

Kultúra bezpečnosti ≈ Multidimenzionálny jav

Safety Culture ≈ Multi - Dimensional Phenomenon

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Abstrakt

Článok poukazuje na rozdielnosť vnímania pojmu kultúra bezpečnosti v odbornej sfére ako aj na nejednotu definícií pojmu. Prezentuje možné modely fungovania kultúry bezpečnosti a základné otázky, ktoré je nutné zodpovedať. Ďalej poukazuje na nevyhnutnosť zapojenia managementu firmy pre dobré fungovanie systému, ako aj na ďalšie faktory, ktoré firemnú kultúru bezpečnosti ovplyvňujú.

Kľúčové slová

Kultúra bezpečnosti, modely, psychosociálne faktory.

Abstract

The paper refers to the difference of perception of the concept of safety culture in the professional sphere as well as the definitions of disunity. It presents possible models of functioning safety culture and the fundamental questions that must be answered. Furthermore, it highlights the need for the involvement of the company management for the proper functioning of the system as well as other factors that influence the corporate culture of safety.

Keywords

Safety culture, models, psychosocial factors.

Introduction

Developing and enhancing a strong company safety culture can change the landscape of an organization and pay incredible dividends. Without active participation by all members of an organization, a safety culture will not evolve and the safety management system cannot reach its full potential [1].

The issue of safety of operations is generally a broad term which experts engaged for a long time. The concept of safety culture is not novel, but it began even more relevant after the world-changing events with large-scope effect, e.g. tragedy at Chernobyl nuclear power station. The report of the International Advisory Group (i.e. INSAG) Nuclear Safety states that: "Safety Culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance." [2]

Understanding of Safety Culture

By the definition, safety culture is difficult to measure. Moreover, there exist numerous definitions of safety culture in the literature, see Tab. 1. Safety cultures evolve gradually in response to local conditions, past events, the character of the leadership and the mood of the workforce [3].

Tab. 1 Various definitions of Safety Culture [4]

Reference	Definition
Cox and Cox (1991)	Safety culture reflects the attitudes, beliefs, perceptions, and values that employees share in relation to safety.
Geller (1994)	In a Total Safety Culture (TSC), everyone feels responsible for safety and pursues it on a daily basis.
Lee (1996)	The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, and organization's health and safety management.
Reason (1997)	Safe culture is an informed culture and this, in turn, depends upon creating an effective reporting culture that is underpinned by a just culture in which the line between acceptable and unacceptable behaviour is clearly drawn and understood.
Kennedy and Kirwan (1998)	Safety culture is an abstract concept, which is underpinned by the amalgamation of individual and group perceptions, thought processes, feelings, and behaviours, which in turn gives rise to the particular way of doing things in the organization. It is a sub-element of the overall organizational culture.
Hale (2000)	Safety Culture refers to the attitudes, beliefs, and perceptions shared by natural groups as defining norms and values, which determine how they act and react in relation to risks and risk control systems.
Cooper (2000)	Culture is the product of multiple goal-directed interactions between people (psychological), jobs (behavioural), and the organizational (situational); while safety culture is that observable degree of effort by which all organizational members directs their attention and actions toward improving safety on a daily basis.
Mohamed (2003)	Safety culture is a sub-facet of organizational culture, which affects workers attitudes and behaviour in relation to an organizations on-going safety performance.
Fang et al. (2006)	Safety culture is a set of prevailing indicators, beliefs, and values that the organization owns in safety.
OSHA	Safety cultures consist of shared beliefs, practices, and attitudes that exist at an establishment. Culture is the atmosphere created by those beliefs, attitudes, etc., which shape our behaviour.

