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SAFETY CULTURE AS A METHOD OF SAFETY DEVELOPMENT

Abstract

Introduction and aim: In the article the Authors consider the issue of creating the required safety culture at a company as one of the fundamental objectives under work safety and hygiene management. The changes in system of values and attitudes of company personnel would significantly contribute to improvement of work safety and hygiene.

Material and methods: The material is selected issues from the literature. The method of theoretical analysis has been shown in the paper.

Results: Providing modern and safe machines and equipment and risk-free technologies are indispensable elements of strategy aimed at reduction of industrial accidents and occupational diseases. However, if the above strategy is not supported with appropriate education on threat identification methods as well as relevant motivation to use safe working methods and encouragement to estimate results of decisions made, then the preventive effect of technology purchased would be of minor degree.

Conclusion: For some last decades the consciousness of Polish employers and employees concerning work safety and hygiene has been gradually increasing. Such an approach is also the consequence of apparent interest in problems of building up safety culture.

Keywords: Management of work safety and hygiene, creating safety culture, safety at workplace, accident prevention.

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KULTURA PRACY JAKO METODA KSZTAŁTOWANIA BEZPIECZEŃSTWA

Wstęp i cele: W artykule rozważa się kwestię tworzenia kultury bezpieczeństwa wymaganą w firmie jako jeden z podstawowych celów w ramach zarządzania bezpieczeństwem pracy i higieny. Zmiany w systemie wartości i postaw pracowników firmy znacząco przyczynić się mogą do poprawy bezpieczeństwa i higieny pracy.

Materiał i metody: Materiałem są wybrane zagadnienia z literatury przedmiotu. Zastosowano metodę analizy teoretycznej.

Wyniki: Dostarczanie nowoczesnych i bezpiecznych maszyn i urządzeń i wolnych od ryzyka technologii są nieodzownym elementem strategii mającej na celu zmniejszenie liczby wypadków przy pracy i chorób zawodowych. Jednakże, jeżeli powyższa strategia nie jest obsługiwana w odpowiedniej edukacji na temat metod identyfikacji zagrożeń, a także odpowiedniej motywacji do korzystania z bezpiecznych metod pracy i zachęty do oszacowania wyników podjętych decyzji, to efekt prewencyjny zakupionej technologii byłoby niewielkim stopniu.

Wniosek: Dla niektórych ostatnich dekadach świadomość polskich pracodawców i pracowników w zakresie bezpieczeństwa i higieny pracy stopniowo rośnie. Takie podejście jest również konsekwencją wyraźnego zainteresowania problematyką budowania kultury bezpieczeństwa.

Słowa kluczowe: Zarządzanie bezpieczeństwem i higieną pracy, tworzenie kultury bezpieczeństwa, bezpieczeństwo w miejscu pracy, zapobieganie wypadkom.

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1. Introduction

Civilization progress makes people's life more comfortable, more interesting and more enjoyable. However, almost every technological achievement brings certain risks. For instance, the developments in motor industry provide fast movements and travels but at the same time turn out to be the causes of tragic accidents and traffic collisions (road, train or plane catastrophes).

The development in chemical industry enables production of many suitable consumables however, many of them create the risk of releasing hazardous substances to our environment. Further on, even though nuclear power engineering provides very efficient and effective energy source, a failure of nuclear reactor develops into a source of outsized hazard for human and animal life as well as the environment.

Similar examples can be found in each area of human's activity. What is more, the dynamic development and progress in communication technologies, and there the development of mass media, very frequently makes us to be unintentional attendants of disastrous events regardless the place and the time such events happened to occur.

In Poland there are about 600 accidents at work reported every working day. Reports reveal that the said accidents end with death of 3 people while other 10 people become disabled. Accidents bring suffering and pain, Due to accidents the life quality of injured and their families gets lower. Accidents at work disorganize work as that and in many cases produce significant losses due to damage and disobedience of contract due terms as well as casualty treatment costs and indemnity payments incurred by the company owners [5].

Modern systems of threat prevention pay much attention and concern to the problem of suitable organization of preventive measures and rescue procedures in context of appropriate preparation and training of company's personnel. The preparations in the above range concern both the individual's private sphere (e.g. awareness arousing trainings conducted by authorities and departments responsible for safety and security) and business related sphere (e.g. implementation of company's safety and security system).

An unused niche of activity is, among other, the system of continuous education in range of improving the knowledge, creating skills and arousing attitudes stipulating widely understood safety of human's life and work.

2. History of accident prevention

The influence of working conditions on workers' life and health appeared to be particularly noticeable in the times of so called industrial revolution (XVIII century). The conditions of work in new-found factories and workshops were very bad, often affecting women and children. To prevent the extensive occurrences of diseases and accidents in that social group, in 1802 the English Parliament adopted a Law on Apprentice's Health which defined the working hours and conditions that had to be provided while employing the juveniles. However, the said Law and other legal acts issued by the Government were difficult to execute in practice. Thus, the subsequent actions were undertaken to enforce the employers to provide proper working conditions.

In 1833, also in England, a labor inspection agency was established. The labor inspectors, acting on base of applicable regulations and laws, were to control the employers and insist on them to provide safe and hygienic working conditions at their plants and factories.

