

Factors of effective approaches to learning from safety incidents

Selecting an appropriate learning approach provides for a holistic consideration of learning from incidents and contributes to the development of safety and learning culture. Learning from health and safety incidents in the workplace is critical for organisations. However the variety of approaches and interpretations of learning from incidents adds a degree of complexity to the application of learning approaches for organisations. It is important to understand which elements of these approaches are useful in specific contexts and under time and cost constraints, particularly in an era when industry is mandated to maintain and improve increasingly high safety standards. This paper outlines the application of a range of safety learning approaches within the energy sector, focusing on a refinery and a gas processing plant in two distinct, multinational organisations. This study forms part of a larger project, 'Learning from incidents: a social approach to learning from health and safety incidents at the workplace'. The paper details a baseline, qualitative study using in-depth, on-site interviews with a range of employees. The data revealed five factors relevant to the selection of appropriate and effective approaches to learning from incidents:

1. *Learning participants* -inclusion and participation are relevant and represent the breadth of learning.
2. *Learning processes*- single or loop double learning processes are considered and represent the depth of learning.
3. *Relationship between the type of incident and learning* – how does the complexity of the incident influence the learning approach employed?
4. *Type of knowledge*- conceptual, procedural, dispositional and locative knowledge.
5. *Learning context* -Informal and formal learning.

The data revealed that many on-site applications of learning from incidents focus around information sharing and dissemination. Few approaches take into consideration all five factors outlined. Moreover, learning from incidents is thought to be a finite step after the incident has taken place. However, the study argues that learning should be a feature throughout the incident cycle, from reporting and investigation to dissemination and sharing initiatives. Sense making and realising the relevance of learning initiatives to a particular work context is very important if we aim at improving safety long term. However the study showed that the sense making is not thoroughly considered in the existing learning initiatives.

This study proposes a framework for evaluating approaches to learning from incidents arising from the literature review and the qualitative study. This framework incorporates the five factors relevant to safety learning approaches and could be used by a range of organisations dealing with process safety. The study proposes a participatory method of change, the 'Change Laboratories', in which employees work with a facilitator on issues surrounding learning from incidents. Through this method learning from safety incidents could be developed to address all of the five factors. The method seeks to improve and develop approaches to learning from incidents, but also represents an effective participatory learning process in itself. The framework for learning from incidents and the proposed intervention method could be used to implement change and improve safety parameters through learning in the organisation.