

Dr Patrick Tissington stresses the need for effective command and decision-making training for fire service personnel

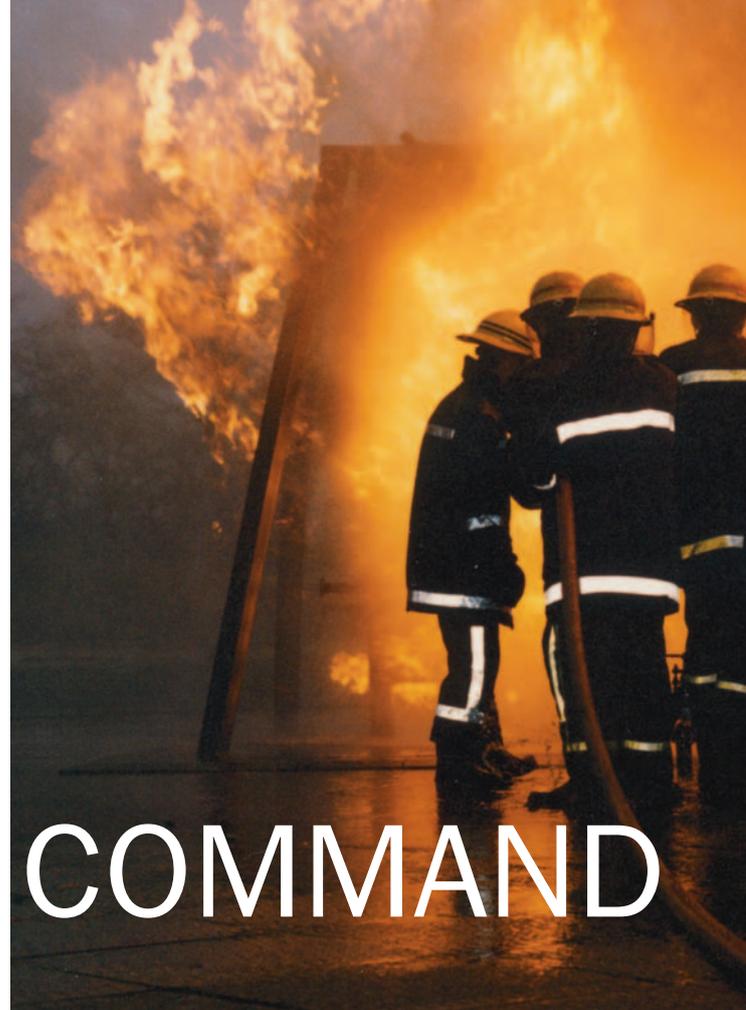
A CRITICAL PROBLEM facing UK fire brigades is that, in the past, there has been almost no scientific evidence on which to assess command training in general and decision-making training in particular. Decision-making training currently takes place during debriefs of real incidents or exercises but, with no real research base, there is no consistent framework and this key learning element is dependent on the attitude of the individual officers at the debrief.

With British society becoming more litigious, the fire service needs to be prepared to defend individual operational decisions even when analysed in minute detail after the event. Brigades must be able to prove that their officers are suitably trained. In addition, brigades have a duty of care to staff, part of which is to make sure that officers make the correct decisions at incidents so that staff are not unduly exposed to risk.

There is therefore a compelling business case for command training built on this idea of legal defensibility, which adds to the moral imperative for brigades to equip officers with the tools for the job. This has led to initiatives like the 'Safe person concept' which, along with technological innovation, have led to enormous improvements in safety on the fireground and historically low levels of serious accidents at emergencies. In short, being a firefighter today is not the dangerous profession it once was. Any brigade being questioned on its safety record would be able to show how staff are trained and protective equipment provided, personnel trained in its use and currency maintained through refresher training. However, there remains one chink in the armour.

How can principal officers be certain that officers in their brigade are correctly trained in the command of incidents? Is it possible, for example, to measure their training against a body of research that has measured or modelled the tasks of incident command? Is it possible to show the criteria against which individuals are selected and trained in the skills needed to command incidents both effectively and safely?