The subsequent milestones of great importance were two events:

- establishing employers' branch associations in France in 1867, where the associations took supervision over working conditions throughout the plants in the branch, and
- establishing the first WS&H department at an American factory in 1892.

By the end of XIX century a particular conviction could be perceived that proper working conditions can be maintained only with company's owners (top management) active involvement.

Since the beginning of XX century the problems of work safety and hygiene have been the subject of scientific researches. From the time the statistics on accidents was introduced numerous hypothesis on causes of accidents and collisions were formulated.

At first the scientists concentrated mainly on technological aspects and improvement of work physical environment. Later on, as the physical conditions could be controlled and improved, more and more attention was drawn to the significance of so called human and social factors in accident event occurrences.

According to Fal [1], already in 1931 German scientist Didier claimed, on base of his researches and analysis, that nearly 50% of accidents took place due to human factor fault. The rule formulated by Heinrich in 1950, appearing to have become really popular, stated that 88% of accidents happened due to risky and irresponsible actions of workers, 10% of accidents occurred due to dangerous conditions and 2% of accidents could not be avoided anyway (the said rule has been simplified as follows: 85% - risky actions, 5% dangerous conditions).

Furthermore, a lot of researches focused on investigating the importance of social environment where the workers are to operate. As Larson reports, social atmosphere at the workplace contributes to accident occurrence far more than physical working conditions.

Larsen makes reference to Kerr's report where the latter indicates that among human factor related accidents at work there are 15% of accidents due to individual personality of workers themselves while as much as 85% are related to unfavorable psychological atmosphere at workplace [3].

In 1970s the statistical information on accidents revealed certain worrying tendency. It appeared that after having recognized a considerable reduction in number of accidents in the first half of XX century, later the accident related ratios indicate the stability in accident number or even an increase in that number.

That fact stimulated further researches. The researchers summoned up systematized organization theories, once popular in 1970s, where every enterprise, plant or factory was presumed to be a specific social-technological system. The latter was treated as a combination of physical and human factors, strictly joined one with another, that never should be studied separately. Further on, the theories mentioned created the basis to give explanation for accidents and disasters at the plants and factories.

One of the most ubiquitous concepts that time, according to Pidgeon [4], was the hypothesis *The man-made disasters* by Turner who based his conclusions on systematized researches carried out in large companies for 10 years. Turner's conclusion is the following: the disasters "mature", often for many years, while the interactions among people involved in social-technological system proceed.

Moreover, Turner claims that organizations operations base on diversified cultural habits and standards concerning risk and risk management, either formally prescribed in form of regulations and procedures or wordlessly accepted and launched in everyday practice.

The disasters, as Turner noticed, mature for a certain period (even for several years), resulting from the hidden faults and potential threat signals inconsistent with accepted practices, and therefore ignored. In most cases, however, while analyzing the causes of an accident only some direct causes are considered, hardly ever arriving at its source.

The theory *The man-made disasters* became popular in 1970s and 1980s, the period when the disasters in industrial plants started to be considered as events affected with management related factors. That approach contributed much to the modern understanding and conception of safety culture.

3. Safety culture

The technological progress and civilization achievements of two last centuries have certainly had large influence on our life quality. However, technological progress means not only higher comfort of life, fast traveling or, in highly developed countries, unlimited access to medicine achievements and medical measures.

New technologies and advanced production processes as well as new and constantly changing challenges at work set before people also new and unknown threats.

Besides technical hazards and exposures, also the social nature threats become more and more meaningful, e.g. hard competition on job market or possibilities to lose a job or relationships between employees and employers.

Every new threat is an additional source of stress for company employees, that in consequence, among other, contributes to accidents and disasters induced with human errors, faults, lower concentration or rush.

For some recent years a substantial query having been made is whether the price being paid by mankind for civilization wealth is not too high?

After a series of huge industrial disasters, in situation of still enormous number of accidents at work and outside work, the need to develop and build up the safety culture becomes particularly significant.

To explain the term of safety culture, it is worth making reference to general definition of culture found in "Lexicon of Polish Language".

Culture is defined there as *the overall material and intellectual achievements of mankind, collected, preserved and improved throughout mankind history, transferred from generation to generation. Culture is also the extent and degree of perfection at certain expertise or skill.*

On having adapted the latter definition to the sphere of safety, we may formulate the following: safety culture is the overall mankind achievements in range of safety (protection of life and health), preserved and improved during culture history time, transferred from generation to generation.

Culture also means a degree of effectiveness gained in range of human life and health protection. Thus, each society or group of people can be characterized with a defined safety culture level.

Another aspect of safety culture is the attitude of a given society to problems of risk and threat. Pidgeon defines the safety culture explicitly as *a system of connotations which enables a given group of people to understand the threats in the world.*

The system contains, among other, explanations associated with accidents and disasters, what are the causes and how the accidents come about.

The level of safety culture is then the outcome of attitudes of a given society members to the risks, threats and safety, and the values which are deemed important in that range.

