

Behaviour: an emergence of a new direction for managing individual safety during emergency response activities in volunteers.

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Abstract

With changing public and political expectations and opinions, and an increasing awareness of legal obligations, the management of health and safety in the response, combat and recovery phases of an emergency incident has been the subject of much discussion. The management of emergencies is a control task that requires personnel at all levels to exercise dynamic decision-making processes. Supporting the decision making processes there are a range of controls that include provision of personal protective clothing and equipment; training; systems and procedures. The role that individual attitudes and behaviours might play in improving safety requires much more research. The Country Fire Authority (CFA) has adopted a behaviour-focussed approach to health and safety in emergency response situations and this article addresses current paradigms and future direction.

Background

Organisations like the Country Fire Authority of Victoria (CFA) rely heavily on the goodwill they create within the communities across the state and are often involved in many more aspects of community than just emergency response. Goodwill in the community however will not keep enforcement agencies at bay if things do go wrong, when safety is compromised or serious injury or death occurs. There is a need to ensure that organisations have adequate safety systems, processes and commitment in applying them. An increased understanding of behaviour is one area showing potential for future health and safety management in CFA. In particular understanding how safety management practices can be applied at the individual level.

The CFA is an integrated fire service that utilises full-time (paid) and volunteer firefighters. CFA relies heavily on volunteers to make up the majority of its workforce, this provides a cost effective fire prevention and suppression service across the state of Victoria. CFA has a workforce of approximately 58000 volunteers, 698 support staff and 405 paid firefighters, with 1228 fire brigades and 2152 vehicles protecting 2.5 million people, (CFA¹).

With an increased focus on CFA and its management of health and safety and current practices there are many challenges presented to its service delivery in the future. One significant challenge is the management of health and safety in the response, combat and recovery phases of an emergency situation. Following recent Coronial Inquiries after tragedies in the wildfire environment, recommendations have been made including development of a modified hierarchy of controls, incorporation of the function of safety into the structure of the incident control system, real time safety auditing and the appointment of safety officers, this is by no means a comprehensive

list but rather intended to provide an overview of some of the issues faced. The inclusion of safety officers in the incident management structure during emergency response is currently the subject of much debate amongst Australian fire services.

Firefighting is a hazardous job, and as discussed by Dunn “*all phases of firefighting do not present equal risks*” (Dunn²), this complicates the duties of a firefighter. Whilst the modern fire service faces many challenges in controlling risks faced by firefighters, this paper identifies some of the critical areas, new approaches implemented and barriers that need to be overcome to making it safer. There is a real need to ensure that every firefighter is equipped to identify and deal with the risks they encounter performing duties as an emergency responder.

Firefighters when dealing with emergencies must be able to apply firefighting tactics in the safest possible way. It would appear that there is a ground swell of belief that the key safety policy is to integrate safety at the command and control level. Whilst this is a critical area that requires more work there is an equally important need to ensure that individual firefighters are also “safety aware” in the activities that they perform. The tragic reality of firefighter fatalities in the past provides an insight into the importance of good decision making on the fireground. The introduction of new training programs or writing another procedure is no longer enough. An understanding of how its people may behave in dynamic risky environments coupled with the development programs that integrate this knowledge into the traditional paradigms will serve as a starting point. The Victorian Coroner after the Linton Inquiry identified that there is interdependence between the training and experience of a firefighter and the potential success of the “Safe Person” type concept. He also

suggested that the safe person approach, a path down which CFA was headed might lead to a false sense of security due to inconsistencies in how it may be applied.

By understanding how individuals will perceive risk and how individuals vary in their competence to acquire situational awareness is one of many components showing potential in assisting firefighters in the daily task of assessing their environment. In many situations emergency response activities can present novel problems. The manner in which an individual approaches these problems will vary. Adams discusses the need to understand people who expose themselves to risk in their working life and how risk will be perceived *“Our anticipation’s are formed by projecting past experience into the future. Our behaviour is guided by our anticipation’s. If we anticipate harm, we take avoiding action”*(Adams³). I hypothesise that an organisation the size of CFA with a broad cross section of the community forming a key component of its workforce will continue to struggle in its management of safety at ground level without understanding how our people perceive risk and develop training strategies to meet the needs of key groups.

Dunn provides an insight into previous held beliefs of what a firefighters role was and the expectation of them in carrying out their duties *“For the past 200 years, the dangers that firefighters were exposed to have been considered part of the job. Risks of death and injury were what they were paid for; protection of property was considered more important than the firefighters”*(Dunn²). This type of attitude no longer holds and recent times have shown how flawed this thinking is in the approach to response to emergencies.