There is a certain amount of literature available but this is almost entirely based on individual or committee reflection on what appeared to work. The Fire Service College junior officer programmes, while of undoubted high quality, are based on historical precedent and on particular parts of the fire training facility. Debriefing tends to be based on concepts like the seven command functions which may be valuable learning tools but there does not seem to be empirical foundation for their use. In fact, few mid-ranking officers can even name what these functions are. The traditional reference book for the firefighter has been the *Manual of Firemanship*, which contains a wealth of information but almost nothing

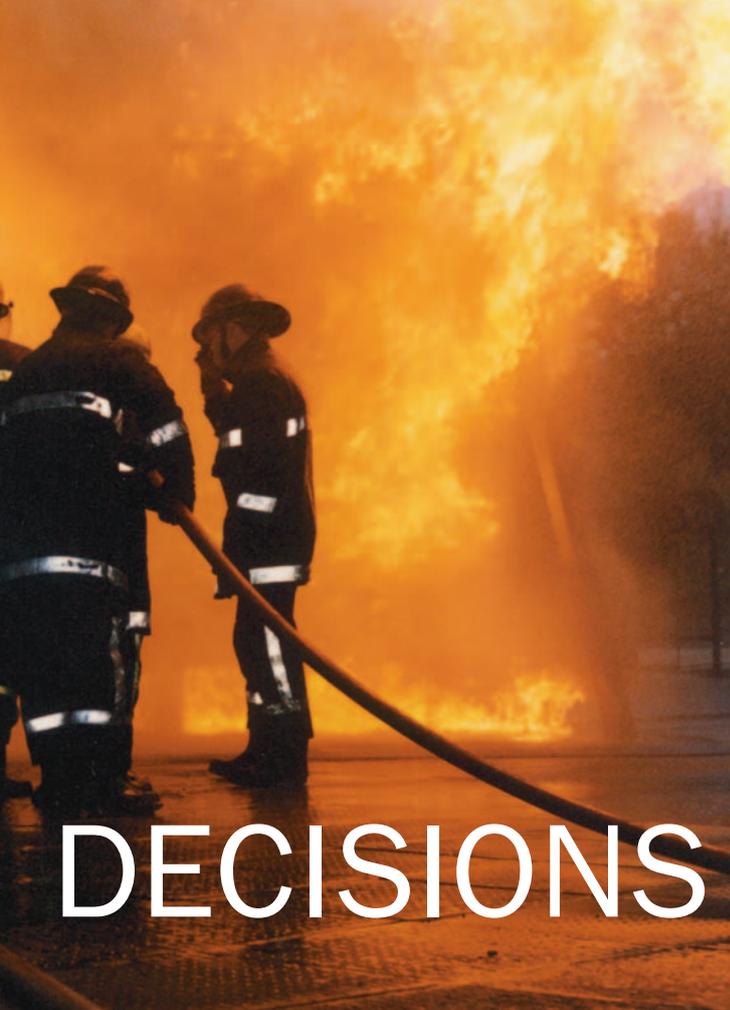


about the skill of commanding incidents. The recent addition of the Training Manuals provided a vital framework for thinking about risk assessment and incident command systems and, while there is a valuable appendix describing research into incident command, no research findings are offered, and no training structure is outlined concerning how decisions are made on the UK fireground nor how they should be trained. This potentially leads to a nightmare scenario where a Chief Fire Officer would be unable to show the basis on which he or she could justify confidence in their training in command decision making.

Central roles

The role of the incident commander is to make decisions, and act on them to bring the incident to a safe conclusion. This means that decision making is central to the role of incident command and therefore there should be an audit trail showing how UK fire services define decision making, how they assess competence in it and how it is trained. However, decision making does not feature as a distinct competence in the Role Map – the set of definitions of the elements which make up all jobs in the UK fire service – nor as a discrete element on any progression courses historically run at the Fire Service College. Neither do brigades do this themselves.

That said, given that decision making is central to the command task, it must be exercised while the officer is in command. So, during an existing exercise – be it tabletop, hot seat, computer simulated or whatever – the officer designated as in charge will receive experiential learning in decision making. Indeed, other officers involved in the exercise may also receive some experience from observation.