In all types of activities (and for both of organization and individual at all levels), the attention to safety involves several elements [2]:

- *Individual* - awareness of the importance of safety.
- *Knowledge and competence* - conferred by training and instruction of personnel and by their self-education.
- *Commitment* - requiring demonstration at senior management level of the high priority of safety and adoption by individuals of the common goal of safety.
- *Motivation* - through leadership, the setting of objectives and systems of rewards and sanctions, and through individuals' self-generated attitudes.
- *Supervision* - including audit and review practices, with readiness to respond to individuals' questioning attitudes.
- *Responsibility* - through formal assignment and description of duties and their understanding by individuals.

Safety Culture has two general components. The first is the necessary framework within an organization and is the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding to and benefiting from the framework [2]. These components are considered separately, because Safety Culture particularly concerns individual performance and many individuals carry safety responsibilities. Fig. 1 demonstrates the major components of Safety Culture.

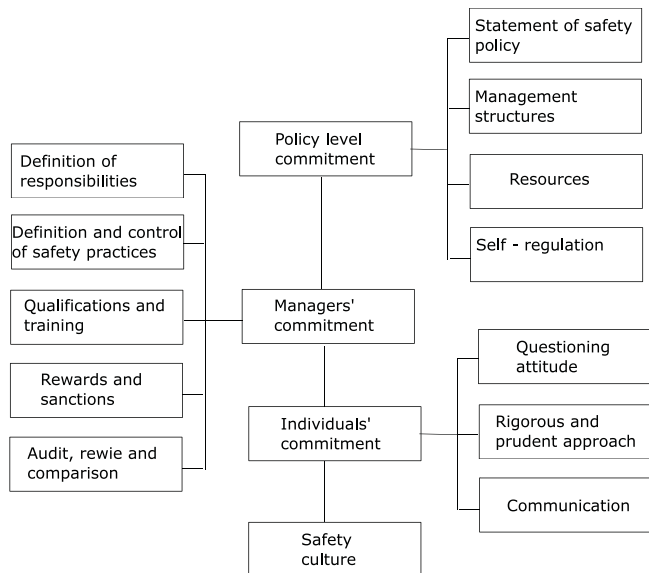


Fig. 1 Illustration of the presentation of Safety Culture [2]

In any important activity, the manner in which people act is conditioned by requirements set at a high level. Establishment of a management structure, assignment of responsibilities within the Safety Culture and allocation of resources are all primary responsibilities at corporate policy level. These arrangements are compatible with the organization's safety objectives.

Safety Culture model

Researchers and practitioners have proposed a variety of models of Safety Culture in recent years. They agreed on a number of 5 steps that should lead to a good Safety Culture. Even with the change of nomenclature, it is still essentially the same. The definition of these levels by Hudson et al. is presented below and also shown in Fig. 2 [5, 6].

- *Pathological*: Who cares about safety as long as we are not caught?
- *Reactive*: Safety is important: we do a lot every time we have an accident.
- *Calculative*: We have systems in place to manage all hazards.
- *Proactive*: We try to anticipate safety problems before they arise.
- *Generative*: Health, Safety and Environment (HSE) is how we do business round here.

The UK Coal Safety Management Systems implements steps that should lead to a good Safety Culture differently, see Fig. 3. The model was designed in a such way, that the bottom level includes only few or none of the standards definitions for organization and as a site moves up through upper five levels these standards are more specified and the amount of requirements are increasing. This increase also includes the improvement of compliance with, and effectiveness of these standards [7].

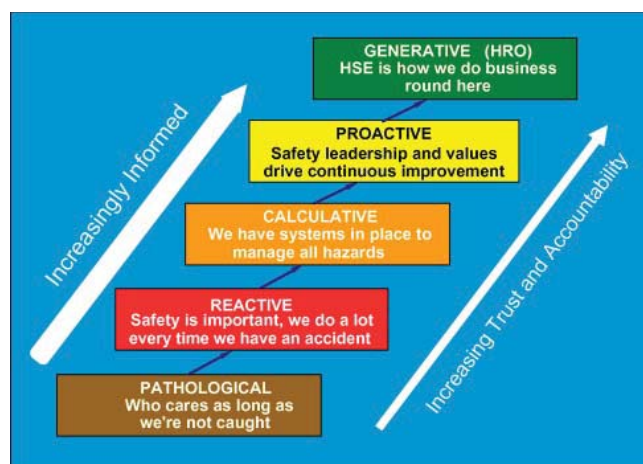


Fig. 2 The Health, Safety and Environment (HSE) Culture ladder [6]