Learning from the past

Following the devastating fires in 1983 (Ash Wednesday) CFA embarked on a program that saw substantial change to the firefighting fleet of vehicles. Firefighters were provided “much safer” vehicles, design changes saw heat shielding being a standard and the use of diesel engines to prevent vaporisation of fuel in the hot working environment. Roll over protection (ROPS) on the backs of vehicles is also standard, where now all crew members can be seated and belted in when responding to emergencies, gone are the days of standing on a running board of a fire truck racing to a fire.

Following the Linton tragedy where 5 firefighters lost their lives in a bushfire new safety initiatives appeared, training known as minimum skills was introduced that requires all firefighters to meet the minimum level of wildfire firefighter based on national modules. There are five levels of training based on a brigades risk profile, these are:

- Wildfire firefighter;
- Wildfire with low structure firefighter;
- Wildfire with structure;
- Structure with wildfire; and
- Structure.

CFA also embarked on a path of providing individuals with a better understanding of safety and introduced a new risk assessment tool to allow firefighters to not only complete a situational analysis, but also factor into their decision making process

safety. This is achieved by requiring personnel to now think what are the implications to the safety of themselves and those that may be impacted by their decision, this is known as the “dynamic risk assessment”.

Mental models

Firefighting is a stressful and dangerous activity that requires skilled individual judgement to be executed efficiently and safely by identifying and managing risks Wilder describes the issue *“When responding to or operating at an incident, the ability to manage risks is significantly compromised. Unlike managing risks in a nonemergency situation, dealing with them at an incident is exceedingly complex, often due to the changing conditions”* (Wilder⁴). Firefighters everyday respond to a myriad of emergencies ranging from grass and bush fires to motor vehicle accidents, hazardous materials incidents, structure fires and other calls for assistance. The potential is still great for flawed decision making without adequate tools for the firefighter firmly entrenched in training regimes and importantly individual’s behaviours.

Several tools are available to firefighters to assist in the decision making process one of the tools is “size-up” which allow the person to review the situation to perceive and anticipate potential risks associated with the particular scenario and develop a plan of action. Another common tool is R.E.C.E.O. This tool allows Incident Controller to prioritise tasks within the incident strategy development; they are in decreasing order of priority **R**escue, **E**xposures, **C**onfinement, **E**xtinguishment, **O**verhaul. These are two examples however there are several other tools or adaptations of the above used across fire services.

As legislation places a requirement on organisations to make the workplace safe, a majority of the time an organisation like CFA is able to adopt these principles with positive results. When the activities of the organisation turn to providing emergency response services the way in which safety is managed needs to change. No longer is the safe place approach alone a viable option, the very nature of any firefighting organisation like CFA is to control an uncontrolled situation. Emergency responders are placed in dangerous situations by the very nature of the role they perform. These situations are often dynamic and rapidly changing with many factors influencing situational behaviour.

“Can do attitude”

Over the years there have been many examples of firefighters displaying almost super human efforts in their pursuit of protecting the community. The “can do” attitude is something that firefighters and fire services pride themselves on, being able to get in and do what often seems an impossible job in the face of adversity. This approach most often fails to take into account safety, in favour of obtaining a desired outcome. Daniels in the US context suggests, *“Another contributing factor to diminished safety and wellbeing of firefighters is the systematic glorification of the macho mindset”* (Daniels⁵). This glorification and macho mindset are important components of the “can do” attitude. He then goes on to suggest, *“the macho mindset can be the catalyst to flawed decision-making at emergency scenes”* (Daniels⁵). What is important here is that the decision making process that contribute to safe operations is not only at the incident control level but at all levels through the incident management structure right down to the individual firefighter.

Firefighters although acting on the direction of those above will still need to exercise a certain level of individual decision making in their allocated tasks. It is my belief that the “can-do” attitude has a place in achieving outcomes in emergency response, however there needs to be a balance ensuring that a “safety first” approach is taken and that firefighter safety is not compromised.

The Safe Person Approach

The “safe person approach” also known as the “safe person concept” adopted by CFA focuses on two key areas, the responsibility of the organisation and that of the individual. This approach was first adopted in Britain in 1996 and has since been introduced to the New Zealand Fire Service.