DECISIONS

Since decision making is not currently exercised on its own, the number of decisions exercised is limited and, perhaps as importantly, the training does not currently happen in a way which would lead to the effective construction of expertise.

This means that a scenario is foreseeable whereby a questionable decision is made at an incident and when the inevitable court case opens, a smart barrister will ask 'how did the brigade train its officers in decision making – where is the decision-making course in its suite of training courses?' Such a dedicated decision-making course arguably does not exist at present.

Decision-making model

The existing research in fireground decision making led to the formulation of a model of decision making, recognition primed decision making (RPD)¹. The theory of RPD has been the central theory arising from research into the decision making of fire commanders since the late 1980s. This section summarises the important concepts of the model and highlights those which required further testing.

The core concept of RPD is that the fire commander makes decisions on the fireground via a process of recognition of key elements in the situation, which are linked to previously encountered situations stored in memory. Therefore, the essence of fireground decision making is a process of recognising elements of an incident and linking these with previously encountered incidents. There is a burgeoning body of evidence to support this fundamental concept^{2,3,4}. This type of process is also generally accepted to be the basis for decision making in a wide range of high pressure decision-

FOCUS: DYNAMIC RISK ASSESSMENT

Implementing theory-based training mechanisms

PUTTING INTO practice the decision-making model based on the four underlying factors – crew safety; the extent to which casualties need to be rescued; time pressure; and the degree to which the incident is contained – involves:

Training at all levels to be founded on asking questions based on the four factors

From the moment a firefighter starts to be taught about command, the four factors should be questions they are able to answer during an incident. So during an exercise, if possible, the 'action' might be paused and the trainee asked what the crew safety issues are, what is the status of casualty rescue, what is the level of time pressure and what are the threats to the containment of the incident.

Training officers to actively consider the four factors during incidents

This can be used as the basis for dealing with particularly unusual incidents where no ready-made solution is forthcoming. Asking the questions will assist the recognition process.

Using the factors as the basis for decision-making debriefs

The fire service has recognised that it needs to reflect on how incidents were managed. A well operated debrief is a critical learning tool. However, with no framework for analysing decision making, it has been difficult to formulate learning strategies from the debrief. The findings of the research can be used as part of the incident debrief as a framework for reflecting on decisions taken and used as a tool for individual or organisational learning.

Incorporate the four factors into programmes of decision-making exercises

The four factors should form the basis for decision-making exercises. This concept is currently being piloted on junior courses at the Fire Service College using a large number of short, low fidelity decision exercises combined with reflective learning techniques. Observation and debrief are rooted in the four elements □

making domains, including offshore oil emergencies, naval control rooms, operating theatres and many more.

The RPD model proposes that in recognising a situation, the decision maker generates four by-products of recognition:

- expectancies (what might happen next)
- plausible goals (what might be achievable)
- relevant cues (what signs are used to monitor the situation)
- typical actions (typical things to do in a given situation)

Essentially, RPD predicts that these are the things on the mind of the decision maker as the decision is made. However, little clear justification has been shown for this, which is perhaps surprising since this phase is key to the utility of the model because this should be the level at which training can be applied. In other words, if we know what the expert decision maker has in mind having successfully recognised a situation, we can design decision-making training programmes specifically with these features. This means that training would go with the grain of expertise-building rather than being incidental – or even against the grain as it is at present.

FOCUS: DYNAMIC RISK ASSESSMENT

Research by the author was carried out over a five-year period with a large number of participants from brigades in the UK. A variety of psychological research techniques were used to discover whether this model was valid for the UK fire commander in overall concept and whether the detailed predictions made by RPD concerning the cognition of the expert fire commander were valid.

The research showed that the basic concept of the RPD model was valid for the UK fire officer. However, trying to find out exactly what is on the mind of a decision maker when the decisions in question are as dynamic as they are on the fireground proved illusive. When interviewed after an incident, officers would frequently report that they were unaware of having made decisions – they were automatic.