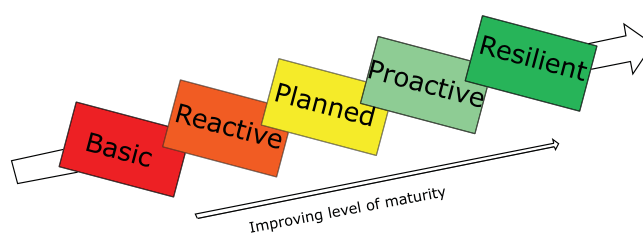


Fig. 3 UK Coal journey model [7]

On the other hand, theoretical background underlying Safety Culture may also be based on a dynamic definition of Safety Culture, which embodies three major questions representing core dimensions of Safety Culture:

- How committed are we to safety?
- How are we involved in safety?
- How do we learn?

These questions underlie the diagram of main elements of Safety Culture presented in Fig. 4, [8].



Fig. 4 Main Elements of Safety Culture

However, all models endorse that the Safety Culture is not only the responsibility of employees but also the basic obligation of management. Safety Culture is a subcomponent of corporate culture, which alludes to individual job and organizational features that affect and influence safety. The concept of Safety Culture is not specific unequivocal [9].

Psychosocial factors and safety culture

One way to frame safety culture is to examine it within the broader context of organizational culture. Although these constructs were developed separately (i.e., Safety Culture was not originally a subculture of organizational culture), they are related concepts. Schein (1990) defines organizational culture as: "[A] pattern of basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore is to be taught to new members as the correct way to perceive, think, and feel in relation to those problems". [4]

Among input factors which also influence Safety Culture, we should also include psychosocial factors, ergonomics factors, social situation and more, see Fig. 5. These factors are affecting the workers and work collectives. The causes of adverse effects and causalities of these factors are well known, however, there are still missing preventive measures. The Safety Culture also suffers from this deficiency. To the basic psychological factors belong motivation, satisfaction, human relations, health and safety, worker nature that accompanies and influences employment. Sufficient working conditions are characterized by physical comfort (adequate physical exercise, good climatic conditions in the workplace, the elimination of harmful physical agents, to ergonomic principles, good social background). Using simple words, it is important to ensure social welfare [10].

However, it is difficult to change the attitudes and beliefs of adults by direct methods of persuasion. But acting and doing, shaped by organizational controls, can lead to thinking and believing. An ideal Safety Culture is the "engine" that drives the system towards the goal of sustaining the maximum resistance towards its operational hazards, regardless of the leadership's personality or current commercial concerns [3].