This approach is an emerging alternative to the immediate placement of safety officers into the incident control structure as a means of managing safety on the fireground. This approach places a much greater emphasis on the individual accepting responsibility for personal safety and the safety of those around them or those who may be affected by their actions. The relevance of “safe person concept” to the fire service is defined below:

“In normal safety management, the intent is to make the workplace safe, because this safeguards everyone. However, an operational incident can be an inherently dangerous workplace and maybe impossible to make safe. Brigades must, therefore, direct their efforts to making the firefighter safe” (HMSO⁶)

By adopting this approach it does not negate the need to assess the introduction of safety officers into the incident control structure, however much more research is required to ensure that the implementation of safety officers as a control measure does not compromise other aspects of fireground safety.

Key area's addressed in the safe person approach challenge the military type philosophies and background of an organisation like CFA. This is achieved by empowering personnel to question directions where they are either uncomfortable with a task or situation of which they have been directed to deal with and feel that safety is compromised. Regardless of what systems or processes an organisation has in place there is still a reliance on individuals to do the right thing and express the right behaviours.

The organisational behaviour requires that the selection of personnel is appropriate for the task and that adequate information is available and provided for dealing with given scenario's that they are exposed to. Personal protective clothing is suitable for the task and the provision of equipment to carry out required tasks is available. Systems of work must be provided although due to the broad variety of incidents attended these also need to be flexible enough to provide guidance rather than lock personnel into a particular way of performing tasks, particularly in unique situations where decisions on novel situations need to be made. Provision of suitable training to meet the needs of the expected response activities of a brigade this is being approached in CFA by means of the "minimum skills" program. Personnel must also receive adequate instruction for the tasks they perform and be supervised to ensure that the expected standards are met. The final area is performance measurement that

ensures that the systems in place are adequate and applied as required or deficiencies are identified and acted upon.

For an Incident Controller in an emergency response environment that utilises volunteers it is often difficult to determine how many workers will turn up and what their level of experience and competence is. It is for this very reason that individuals also have a number of responsibilities, they need to ensure that they are competent to perform the assigned tasks, it is no longer acceptable to get in and do a job when directed if the individual is outside their level of competence. Due to the nature of firefighting the individual needs to be an effective member of the team and resist the desire to freelance. Self-discipline is a key to ensure the individual works within the bounds of accepted systems of work. Given the nature of the dynamic and changing circumstances of emergency response, firefighters also need to exercise a certain level of flexibility by being adaptable to changing circumstances. A firefighter must be vigilant for their own safety, that of their colleagues and others, and able to recognise their own limitations.

Dynamic Risk Assessment

Whilst this model has been adapted by CFA to meet its needs it provides a unique change to previous tools utilised to assist in determining the situation and courses of action in the management of an emergency. Most importantly it challenges the user to determine “what are the consequences of my actions”? Whilst many will say they do this the “can do” attitude would suggest this is not always the case.

Using this tool requires the continuous assessment of risks in the emergency environment and ensures the personnel “*think before you act rather than act before you think*” (HMSO⁶). It encourages personnel to consider viable alternatives where the risk to personnel far outweighs the benefit to be gained.

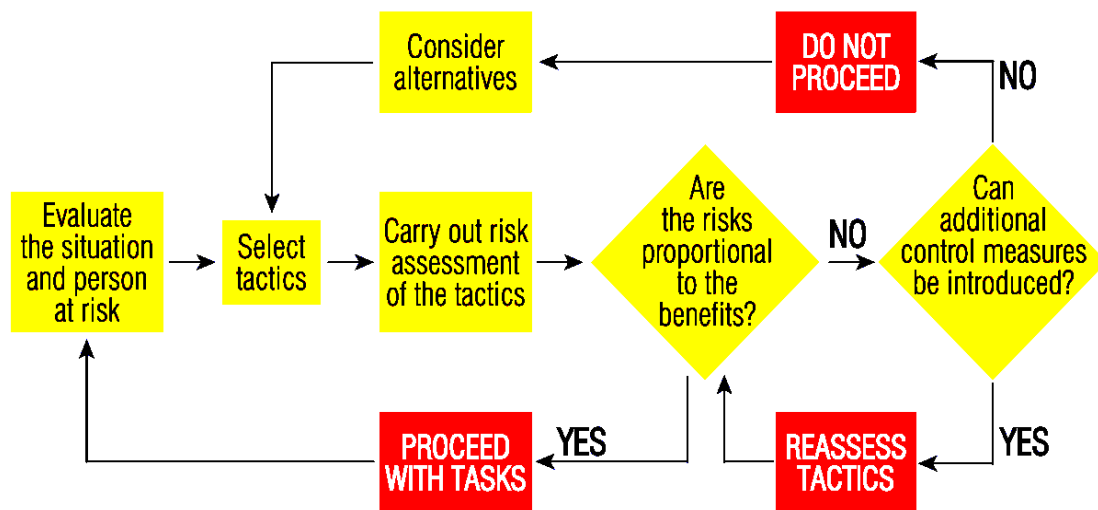


Figure 3 – Dynamic risk assessment model (CFA⁷)