After many fruitless attempts using conventional research methods, the author developed a new method which combined techniques from different areas of psychology. The results were analysed by a complex statistical technique called multi dimensional scaling which shows results as a graphical plot⁵. The analysis of these plots revealed what is on the mind of the decision maker. It found that there are four underlying factors: crew safety; the extent to which casualties need to be rescued; time pressure; and the degree to which the incident is contained. These are not, of course, the four things predicted by the model. So the research concluded that there is now an empirically derived model of decision making for the incident commander. It also shows the form that an effective decision-making component of command training would take (see box).

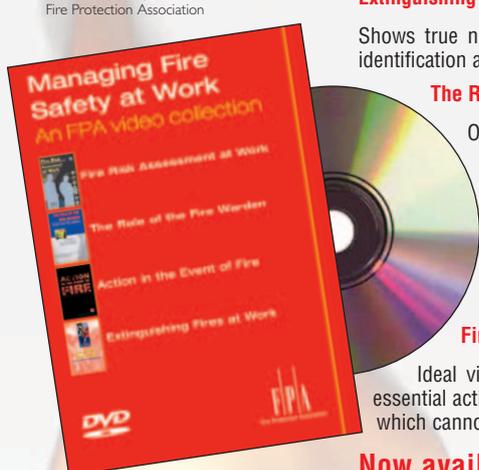
The implication of these findings is a new approach to training in decision making which is to train decision making isolated from the 'noise' of the full exercise, where concerns of equipment, technical issues and leadership can get in the way of the training of decision making. The end product is a sound basis for training in decision making which can now be carried out in isolation and at very little cost. It would enable brigades in the future to have better prepared incident commanders and be more able to defend the effectiveness of their training □

Dr Patrick Tissington works in the Work and Organisational Psychology Group at Aston University Business School, Birmingham

Further information is available from Patrick Tissington on e-mail: p.a.tissington@aston.ac.uk

References

- 1 Klein, G., The recognition primed decision (RPD) making model: looking back, looking forward. In C.E. Zsombok and G. Klein (Eds.) *Naturalistic Decision Making* (pp. 285-292). Mahwah, New Jersey LEA, 1997.
- 2 Flin, R., Slaven, G. and Stewart, K., *Emergency decision making in the offshore oil and gas industry*. Human Factors 38 (2) 262-277, 1996.
- 3 Hendry, C., *Looking for cues: a study of incident command decision making and the implications for training*. (Fire Service College, Brigade Command Course Project 1/94.) Fire Service College, Moreton in Marsh, UK, 1994.
- 4 Miller, L.C., RPD on the fireground: how to avoid the blank screen syndrome. *American Fire Journal*, April, 37-42, 1996
- 5 Coxon, A.P.M., *A user's guide to multidimensional scaling*, London, Heineman, 1982.



NEW

Fire Safety Training ... now available on DVD format

Managing Fire Safety at Work

An FPA video collection



Purchase the FPA's four mainstream fire safety training titles on just one DVD!

Extinguishing Fires at Work
Shows true novices receiving practical training in the use of workplace firefighting equipment, in particular the identification and choice of portable fire extinguishers. Running time: 19min.

The Role of the Fire Warden
One of the FPA's most important fire safety training programmes, which covers: risk assessment; arson alert; hazard spotting; escape routes; action in the event of fire; the fire drill; the roll call; fire wardens at work. Running time: 11min.

Action in the Event of Fire
This hard-hitting presentation shows what might happen if untrained staff are faced with an outbreak of fire. It places great emphasis on the importance of knowing what actions to take and when to take them. Running time: 12min.

Fire Risk Assessment at Work
Ideal viewing for people concerned with making a fire risk assessment, this programme reviews the five essential actions: identify the risks by inspection; review the findings; eliminate hazards; minimise hazards which cannot be removed; manage the residual risk. Running time: 15min.

Now available at £249.95 plus VAT (15% discount for FPA members)

Contact us for a fully descriptive leaflet at:
Fire Protection Association, Bastille Court, 2 Paris Garden, London SE1 8ND
Tel: 020 7902 5300 Fax: 020 7902 5301 E-mail: fpa@thefpa.co.uk Web: www.thefpa.co.uk