too close, the foreman started moving the men away from danger. The foreman soon realized the fire was rapidly moving toward them (at a rate later estimated at 600 feet per minute). He ordered the men to drop their tools so they could travel faster. Not everyone obeyed until after the order was given a second time, when the foreman realized that the crew had not complied. The crew, which had been paralleling a ridge due to the steepness, started going straight up the grass-covered ridge to what they hoped would be escape. Realizing that they could not outrun the fire, the foreman lit a fire in front of them and shouted for the crew to follow him into the burned area and lie down. Despite the foreman's attempts to get them to follow him, no one obeyed the order, and all passed near the foreman trying to race to the top of the ridge. Two of the men found a safe haven on the other side of the ridge, while the other 13 men, including a forest ranger who had joined them on the ground, perished as the fire caught up with them. The foreman survived after the fire went around the area that he had set on fire. Subsequent investigations concluded that the foreman was blameless, and that everyone could have survived had they obeyed the foreman.

The U.S. Forest Service investigated the incident and changed many procedures including training, procedures for escape fires and increased safety measures. One mystery of the Mann Gulch fire was why all the men ignored their leader, who was considered to be one of the best smokejumpers in the U.S. Forest Service. Investigation revealed that he had not trained with the other smokejumpers that year even though that had been normal procedure in prior years. He had been needed for other duties and was not brought back until the fire season had begun; prior to the jump, none of the men had met him. Because they did not know him, no trust had been established; when the circumstances turned into a survival situation, command-and-control completely broke down and each man did what he thought was best for himself (Maclean 220; Staley).

In 1994, the Colorado South Canyon fire resulted in the deaths of 14 experienced firefighters on Storm King Mountain. Investigation revealed that some crew members had failed to drop their tools when ordered, thus slowing them down when seconds counted (Staley).

When a firefighter does not trust the leader's judgment, the command structure begins to disintegrate.

Reliance on fellow firefighters in life-and-death situations provides a strong reason to take risks to help them.

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The firefighter starts to think on his own, disregarding the incident commander or even the good of the team, and tragedy can result. Although incident commanders may prefer blind obedience from their crew, due to human nature, mutual trust is more achievable. The study results and tragedies such as Mann Gulch and South Canyon all indicate that trust in leadership is critical in firefighting situations. Angulo states that based on his experience, firefighters must have trust and confidence in their leadership before they will do what they are told, particularly when they think that life is at risk [Angulo(b)].

Conclusion

Based on the results of this study and other research, a command structure with the following attributes is more likely to achieve the best effort and most appropriate risk taking in firefighting operations:

1) **Knowledge and experience of the incident commander.** The incident commander needs to be experienced and the firefighters need to know and have confidence in him/her.

2) **Trustworthiness.** The incident commander must inspire trust in his crew. Trust is only gained over time and through working together.

3) **Mutual trust.** Incident commanders must admit that they do not know everything and be willing to listen to others. Training together will boost this trust.

4) **Self-confidence.** The incident commander must be aware of what he does and does not know, and must ask for help when needed. When one is self-confident, there is no shame in asking for another opinion or double-checking when the information is critical.

5) **Level-headed.** The incident commander should remain calm and stay in control. S/he should not be afraid to make decisions, and should be ready to rethink decisions when conditions change. It is not a sign of weakness to change an order when required.

Broader Application

The results and conclusions seem to pass the "common-sense test"—they are logical and make sense, as they correspond to general human behavior. No one wants a leader who lacks the necessary knowledge, does not know what s/he is doing, cannot be trusted to look out for subordinates, will not consider others' opinions, refuses to change course when circumstances change, or who is easily agitated or stressed. People want to feel useful, and they want to be led by people who care about and respect them. They desire leaders who are knowledgeable, trustworthy, willing to listen and consider other opinions and choices, and stay calm and in control.

These attributes are especially important for activities in which teamwork is critical. Obvious examples would be hazardous response and emergency and security response teams of all types. In these types of activities, as in firefighting, conditions are fluid; it is important for all involved, as well as the surrounding community, that all available knowledge and resources are used correctly, wisely and in a timely manner so that sound decisions are made. Whether

for emergency service or safety committees, well-functioning teams are not created when a specific activity begins. Rather, they start months, even years before, as leadership norms are established, knowledge is gained, procedures and expectations are set, and—most of all—trust and solidarity are established between all members of the team. ■

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