Future Potentials

Whilst there is a great deal of information on risk and risk assessment the risk assessment process in emergency operations utilises various mental models. The mental models require an individual to form an opinion of a particular risk under pressure and often on a time critical basis. There are many factors that will influence the individuals decision some of these include level of training, experience or exposure to a similar type scenario or competing priorities

Firefighters rely on situational awareness as a part of their decision making process to aid decision making in determining how they will approach a task. The manner in which they will then progress is based on their perception of the environment, what risks are present? SA is a key component in aiding firefighters to perceive risk. SA is defined as “*the perception of the elements in the environment within the volume of time and space, the comprehension of their meaning, and projection of their status in the future*” (Endsley⁸).

Risk perception can be described as an individual’s opinion of the likelihood of risk being present associated with carrying out a certain activity. Experience has shown that what risks an individual perceive for a given hazard can differ, when placing a value or score on these risks using such models as the likelihood – consequence, a good deal of variation can be experienced between individuals. So who is right then? This is not really a question that can be answered with any certainty, what is important is that an understanding of the complexities of risk perception should provide an insight into why individuals will perceive risk accurately and others will not.

Due to the diversity of volunteers in an organisation such as CFA with varying influences including geographic diversity, education levels, employment and schooling it is unrealistic to expect that everyone will look at a particular risk and score it in the same manner. Waring describes the influences of the risky aspects of an organisation as not being only physical and suggests that they may be “*in self-sealing behaviour associated with power, culture, perceptions and motivations*” (Waring⁹).

There current systems for managing safety during emergency response activities rely on personnel following established procedures, use of personal protective clothing and equipment design. It is not practical to develop specific procedures for every situation faced but rather general overarching procedures for particular scenarios. Reason discusses the problems managers face with the need to restrict human actions when involved in hazardous systems, whilst firefighting is dynamic and unpredictable and not seen as a system but rather a process the point is made that “*organizations suffer a tension between the natural variability of human behaviour and the system’s needs for a high degree of regularity in the activities of its members*”(Reason¹⁰). This has particular relevance in utilising volunteers in emergency response activities, it is common for personnel to make judgments on how they will behave in a particular situation; this is from the command level down to the individual firefighter.

Serious near misses are an all too common reality, recent coronial inquiries are beginning to show that they are seldom reported through the appropriate established processes and overall generally seen as part of the job. What would be seen as a serious near miss is often seen as a right of passage for a firefighter, a story that can be relayed to colleagues after the fire. This is the challenge for the future, an area in which CFA is already making an impact. During the recent fires in Gippsland over the 2002/03 fire season I observed a higher degree of expectation from personnel in regards to briefings that provided safety information and more willingness to raise safety issues.

Conclusion

The tragic deaths of 5 firefighters at Linton are a demonstration of the errors that can occur due to inaccurate or incomplete situational awareness and risk perception.

Whilst the firefighters were able to perceive the information in the environment there was a failure to anticipate future fire development where a slow burning and possibly contained fire developed in intensity to such a degree that two crews were trapped and over run by fire resulting in the five deaths. CFA has shown a willingness to learn from the past and made many changes to accommodate the safety of its personnel, this learning is evolutionary and a higher degree of safety awareness is now entrenching itself within the organisation. Whilst there are various tools available to make decisions, introduction of new training initiatives and improvements in equipment and procedures there is still some distance to be travelled. Understanding how all aspects of safety programs can be integrated into both the incident management structure and individual level is the key to success.

Whilst the study of behaviour is predominately a psychology discipline, approaching this research from an occupational health and safety viewpoint is critical in understanding how behaviour links into safety at ground level. This can be achieved by addressing the issue of behaviour and how it influences a firefighters situational awareness and risk perception which will provide a vital link into understanding how decisions are made that will affect the health and safety of individuals, emergency response crews and the public. By conducting further research it will provide the basis for determining how to introduce new safety initiatives to volunteer firefighters so that a greater acceptance of safety change is achieved.

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