Young workers’ occupational safety knowledge creation and habits

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Abstract

The problem of young workers'safety culture is important because of the unfavorable demographic trend occurring in the European Union and determinants of competitiveness and innovativeness of the economy. The paper presents the concept and the importance of safety culture and goals of the research program, the aim of which is the construction and verification of the model based on the transfer of knowledge regarding the safety and methods of its implementation. Safety culture is a derivative of the organizational culture and its emanation. During the preliminary research, the key factor affecting the occupational safety was identified. This factor is young workers safety culture or safety culture present in firms they work for. Man is effective only if in addition to the knowledge and skills have adequate habits. Habits developed in the area of occupational safety can greatly contribute to its improvement. Shaping habits should be systematically rather than spontaneously. Its practical implementation would have a major impact not only on the quality of teaching students, but also on the teachers professional development (teacher training center as the center forming positive habits) and the management of educational administration (board of education as a center for development of positive habits headmasters). In the light of recent discoveries in the field of neurology, human behavior and life decisions are not only determined by the knowledge and competence. The technology that is used to teach, plays a secondary role and is used rather to increase the decision makers ambition than to increase the efficiency of the learning process. There are a lot of ways to increase the effectiveness of education. One of them is widely understood digitization, which provides solutions such as e-books, interactive whiteboards, gamification (use to study the mechanisms of the game). The main goal of this type of action is to improve the knowledge and skills of school students. It is assumed that the results of the project will be used by vocational schools and companies in order to increase the effectiveness of the education and development of young professionals pro safe behavior in the workplace. It can be assumed that the results of the project will be implemented in at least 20 vocational schools educating 3,000 future employees. Within one year of the completion of the project may be able to increase the frequency of making pro safe behavior among young workers associated with cooperating schools.
1. Introduction

In preparation for the research program titled Tacit and explicit knowledge and attitudes towards safety of young workers based on their practical preparation to the profession that team from the School of Economics in Warsaw performs on behalf of the Central Institute for Labour Protection-funded project by the The National Centre for Research and Development, it turned out that the key factor affecting the safety is safety culture of young workers employed in firms. Hence, the purpose of this article is to demonstrate the importance of safety culture as a derivative of organizational culture in the light of the analyzes based on available literature. For this purpose the rich experience of project partner - an expert from the University of Central Florida professor Waldemar Karwowski has been used. Empirical studies will be completed in the next two years of the project. The article deals not only with a safety culture but also presents the basic assumptions of the project along with the conceptual model of knowledge transfer in the field of occupational safety.

2. Organizational and safety culture

Safety culture is derived from the company's organizational culture. There is no specific definition of organizational culture, but Reason [1] has defined Uttal's [2] as one that recognizes the essence of the phenomenon without unnecessary noise:

(This organizational culture is) the shared values ("what is important") and beliefs ("how it works"), which interact with the organizational structures and control system in order to produce norms of behavior ("how we do it here").

Helmreich and Merritt [3] define organizational culture as the values, beliefs, assumptions, rituals, symbols and behaviors defining the group, in particular in its relations with other groups or organizations. Edgar. H. Schein, who studied in the USA the corporate and organizational culture, defines the latter in the following manner:

Organizational culture is a pattern of basic assumptions invented, discovered or developed in the group while learning to cope with external adaptation and internal integration. This is the pattern of assumptions, which were considered important and which form the basis for training new members as the correct perspective of perception, thinking and feeling about these issues.

Organizational culture is formed on the basis of shared beliefs. These beliefs have a strong influence on the behavior of employees and are hidden in different layers [4]. Taylor [5] describes Schein's construct as general (generic) model of culture. This model consists of layers controlling the human performance and behavior including beliefs, promoting values, attitudes and artifacts [5]. Beliefs stem from simple assumptions and general (common) organizational experience. Against this background, it is necessary to analyze the perception of employees and their beliefs regarding safety in the organization. The relationship between beliefs and behavior will help in understanding the safety culture in the organization and motivation of employees [5].

