Human factors training

Have you ever wondered why senior police officers, fire officers or lone worker paramedics make serious errors of judgement, why pilots fly into mountains or surgeons remove the wrong kidney? It is not that any of these people lack the knowledge or skill to do their jobs. It is not that they set out to 'get it wrong'. Rather that they have the same potential vulnerabilities as the rest of us. 'To err is human' – understanding the potential for making errors is an important step along the road to developing strategies to prevent those very human errors from becoming catastrophes.

Which factors help to ensure that teams of technically competent people working together achieve their collective and individual goals while maintaining high standards of professionalism and safety?

Over 30 years ago this was one of the questions that required an answer from the American Aviation Industry to the Federal Aviation Authority (FAA) in an attempt to prove to the FAA that everything was being done to prevent further aircraft accidents and incidents. At that time over 75% of aviation accidents were attributed to 'pilot error'. It became clear that advances in technology made the likelihood of an aircraft having an accident reduce significantly. Therefore, it was incumbent upon the airlines to investigate other ways to ensure the safety of their aircraft and passengers. The answer was to focus on the non-technical skills of the operating crews. This included developing training that looked at increasing awareness in areas such as communication skills, decision-making processes, situation awareness, stress, leadership and teamwork, and threat and error management.

Since that time the aviation industry has been at the forefront of numerous studies examining the impact of 'human performance and limitations' on the success, or otherwise, of working in highly technical, critical, environments.

The aviation model has been adapted by many 'critical' industries. It is widely recognised in the petrochemical, nuclear, shipping and more recently, the emergency services sectors that 'human error' accounts for the vast majority of accidents and incidents that occur in the working environment. The term 'human factors' has now become synonymous with the ability of high performing teams to operate in highly technical, often stressful, environments and be better able to handle critical events and crisis.

Cognitive and social factors

For many years, psychologists have been interested in the cognitive and social factors that affect workers' performance and minimise error occurrence. Human error cannot be eliminated; it is an essential facet of the human condition. Professionals will always try to avoid making errors. Unfortunately even the most highly trained and motivated professionals will make mistakes. However with suitable understanding of human factors and appropriate training, teams can trap or mitigate the consequences of any such errors.

Human factors refer to environmental, organisational and job factors, and human and individual characteristics, which influence behaviour at work in a way that can affect health and safety. A simple way to view human factors is to think about three aspects: the job, the individual and the organisation and how they impact on people's health and safety-related behaviour.

The study of human factors in critical team performance helps us to manage risk. It is best thought of as the study of those characteristics that make us so much more intelligent and versatile than computers. But these human attributes that allow us to be highly adaptive, creative and imaginative come with a price. This very flexibility and originality makes us unsuitable for tasks requiring precision and repetition.

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Human factors have been studied more intensively in aviation than in any other field. Each one of the emergency services can, and has, benefited from these lessons. A firefighter/paramedic/police officer's job is not like that of a pilot but they share one important common component, the 'Mark 1 Human Brain'. When competent emergency service professionals make mistakes it is not because they suddenly lose their technical skills (knowledge or motor skills) as these are in their long-term memory. On a bad day it is their non-technical skills (awareness and organisation) that are degraded and prevent the effective deployment of their technical skills. This explains how it is that good people make bad errors.

The extent to which patients and members of the public are harmed by well-intended emergency service practice is now well documented. Newspaper headlines are rarely forgiving when an instance of 'human error' leads to a tragic incident.

Modern emergency service practice has unprecedented power but is inherently complex and dangerous. When this power is delivered using the fallible human brain we gain flexibility and sensitivity but cannot avoid the potential for error. Safer practices and procedures require defences against lapses in human performance. It also requires us to understand our own strengths and weaknesses plus those of our colleagues, and the systems in which we work. Improvement is up to us.

Consider the following scenarios:

1. You are an emergency care practitioner working alone on a dark and stormy night when you are called to a road traffic accident on a country lane. There are several casualties requiring advanced care. Due to the current volume of calls versus availability of assets the control can only send you a double ECA Crew (A&E Support).
2. You are the senior fire officer on call when you get called to a major fire in a warehouse facility. On arrival, due to the risk of explosion from gas cylinders, the fire control unit has been positioned 1100m from the building and not in line of sight. How do you share the mental models of the firefighters already in scene before developing a strategy?
3. You are the senior officer in the police control when a situation develops where a child the age of 16 has been seen in a park by a member of the public with what appears to be a handgun. A PCSO has indicated that he has seen this individual with this item some weeks before and it is a toy. Firearms and other officers are at the edge of the crowded park ready to intervene if authority is given.
4. You are a consultant cardiac surgeon, about to perform major heart surgery on a five-year-old child. Most of the operating team you know, but at the last minute there has been a change of anaesthetist who is a former girlfriend.

These are all hypothetical scenarios, which are undoubtedly potential pressure situations. What can be done to absolutely minimise risk? How can you get the group to perform outstandingly as a team? What checks and balances are there in place to ensure a satisfactory outcome to the event? Can the team's defences be breached?

Critical Team Performance

The Critical Team Performance programme is a modular programme that ranges from half a day to two days in duration that aims to create a better understanding of personality, behaviour, error management, team dynamics and appropriate communication skills to enhance the performance, safety, efficiency and morale of critical teams and reduce the instances of error that could potentially lead to a catastrophic failure. The three main areas focused upon are:

1. Developing your Leadership environment
2. Developing high performance, action orientated teams
3. Improving an organisation's intrinsic resistance to human fallibility.

Aviation has learned the hard way that human error is a killer; this is why human factors training are mandated for all aircrews. There is obvious synergy with this and the emergency services role; this is why some services are already researching the tangible and measurable benefits to this training for elements of their services.

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