

THEORIES OF OCCUPATIONAL ACCIDENTS

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Workplace safety and health refers here to all practical action taken at the shop floor level to promote the safety and health of workers. Such actions should be theory driven because accident theories help to pinpoint dangerous factors in the company.

Theories on occupational accidents

An occupational accident can be defined as unexpected and unintentional series of events leading to the physical injury of a person at work. Until end of the nineteenth century people thought that accidents were brought on by their sins or 'God's will'. This idea was based on the fact that most hazards were caused by natural phenomenon. The onset of industrialization in the twentieth century meant that production moves to factories, which are built environments with man-made hazards.

The first scientific theory attempting to explain accidents was the theory of accident proneness. It insisted that accidents occur to a limited number of individuals who have a stable personality trait. This theory was theoretical criticized by conceptual confusion with at least six different meanings and statistically by incorrect assumption of homogenous exposure to risk.

According to danger factor theory, an accident happens when a worker and a danger factor meet so that the worker injured himself. The most critical danger factors are those with the highest energy content. The ergonomic approach is a more sophisticated version of this theory assuming that disturbances in the flow of information increase the risk of accident occurrence. The exchange of information between workers and her environment is a precondition to accident avoidance.

A deviance theory assumes that a chain of events leading to an accident starts, when in the production process happens something which deviates from the normal process. Then the inadvertent energy is activated so that it hits to the body of the injured worker. The normal accident theory insists that accidents are inevitable or 'normal' in some technological systems. Accidents generally begins with failures of lower level of organization, and then escalated to higher level in the organization, as example in the nuclear power stations.

A sociological theory of occupational injuries insisted that social relations at workplace generated errors, which lead to occupational injuries. Increased auto control of workers and management involvement in safety are means to prevent occupational injuries. The latest theory of occupational injury is resilience theory assuming that a resilient organization is flexible in such way that operations can return to normal process with only minimum damage. Occupational injuries are due to variation of human performance.

Theories on risk taking

Most of theories on risk taking have been developed on traffic safety. However, these theories can be applied to risk-taking situations in work life as well.

The risk compensation theory assumes that people have a constant level of risk that they are ready to accept. If the risk level decreases due to safety measures, people tend to adjust their

goals so that the risk level returns to exactly the same level as before. The effects of safety measures (e.g. seat belt) are thus eliminated in the long run.

According to the risk homeostasis theory, the risk of traffic accidents is determined by the homeostatic system as a room temperature measure. The main assumption is the target level of risk is the only factor determining accident rates. Safety can be enhanced by measures that motivate people to desire safety.

The risk motivation theory insists that both personality and situational factors influence one's risk perception, which is divided into physiological, emotional and cognitive components. Based on the rational calculation of costs and benefits, a risk taker is motivated to act.

The theory of zero risk received its name from the assumption that drivers adapt to the risks involved in driving to the point that they do not generally feel any risk or their subjective risk assessments approach zero. People avoid the feeling of risk just as they avoid pain. The most hazardous motives are 'extra motives' outside the traffic as saving of time, which prompt the driver increase speed.

Nowadays the safety work is guided by Vision Zero. According to this philosophy, no one should be killed or seriously injured. Thus all accidents are preventable. The zero accident forum is voluntary-based community of the companies, which wanted to reduce their accidents. In the forum sessions and intranet they can change their experiences about the accident prevention and pick up the best practices.

Conclusion

Most of the accident reduction during the last decades is due to technical solutions to prevent and improved safety inspections. Nowadays, most of the technical solutions are in use and simple accidents can be prevented. Only the more complex accidents need to be tackled; they are due to the interaction between technical failure and human error.