Patankar and Sabin built a safety culture pyramid, which describes the relationship between the four layers of culture in terms of their impact on the behavior and performance of the individual person in the organization. The model ranks behaviors and, thus, the safety activities performance at the top of the pyramid. Another layer having an impact on the performance of the described activities is the security climate which is a function of attitudes and opinions regarding the safety in the organization. The next layer of security concerns strategies, which are derived from the organization's mission, the nature of leadership, strategy, rules, history, legends and heroes. At the bottom of the pyramid are the values of safety, which are part of the fundamental values and unquestionable assumptions [6]. Pyramid of the value created by Patankar and Sabin was presented in the figure below (Figure 1).

Safety culture pyramid shows the relationship between the fundamental values of the organization and the employees’ behaviour, which affects the performance of safety-related activities. It helps in the analysis of factors contributing to accidents and allows to understand how these factors contribute to generate of dangerous behavior. Neal et al. [7] built a model to explain the impact of organizational climate and the impact of safety related climate on individual behavior of employees. As a result of their research the organizational relationship between the environment and the behavior of individual safety, such as the tendency to conform to and participation, has
been identified. The study showed that organizational climate has a significant impact on the climate associated with security. In the study the knowledge and motivation for safety has been used and treated as determinants of performance related activities. The results indicate that climate plays a major role as a determinant of activities performance [7] which confirms the conclusions of the safety culture pyramid model.

3. Young workers’ safety knowledge creation

Motivation and commitment are the keys to the success of the organization. The awareness of being an important part of the company has a significant impact on the performance of young workers. The researchers suggest the existence of two dimensions of organizational commitment: affective dimension and the calculative dimension. The affective dimension reflects a strong belief and acceptance of the goals and values of the organization, will take effort on his behalf, and a strong desire to become a member). The calculative dimension reflects the employee’s desire to stay or leave the company.

All test and analysis show that examine the attitudes of young workers in particular is determined by interdisciplinary knowledge. However, it should be emphasized that the areas of greatest significance are behavioral, cultural, psychological, and social.

- **Cognitive** - all kinds of persuasion training supported by the analysis of an individual, effective communication with sufficient information (too much bad, too little bad). The effective tool may be, for example, purposeful conflicts employees to induce natural cognitive emotions (elements of extraversion or empathy). Achieved knowledge of the subject will be partially useful to determine attitudes, and so the goal.
- **Behavioral** - the system of rewards and punishments that are closely linked to a specific activity of the employee.
- **Social** - This approach is based on the principle of social learning and teamwork. The team and the team leader stimulate or even force changes.

As T.Z. Ahram, et al. found[8], work processes are structured around four main categories: capturing knowledge, transferring knowledge, knowledge creation, and knowledge integration (see Figure 2). Knowledge integration can be thought of as the end product of the process. Integration requires inputs from the other three activities, results of the integration process drive the remaining three. In the first stage of most projects, the main focus is capturing knowledge from all resources. Over time, focus starts to shift to transferring knowledge to more stable processes and activities after which fruitful knowledge creation and implementation occurs. In this model, knowledge integration happens at any stage to foster value creation and positive impacts on systems design and usage.
Experts in the HSI domain contribute to knowledge management by ensuring that human capabilities and limitations are identified and considered in system design. It has become clear that treating the system as separate from the users results in poor performance and potential failure in the operational setting of the system. Continued growth in technology alone has not delivered desired results. Systems engineers and other disciplines are beginning to understand the role humans play in technology systems. The core challenge is to balance successful hardware and software solutions with human capabilities and needs. To this end the human element must be considered as a part of the system, and included within the entirety of the design process[8].

4. Young people’s habits

As J. Fazlagić found, shaping positive habits is relatively uncomplicated process that can be described by three phases. Our brain needs guidance, or signpost the direction in which is to follow. Then follows a routine (physical, mental, or emotional). And finally, there is an award that allows the brain to ascertain whether a particular loop is worthy of attention and remember if it's worth it for the future. After repeated passage through the loop, the brain is prepared for the subconscious of the activity without the involvement of consciousness. Automation occurs when the brain feels the need to obtain a reward. In the case of harmful habits this award may be eating cookies or chocolate (especially if the person struggling with overweight). In shaping habits more important than the prize itself is the expectation of receiving the award. The brain, particularly the brain of a young man, constantly looking for opportunities to learn new habits. If parents enroll your child to a sports club, they may develop the habit of persistence. If you will eat junk food, you may develop the habit of unhealthy eating. People go to a fast food restaurant, not because they become dependent on the chemical composition of food, but because they form the habit of going to this type of restaurant. Therefore, it is of great importance for schools - it would develop positive habits (eg. segregation of garbage, not interrupt the caller during the dialogue, perseverance in pursuit of the goal). The habit is so strongly imprinted in our brain that it is very difficult to change.

