



webinar

Human Factors

Presented by: **Suzanne Jackson**

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- ① **Work is socio-technical**
- ② **Work is dynamic and variable**
- ③ **Work is complex**
- ④ **Work usually goes right**
- ⑤ **Why do people do what they do?**

About the presenter

Suzanne Jackson

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Suzanne is a specialist in ergonomics & human factors. Through analysis of task requirements, Suzanne helps organizations create conditions that enable human performance. Suzanne takes a holistic approach to fitting workers to the job – one that considers all aspects of being human.

Suzanne undertook a master's degree in human factors and system safety in search of better understanding of human and organizational behaviour. What she learned was eye-opening for someone who had been working in ergonomics within the world of occupational health and safety (OH&S). She then led the Human and Organizational Performance (HOP) effort for a multi-national in Canada and discovered tools that safety professionals can use in any organization.

Suzanne is an Ergonomist by trade and for 22 years she has worked in many industries to help improve occupational health and safety. Ergonomics is not just about setting up your computer workstation, it is about how people work, how work is organized and how safety emerges when the working context supports human performance. Human Factors is equated to ergonomics but takes a more holistic approach than just preventing injury

and considers critical issues in health and safety such as decision making, bias, and heuristics. Suzanne currently instructs an ergonomics course for the University of Fredericton and can be reached at suzanne@humanfactorwest.com.

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New View of Human Factors/Ergonomics

Human Factors/Ergonomics has been evolving at how we look at work. You may be familiar with ergonomics in terms of musculoskeletal injury prevention and human factors has long traditions in system safety (e.g. aviation, nuclear power, military). The new view of human factors/ergonomics offers us insights about work that can be applied to occupational health and safety for the continued reduction of accident, injury and failure, specifically serious injury and fatal accidents in workplaces. These views lead us to ask if we should explore, simplify, reduce and help or identify, assess, control and monitor compliance. What may we gain if we approach our safety management systems using discovery, asking and facilitation methods so that safety touch points are empowering and trust-building instead of focussed on compliance?

Drawing from the latest in human factors and ergonomics, here are 5 key points to consider in your approach and methods used to manage safety:

1 KEY POINT: Work is socio-technical

Fred Manuele said in Professional Safety (May 2013) that to tackle serious injury and fatalities, we need drastic innovations in the content and focus of occupational risk management systems.

And with the serious injury rate in a flat-line or upward swing, safety thought-leaders are saying more rules won't help.

Socio-technical theory is recommended and comes from the Tavistock Studies of coal mining as it transitioned from manual to mechanical. Mechanical coal mining initially failed because the personnel and organizational factors were not considered. So the lesson we can learn is technology has to work with the people and the organization. When failure happens, such as an accident, we should look for solutions in the relationships of the person-technology-organization instead of just in the individual components.

NOTES:

2 KEY POINT: Work is dynamic and variable

Jens Rasmussen provided a risk management model that has variability built in. There is systematic migration towards safety boundaries in competitive environment and goal conflicts - towards cost effectiveness and towards efficiency or least effort. We can help balance goal conflicts. See the diagram below, based on Rasmussen, J. (1997). Risk Management in a Dynamic Society.

NOTES:



3 KEY POINT: Work is complex

Complexity means the sum is more than the parts, that small things can make a big difference and components operating within a system will organize based on the rationality of the local context.

If we blame humans, being one component of the system, then we may fail to learn. We may get trapped in hindsight bias, and look at accidents as being the result of bad decisions and this "blame" approach inhibits learning.

Traditional ways of learning after accident involves an "investigation", which is language that may discourage learning conversations. "Learning teams" is an approach to operational learning we hear about in association with Human and organizational performance (HOP).

The other trajectory of the "work is complex" view, means that singular root cause searches simplify what is a messy, interconnected interactions among system components, and so the new view in human factors has been offering alternative methods and tools compared to the traditional linear cause & effect investigation methods.

NOTES:

4 **KEY POINT: Work usually goes right**

Resilience Engineering is a new way of looking at work and represents a new view of how human factors can contribute to workplace safety. Professor Erik Hollnagel has written the Tale of two safeties and has defined Safety II as a dynamic non-event.

NOTES:

5 **KEY POINT: People do what they do because work is done in a social context not just a technical one, work is complex, variable & dynamic and usually successful.**

From this perspective then, classifying human error - the traditional focus of human factors & human performance - doesn't tell us much. But we have all been there, scratching our heads, wondering why did that person do that? A thought-leader in this area is Professor Sidney Dekker of Griffith University, Australia. Professor Dekker says that we need to appreciate the local rationality of the person involved in the accident - we "need to get inside the tunnel". If we can't yet imagine how the person's decisions and behaviours made sense, then we need to gather more context about how work is really performed.

NOTES:

- Fred Manuele in Professional Safety (May 2013, www.asse.org)
https://pdfs.semanticscholar.org/97a4/247ed39660d0b1ddbe9bfc1041fdd27d5589.pdf?_ga=2.166296759.821625992.1578594076-866550341.1578594076
- Jens Rasmussen's risk management model with variability built in:
<https://www.sciencedirect.com/science/article/pii/S0925753597000520>
- Professor Erik Hollnagel, Tale of Two Safeties:
<https://erikhollnagel.com/A%20Tale%20of%20Two%20Safeties.pdf>
<https://www.erikhollnagel.com/>
- Professor Sidney Dekker of Griffith University, Australia.
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