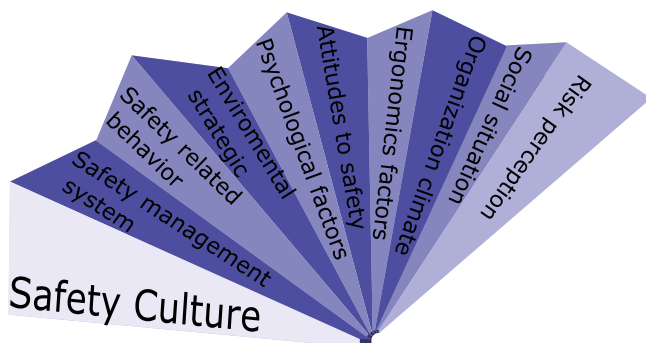


Fig. 5 Factors influencing the Safety Culture

Future development

In this work, we shown that the definition of the concept of Safety Culture using one sentence is not simple and straightforward (see Tab. 1). We also presented outputs related to interconnection between Safety Culture and Safety climate. In our opinion, the most interesting approach was presented by Cooper [9]. He claims that the individual human complacency and psychological welfare plays the key role in Safety Culture. Usually, these factors are disregarded and considered only as black-white area -workers are happy or unhappy. However, we should consider all grayscale which influence the probability of human error. We should ask what was the real reason why the error occurred and what have been other reasons which contributed to this failure. These questions are heading towards "new" risk analysis in the workplace. This multidimensional problem will be investigated in Master's thesis, which focuses precisely on the Safety Culture in companies.

Conclusion

Safety Culture is now a commonly used term. However, there is a real requirement of a deep understanding of its nature because only such understanding leads to the transformation of convenient term "Safety Culture" into a concept of practical value. Every company wants to keep safety culture on high level and reduce occupational injuries. These values are important to achieve a comparative level with high advanced world companies. Every company can obtain such a good quality of safety culture and this is not only a case of the large companies.

References

- [1] *National safety council: 4 barriers to an effective company safety culture*, National safety council, (2013), [online], [cit. 2017-03-03]. Available from: <http://blog.nsc.org/4-barriers-to-an-effective-company-safety-culture>.
- [2] International Nuclear Safety Advisory group: *Safety report (Safety culture)*, Vienna, (1991).
- [3] REASON, J.: *Achieving a safe culture: Theory and practice*, Work & Stress, (1998), [online], [cit. 2017-03-03]. Available from: <http://dx.doi.org/10.1080/02678379808256868>.
- [4] COLE, K.S.; STEVENS - ADAMS, S.M.; WENNER, C.A.: *A Literature Review of Safety Culture, Sandia National Laboratories*, (2013), [online], [cit. 2017-03-03]. Available from: <http://prod.sandia.gov/techlib/access-control.cgi/2013/132754.pdf>.
- [5] PARKER, D.; LAWRIE, M.; HUDSON, P.: *A framework for understanding the development of organisational safety culture*, Safety Science, (2006), ISSN 0925-7535, [online], [cit. 2017-03-03]. Available from: <http://www.sciencedirect.com/science/article/pii/S0925753505001219>.
- [6] HUDSON, P.: *Implementing a safety culture in a major multi-national*, Safety Science, (2007), ISSN 0925-7535, [online], [cit. 2017-03-03]. Available from: <http://www.sciencedirect.com/science/article/pii/S0925753507000227>.
- [7] FOSTER, P.; HOULT, S.: *The Safety Journey: Using a Safety Maturity Model for Safety Planning and Assurance in the UK Coal Mining Industry*, Minerals, (2013),3(1), 59 - 72, Doi:10.3390/min3010059, ISSN 2075-163X, [online], [cit. 2017-03-10]. Available from: <http://www.mdpi.com/2075-163X/3/1/59>.
- [8] SkyBrary - Euro control: *Safety culture in ATM*, Skybrary, (2017), [online], [cit. 2017-03-05]. Available from: http://www.skybrary.aero/index.php/Safety_Culture_in_ATM.
- [9] COOPER, D.; FINLEY, L.: *Strategic Safety Culture Roadmap, B - Safe Management Solutions Incorporated*, (2013), ISBN 978-0-9842039-1-8, [online], [cit. 2017-03-02]. Available from: http://news.inconstruction.org/IDOL-ICA%20Partnership/BSMS\discretionary {-} {} {} Safety_Culture_Roadmap.pdf0.pdf.
- [10] OSADSKÁ, I.: *Hodnotenie pracovných podmienok (psychosociálne faktory)*, VSB - TU Ostrava, (2017), seminárna práca.
- [11] Kirschstein & Partner, *Kompetenz für Angewandte Psychologie: Kultura bezpečnosti, obecné princípy ZAT a.s.*, Ostrava.