The role of schools in shaping the minds and young people is indispensable. The problem of educational system lies in the fact that we too often assumed that habits can be formed only by the transfer of knowledge to students. Meanwhile, the formation of habits is a completely different process than to influence student’s knowledge. Do teachers are aware of? Probably not. The exception may be physical education teachers who understand that success in sports depends on the acquisition of an appropriate set of habits. The famous footballer Pele once asked, what is his success, he said that he always ran where the ball just will, and everyone else ran where the ball was at the time. Is an example of the effect of certain habits athlete who gave him success.According to Charles Duhigga the most effective way to change a bad habit is a direct attack on the loop by replacing the old routine with a new one. In fact,
we will never be able to get rid of old habits - they are in our psyche so deeply rooted that they remain with us to death. To change an old habit with a new one, we need to keep the old pointer, and the reward, but to introduce a new (different) routine. For example, the habit of visiting the cafe and buy cookies, you can "swap" on a ten habit of talking with your friends [9].

Some habits can be described as the keystone). A feature of these habits is, that they change causes a chain reaction in our lives. If we manage to quit smoking, it will affect many other aspects of our lives. Probably the most important of all the habits that shape our lives is willpower. In the study conducted at the University of Pennsylvania in 2005, quoted by Charles Duhigga, proved that willpower was the most important determinant of educational results obtained, even more important than IQ. In the '60s the twentieth century researchers at Stanford University the group of 4-year-olds children have been studied. Their ability to resist the temptation to eat sweets has been evaluated. They found that those students who as children were able to defer the award in the longest period of time (ie. to postpone the moment of eating sweets), then obtain an improved performance in learning. They were also more well-liked by their peers and less likely to reach for drugs. Willpower turns out to be a specific muscle in our brain, which allows you to win in any of the disciplines of our lives. It is also useful to the musician and engineer. American Research also shows that willpower is a universal habit, ie. that educated in one discipline is useful also in the other. Improving the strong will of employees has become one of the key themes of the program of professional development Starbucks[10].

5. The concept and the importance of safety culture and goals of the research program

The aim of the research program is to improve the educational system in the field of pro safety attitudes among young workers, in particular through the effective use of existing sources of explicit and hidden knowledge in the field of health and safety. Implementation of the program will take place in three stages. The primary objective of the first stage is to develop a conceptual model of the flow of knowledge in the field of health and safety in the system of vocational training of young workers. In order to achieve the goal, the formal sources of explicit and hidden knowledge in the field of health and safety, which are used for the training of young workers will be identified. Then, these sources will be subjected to analysis because of their quality, timeliness, adequacy and availability of communication. In addition, a questionnaire will be developed following research:

- to examine the formal sources of explicit and hidden knowledge in the field of safety.
- to examine attitudes towards safety: a questionnaire, aimed at young workers.

The primary objective of the second phase is to evaluate the effectiveness of formal sources of explicit and hidden knowledge in the field of occupational health and learning methods using these sources, in the context of shaping the attitudes of young workers. In order to achieve this objective, statistical analysis will be performed. The main objective of the work planned in the third stage of the project is to verify the developed model of training using explicit and hidden knowledge.

The key effect of the program will be a model of safety culture, based on the transfer of knowledge on occupational safety, understood as a dynamic process of verifying people's beliefs [11] on this subject. The management of knowledge is understood systematic process aimed at knowledge-based capitalization of intellectual resources in the enterprise [11]. Conceptual model of safety culture based on knowledge transfer safety data is presented in Figure 3.
The presented model was created as a result of the use of formal sources of explicit and hidden knowledge in the field of health and safety, which are used for the training of young workers, and will be tested in empirical research.

6. Summary

In conclusion, the results of this project should help improving the current system of vocational safety training for young workers through an effective use of existing sources of explicit knowledge and its impact on the hidden health and safety knowledge of young workers.
References

[9] Duhić C., Sila nawyku, Warszawa 2013 [In Polish]