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MATURATION PYRAMID OF OCCUPATIONAL HEALTH AND SAFETY

ABSTRACT

Occupational Health and Safety System (OHS) is important for governments, employers and workers. Recently, OHS program has developed day by day and tried to secure working environment. For this purpose, it is necessary that the written job security rules in the workplace should be internalized by employees, and employers, and government system. Workers can comply from the top to the bottom of organization and contribute to development of rules through their own personal knowledge, experience, and in-house training. In addition, they are complying with job security rules without requiring an audit, which is thus called as an occupational safety culture. Many employees are affected by accident and their health is deteriorated year by year, which inevitably leads to loss of work force thus countries suffering from economic and social damages. Moreover, OHS is not only enough for improving security culture but also requires collateral training and maturation processes. The purpose of OHS activity is to reduce job accidents that declines rate of work harm, economic loss and social problems in the government. Furthermore, occupational safety researches are associated with engineering techniques, in particular. To add, it includes human social and dependent sciences. Maturation and evolution in companies and countries are included in this concept. The present study emphasizes the new model as an approach to fatalism, formalism, prescriptivism, internalization, participation, and awareness.

Keywords: Occupational Health and Safety (OHS), Maturation, Safety Culture, International Labour Organisation (ILO), Institution of Occupational Safety and Health (IOSH)

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1. INTRODUCTION

Culture can be defined as all of the values created in the process of historical and social development and all of the means used to convey them to the next generations and to the measure of the sovereignty of the human natural and social environment [1 and 2]. The word "culture" derives from a French term, which in turn derives from the Latin "colere" which means to tend to the earth and grow, or cultivation and nurture. "It shares its etymology with a number of other words related to active fostering growth [1 and 2]. Occupational health and safety is a discipline with a broad context involving many specialized fields. In its broadest terms, it should aim at:
the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;

- the prevention among workers of adverse effects on health caused by their working conditions;
- the protection of workers in their employment from risks resulting from factors dangerous to health;
- the placing and maintenance of workers in an occupational environment adjusted to physical and mental requirements;
- the adaptation of work to humans [3].

Occupational health and safety is also human-dependent discipline. Because human behaviour is related to their culture, occupational safety is also culture-dependent discipline. Due to the fact that, we can discuss occupational safety culture or safety culture. Indeed, whole concept of "safety culture" emerged from the Chernobyl Nuclear Accident, with strong support from the International Labour Organisation (ILO). For example, in 2003, ILO developed a global strategy for occupational safety and health at work, which was adopted by the International Labour Conference [3]. This strategy emphasizes a safety culture based on prevention and participation by workers'. Thus, we need to define the new term, “Occupational Safety Culture” [4].

Many theoretical models were constructed and used to explain effects of safety culture on workplace safety. According to Advisory Committee on the Safety of Nuclear Installations (ACSNI), safety culture is defined as “The safety culture of an organisation 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, an organisation’s health and safety management. Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures [4 and 5].

Institution of Occupational Safety and Health (IOSH) defines the occupational safety culture as “Shared values within an organisation which influence its members’ attitudes, values and beliefs in relation to safety is now generally accepted as creation of a strong influence on workplace accidents and injuries” [6]. Such as the above, there are many a definition on occupational health and safety. Naturally, we have to make ours as “To comply with occupational safety rules without requiring an auditing all over the working environment and with the internal knowledge of the written business safety rules to which all employees should obey from the top to bottom of the organizational chart and contribute to the development of these rules through in-house training [7].

As mentioned earlier, culture needs time for maturation. However, time is not enough for this topic only. Laws, standards, accident reports, experience etc. is another factor in growing safety

culture. Some of the theories on maturation of occupational health and safety culture are listed below.

2. RESEARCH SIGNIFICANCE

Occupational and Health and Safety System (OHS) is important for government, employer, employment and worker. It is need to internalize job security rules by workers, employers and governments. Especially workers from top to bottom can comply and contribute development of rules to their knowledge and experience. Employees are impact negatively from accident or diseases thus they were loss of work force and government affect from economically. OHS education is improve security culture and prevent accidents and economic and social problems so it includes human social and dependent sciences. Hence, the importance of research gives that significance knowledge to emphasize new model with older ones "Flemmings' Safety Culture Model" and "Dupont Bradley Curve" and approach of "OHS Maturation Pyramid" as a new structure for all working society.

