



LEARNING FROM EVERYDAY WORK: THE REAL DANGER FOR A FIREFIGHTER INSTRUCTOR

Risks look different depending on the perspective that you take. In firefighting training, risks can look very different from the sharp end to how they look from the blunt end, as **Leonie Boskeljon-Horst** and **Ron Koppes** explain.

Learning from everyday work is vital for safety and performance more generally. This became apparent in a recent incident investigation in the Royal Netherlands Air Force (RNLAf). Before explaining the relationship between learning from everyday work and safety, let us first explore the incident. The incident happened at the Fire Department Training Centre (FDTC), where both firefighters and firefighter instructors are educated and trained. About two years ago, during a regular training exercise inside a building specifically developed for these exercises, a gas explosion occurred. No one was injured and there was only minor damage to the building itself. An investigation into this incident was conducted. The objectives were to determine the causes, learn from them and prevent similar occurrences in the future, as well as determining other limitations and hazards of the practice building of the FDTC. The approach

taken was a technical one: what went wrong and how can it be fixed?

Reading the investigation report, the danger faced by the people of the FDTC became obvious. Sometimes they use fires with flames up to 20 metres high to train different extinguishing techniques using various aircraft mock-ups. The recommendations therefore focussed on securing the mechanical system providing the gas and additional procedures for early detection of a fire getting out of control. From the perspective of the investigator, these were, at that point, obviously the primary hazards for the firefighters.

Learning Teams

Recently, the RNLAf has adopted a Safety-II perspective in the process of

incident and accidents investigation, applying more focus on the complexity of safety occurrences. Due to the articles written about Safety-II in the RNLAf safety magazine, the squadron commander learned about 'learning team' sessions performed by the RNLAf

Safety Department.

The commander asked for learning team sessions, to see if this new approach would

reveal additional information about the incident in particular, and about safety at the FDTC in general, on top of the original investigation report.

A follow-up investigation based on Safety-II principles was therefore conducted. Since the original investigation had revealed a mechanical and electronic failure in the gas detection system causing the gas explosion, it was determined very

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quickly that no additional information could be found explaining the incident. Safety in general, however, was a different story. The learning team approach led to new and sometimes surprising information.

During the learning team sessions, in an attempt to understand the working environment that the FDTC workers face every day, the firefighter instructors were asked what they considered the biggest risk in their working environment. This was not what seemed so obvious from a distance, for a non-firefighter perspective. The biggest risk, according to the firefighter instructors, is not fire. Fire is familiar to them: they are trained to recognise it, contain it, and extinguish it. They have an emergency system that shuts down the fire by pressing a single button. They have excellent gear to protect them from harm. Even after the malfunction causing the gas explosion, they have faith in the proper workings of the system, since this malfunction could be easily fixed.

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This can be explained as follows. In order to train different extinguishing techniques on different aeroplanes and helicopters, the FDTC has an outside training area with different mock-ups, resembling the different aircraft of the

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RNLAF. Extinguishing the fires is done using a crash tender (a specialised fire engine). The water tank contains almost 12,000 litres of water, and it takes about 2.5 minutes to empty the tank. The water jet is so strong that it creates holes on the surface, which consists of concrete, sand and gravel. Because of all the water on the ground, it is not possible to see how deep these holes are. Besides the holes, the ground is very uneven due to large concrete slabs that shift during the exercise (shifting of loads). The firefighters have to run with all of their gear on (which is also blocking their view) and sometimes have to walk backwards to keep facing the fire. These situations result in frequent ankle sprains and long-term back pain.

Tripping is not the risk one thinks of immediately when thinking about firefighters and their instructors. This is quite understandable, considering that we all have been taught from a very young age that fire is dangerous. It takes a firefighter instructor, one that works at this training area every day, to indicate the biggest risks as they see them, but also what might be the best solution. For instance, since there are plans to move the training area to a different

location in 2026, the FDTC expects that no structural changes will be made to the current training area (since this would require serious investments). Therefore, the firefighters sought an agreement with the army engineers themselves to reposition all the slabs when needed. But the problem keeps coming back. When asked the classic question: "What would you change in your department with 100,000 Euros?", the answers were simple: new slabs and a shovel truck.

Perspectives on Risks

This example shows that the ability of an organisation to learn and improve depends on the perspective one takes. The follow-up investigation used learning teams with firefighter instructors as subject matter experts (SMEs). The working conditions were discussed until there was proper understanding of the organisation as a system. The SMEs explained how they dealt with the risks on a daily basis. By discussing the work they do, and the way they mitigate the risks they encounter, we are able to learn about the hazards they face and help devise measures beyond containing the risk of fire. The key is that SMEs explain the situation in the context of their everyday work.



Whose Risks?

To be clear on this matter, everyone connected to this incident and its investigation did what seemed to be the logical thing to do at that time, before we took a Safety-II perspective on incidents and learning. The investigators focused on what they deemed to be the biggest risks. Commanding officers followed the advice given by the investigators, because it made sense to them at the time – it was ‘locally rational’. What we did in the follow-up investigation was ask the operators involved what made sense to them as SMEs. That turned out to be a different story.

At every level in an organisation, employees have a view on what is dangerous and what is not. Based on this view they can come up with ways to increase the safety of their organisation. But unless we take the perspective of the people we are talking about, these ways say more about us and our take on risks than they do about the work. Looking at an occurrence or a work situation, the story and measures make sense from different perspectives. But it is not just about making sense, it is about learning. And learning is only possible when taking multiple

perspectives from the points of view of the operators doing the work. Asking them about why it makes sense to them to do what they do is key to organisational learning.

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To use the terms introduced by James Reason, people at the ‘blunt end’ see ‘sharp end’ risks when looking at the working environment of an operator. These are often risks that directly relate to the task at hand. The ‘sharp end’ people, on the other hand, usually identify ‘blunt end’ risks. These are the risks that are not directly related to the task at hand, and over which they have no control. But these risks have a strong influence on how they have to do their work. They often mitigate the ‘sharp end’ risks themselves during everyday work because they do not want to get hurt. Everyday work, then, is what drives learning. Everyday work is what we need to understand and share. And it is everyday work that helps us increase the safety of all the people involved. **S**



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