Pidgeon distinguishes three main aspects of safety culture, as follows:

- *rules and standards in range of dealing with risks* - rules and standards accepted within a given group define when the risk is high and requires relevant response, or otherwise when it can be disregarded or ignored;
- *approaches and attitudes to safety* - a set of convictions and beliefs concerning importance of safety, assumed by individuals or a group of people;
- *responsiveness associated with safety* - learning and gaining experience, i.e. making deductions and conclusions on base of actions taken and appropriate responses to new and unknown threats.

4. Building up safety culture

Building up the required safety culture in a company aims at encouraging its employees to act in favor of protecting health and life of themselves, their co-workers and any other people who are affected, whatever the influence is, with the company operation.

The process of shaping required safety culture has to be continuous process since the real culture transformation is difficult and needs time. Single actions may seem impressive but they bring illusory effects as they touch only the uppermost culture layer. To achieve continuing and enduring effects the transformation and change has to break through the deep-rooted layers of culture, related to the system of values and presumptions approved in a company.

According to Geller's theory of total safety culture [2], high safety culture is related with every employee's feeling of personal responsibility for safety matters, confirmed while everyday work. The most significant culture indication is employees' behavior. Thus, high safety culture is characteristic for a company where its employees:

- reveal active approach and continuous care for safety of themselves and other,
- go beyond their duties and responsibilities if a threat or risky action has to be identified and corrective action has to be undertaken.

Building up the required safety culture, as Geller adds, needs permanent focus not only on employees' behavior but also on work physical environment and individual employee personal qualities (Fig. 1).

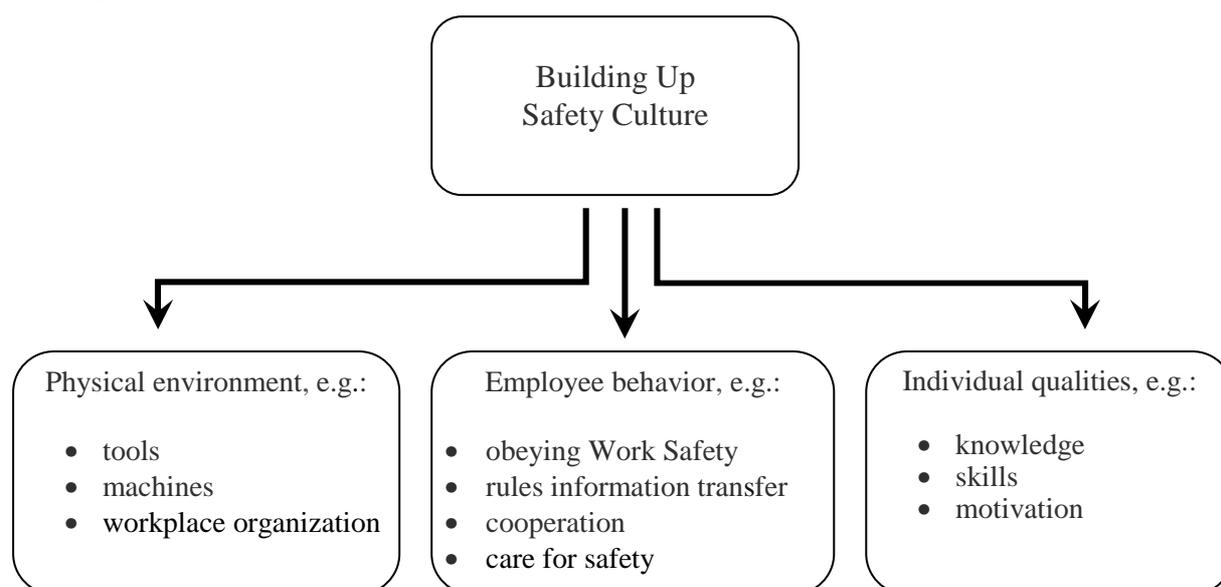


Fig. 1. Model of building up safety culture
Source: Elaborated of the Authors

In companies managed in a modern way it is emphasized that building up safety culture at a company is an integral part of company management system and an element of company image creation.

The measurable effects of such an approach are lower accident occurrence ratios and reduction in losses resulting from underestimation of significance of work safety and hygiene in overall company functioning.

5. Conclusions

- Human resources constitute the most significant capital of an organization or company. People are those who build company's successes. On the other hand, people are also those whose operations and actions may lead to failures, accidents and disasters.
- Providing modern and safe machines and equipment and risk-free technologies are indispensable elements of strategy aimed at reduction of industrial accidents and occupational diseases. However, if the above strategy is not supported with appropriate education on threat identification methods as well as relevant motivation to use safe working methods and encouragement to estimate results of decisions made, then the preventive effect of technology purchased would be of minor degree.
- Inadequately selected, insufficiently trained and poorly instructed operator and, first of all, the one who is not willing to work with awareness of safety, would spoil the preventive effect of the best and safest equipment or technology.
- For some last decades the consciousness of Polish employers and employees concerning work safety and hygiene has been gradually increasing. Such an approach is also the consequence of apparent interest in problems of building up safety culture.
- It has been found out that in companies proving to have higher safety culture there are less accidents. The latter indicates that the employees more frequently choose to behave safely and risk less.

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