3. MATERIALS AND METHODS

In this study, a new model of occupational safety culture maturation has been created. For this purpose, interviews were conducted based on qualified survey with employees and occupational safety specialists. On the other hand, Fleming's safety culture model was examined. Fleming was created a safety culture maturation model. According to this model, safety culture improves step by step in five steps from bottom to top [8]. Another commonly used safety culture model has been studied; Dupont Bradley Curve that help industries and countries to understand development of an efficient safety culture from its earliest stages to maturation process [9]. Finally, a new OHS maturation model has been created; OHS culture maturation pyramid.

4. RESULT AND DISCUSSION

Work accidents are one of the most serious and urgent problems to be solved in the working life. Studies are underway in Turkey aimed at reducing job accidents, especially within the framework of European Union (EU) harmonization laws [3, 6, 10 and 11]. Laws, regulations, statutes, and circulars have been published and work safety trainings have started to be given in the framework of these studies. However, unfortunately, the work accidents could not be reduced to the desired level despite the legislation concerned. As we have already mentioned, work safety studies are not just engineering measures but also a lot of documents to be collected in a clear file of occupational safety instructions and contract signatures. Of course, documentation and engineering measures are just tools for occupational safety but they are not purpose-based. Because of the fact that it is important to understanding the term safety culture. For this purpose many OHS culture maturation model was created [12, 13 and 14]. Two of the most common model has been examined and then a new model was created in this study.

4.1. Fleming's Safety Culture Model

The safety culture maturity model (SCMM) of an organisation consists of ten elements, which are described below. An organisation's or installation's level of maturity is determined on the based on their own maturity in these elements. It is likely that an organisation will be at different levels on the ten components of the SCMM. Decision of which level is most the appropriate will be needed considering the average level achieved by the organisation or installation concerned [8].

- Ten elements of the safety culture maturity model
- Management commitment and visibility
- Communication
- Productivity versus safety
- Learning organisation
- Safety research
- Participation
- Shared perceptions about safety
- Trust
- Industrial relations and job satisfaction
- Training

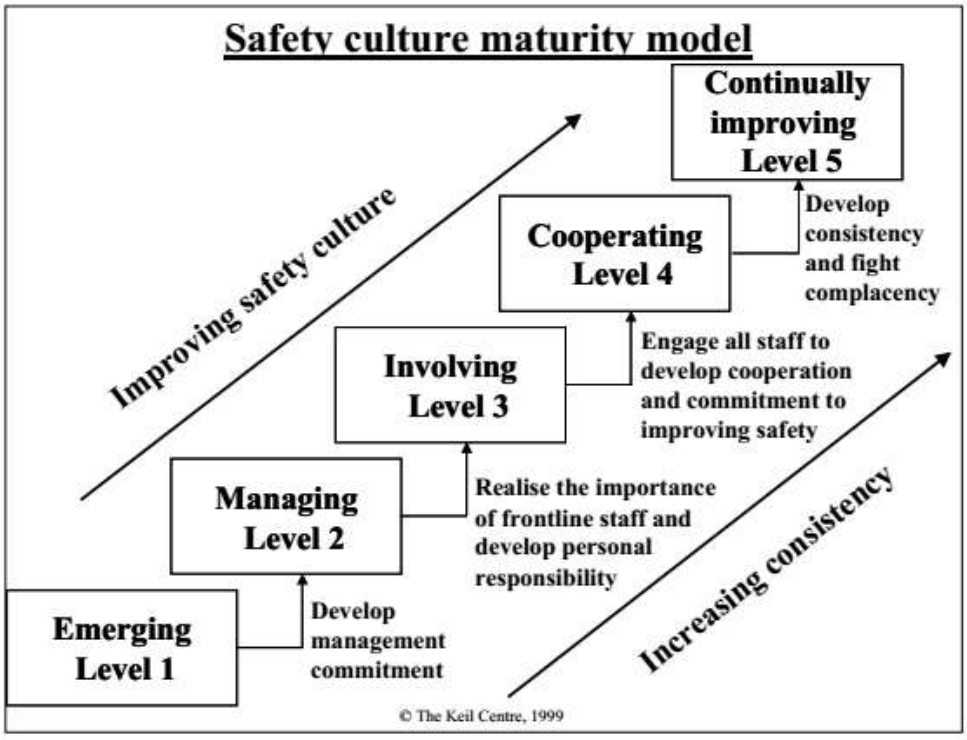

Figure 1. Flemings' safety culture maturity model [8]

