

Perceptions Can Be Misleading – Lessons for Risk Management

Do you read the safety briefing card in an aircraft when urged to do so by the flight attendant? If not, you are in good company. A US-based survey found that more than two thirds of travellers never read the card, possibly because they are frequent fliers and feel they know enough, or possibly because they feel that the chances of surviving a crash are so slight that there is really no point.¹

But what are the facts? Should we read the card, just in case we need to know where the emergency exits are located? What are our chances of surviving an accident?

Lessons for Risk Management

People have their own perceptions about risk scenarios, based on personal experiences, hearsay, media reports and the like. These perceptions can significantly distort their evaluation of risk scenarios. As it happens, commercial scheduled airline travel is a very low risk activity compared with most other forms of transport.

Of course, air crashes are not the stuff of people's everyday experiences, but even within a person's area of industry knowledge, perceptions can still mislead. Take the building and construction industry as an example. Falls from height and contact with electricity are two of the highest causes of immediate fatalities – although occupational exposure to agents such as asbestos can also lead to less immediate loss of life.

In a typical risk evaluation workgroup session dealing with these matters, we would expect people to say that a worker could be killed by a fall from height or contact with electricity. This is a plausible consequence. It also happens to be the most dire consequence.

Take another workplace example: 'Slipping on a wet floor whilst making a cup of tea in the kitchen'. Here, the range of possible consequences is much wider – the person could pick themselves up from the floor with no injury except for some embarrassment, or considerable musculoskeletal damage could occur. Or, as a worst case, the person could strike their head and be fatally injured. How should a workgroup judge the consequences?

Judging Consequence

Let's say the workgroup agrees that a fatality could occur, and decides that this should be the consequence selected as part of their risk assessment exercise. The workgroup has considered the range of consequences but chooses the most severe option as part of its risk evaluation.

The workgroup knows that this would be an infrequent occurrence, and intends to rate the likelihood as 'low' when making the next stage of the risk evaluation. The workgroup understands that risk is described in terms of both consequence and likelihood.

Judging Likelihood

Likelihood is usually much harder to evaluate. In our example, the workgroup now needs to judge the likelihood of a fatality from making a cup of tea. The trouble is, nobody has ever heard of a person dying from making a cup of tea. Nor can they find any industry statistics on the subject.

They choose the lowest likelihood rating available on their corporate risk evaluation score sheet, and calculate an overall risk rating of 'low'. They also make a mental note that had they chosen a less severe consequence, they would have rated it as a bit more likely but still arrived at approximately the same overall risk rating of 'low'. They feel that the overall risk score is what matters, and this is essentially the same whichever way they go.

Problems in Judging Consequence

The workgroup saw no particular problem with how they evaluated the risk of making a cup of tea – but corporate headquarters has other ideas. At a corporate level, a close watch is placed on any scenario that is seen as having fatal consequences – after all, senior management wants to know about these situations when they are identified anywhere in the organisation! Some organisations would rate this in the highest risk band, requiring immediate management attention irrespective of how likely it might be. Suddenly the kitchen has assumed a high profile at executive level.

Clearly this is nonsense. To counter the problem, some organisations use the guideline 'maximum reasonable consequence' to help people describe and evaluate consequences. In Australian standards the terms 'normal', 'expected' and 'usual' appear. Everybody tries to avoid the term 'most likely consequence', because likelihood is a second parameter for risk, and if possible, the descriptive parameters should be independent from each other.

Just how survivable are aircraft crashes?

Back to the subject of airliner crashes – are they survivable enough to warrant reading the safety card?

The answer is that airliner crashes are more survivable than most of us might imagine. The US study¹ looked at serious airliner accidents over the period 1983-2000, serious being defined as involving fire (pre or post crash), at least one serious injury or fatality, and either substantial aircraft damage or complete destruction. There were 26 accidents fitting the criteria.

The findings in brief:

- 55% of all occupants in the total 26 accidents survived
- In 12 of the 26 accidents, more than 80% of the occupants survived
- In nine of the 26 accidents, fewer than 20% of the occupants survived
- In six of the accidents, there were no survivors

The investigators concluded that the most likely outcome for serious airliner accidents is that most occupants will survive.

Reference:

1. National Transportation Safety Board: *Survivability of Accidents Involving Part 121 US Air Carrier Operations, 1983 through 2000*. Safety Report NTSB/SR-01/01, Mar 2001, Washington DC.

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