- **Level One: Emerging:** Safety is defined in terms of technical and procedural solutions and compliance with regulations. Safety is not seen as a key business risk and the safety department is perceived as primary responsibility for safety. Many accidents are seen inevitable and as part of the job. Most frontline staff are uninterested in safety and may only use safety as the basis for other arguments, such as changes in shift systems.
- **Level Two: Managing:** The organisation's accident rate is average for its industrial sector but they tend to have more serious accidents than average. Safety is seen as a business risk and management time and effort is put into accident prevention. Safety is solely defined in terms of adherence to rules and procedures and engineering controls. Accidents are seen to be preventable. Managers perceive that the majority of accidents are solely caused by the unsafe behaviour of front-line staff.
- **Level Three: Involving:** Accident rates are relatively low but have reached a plateau. The organisation is convinced that the involvement of the frontline employee in health and safety is

critical, if future improvements are going to be achieved. Managers recognise that a wide range of factors cause accidents and the basic causes often originate from management decisions. A significant proportion of frontline employees are willing to work with management to improve health and safety. The majority of staff accept personal responsibility for their own health and safety. Safety performance is actively monitored and the data used effectively.

- **Level Four: Cooperating:** The majority of staff in the organisation is convinced that health and safety are important in both a moral and economic considerations. Managers and frontline staff recognise that a wide range of factors lead to accidents and main causes are likely to return to management decisions. Frontline staff accepts personal responsibility for their own and others' health and safety. Importance of all employees feeling valued and fairly treated is recognised. The organisation puts significant effort into proactive measures to prevent accidents. Safety performance is actively monitored using all data available. Non-work accidents are also monitored and a healthy lifestyle is encouraged.
- **Level Five: Continuous improvement:** The prevention of all injuries or harm to employees (both at work and at home) is a core company value. The organisation has had a sustained period (years) without a recordable accident or high potential incident but there is no feeling of complacency. They live with the paranoia that their next accident is just around the corner. The organisation uses a range of indicators to monitor performance but it is not performance-driven, as it has confidence in its own safety processes. The organisation is constantly striving to be better and find better ways of improving hazard control mechanisms. All employees share the belief that health and safety are a critical aspect of their job and accept that the prevention of non-work injuries is important. The company invests considerable effort in promotion of health and safety at work [8].

4.2. Dupont Bradley Curve

Using the DuPont Bradley Curve, DuPont Sustainable Solutions consultants help our clients in diverse industries and countries to understand development of an efficient safety culture from its earliest stages to maturation process. In a mature safety culture, safety is truly sustainable with injury rates approaching zero. People feel empowered to take action as needed to work safely. They support and challenge each other. Decisions are made at appropriate levels and people work and live accordingly. The organization, as a whole, realizes significant business benefits in greater quality, more productivity and higher profits. The Bradley Curve makes it simple for everyone to understand the shifts in mind-set and actions needed to occur in time to develop a mature safety culture [9].

- **Reactive Stage:** People do not take responsibility. They believe that safety is more a matter of luck than management and that "accidents will inevitably happen." And indeed they do.
- **Dependent Stage:** People see safety as a matter of following rules that someone else makes. Accident rates decrease and management believes that safety could be managed "if only people would follow the rules."
- **Independent Stage:** Individuals take responsibility for themselves. People believe that safety is personal and that they

can make a difference with their own actions, which reduces accidents further.

- **Interdependent Stage:** Teams of employees feel ownership for safety and take responsibility for themselves and others. People do not accept low standards and risk-taking. "They actively converse with others to understand their point of view." They believe that true improvement can only be achieved as a group and that zero injuries is an attainable target [9].

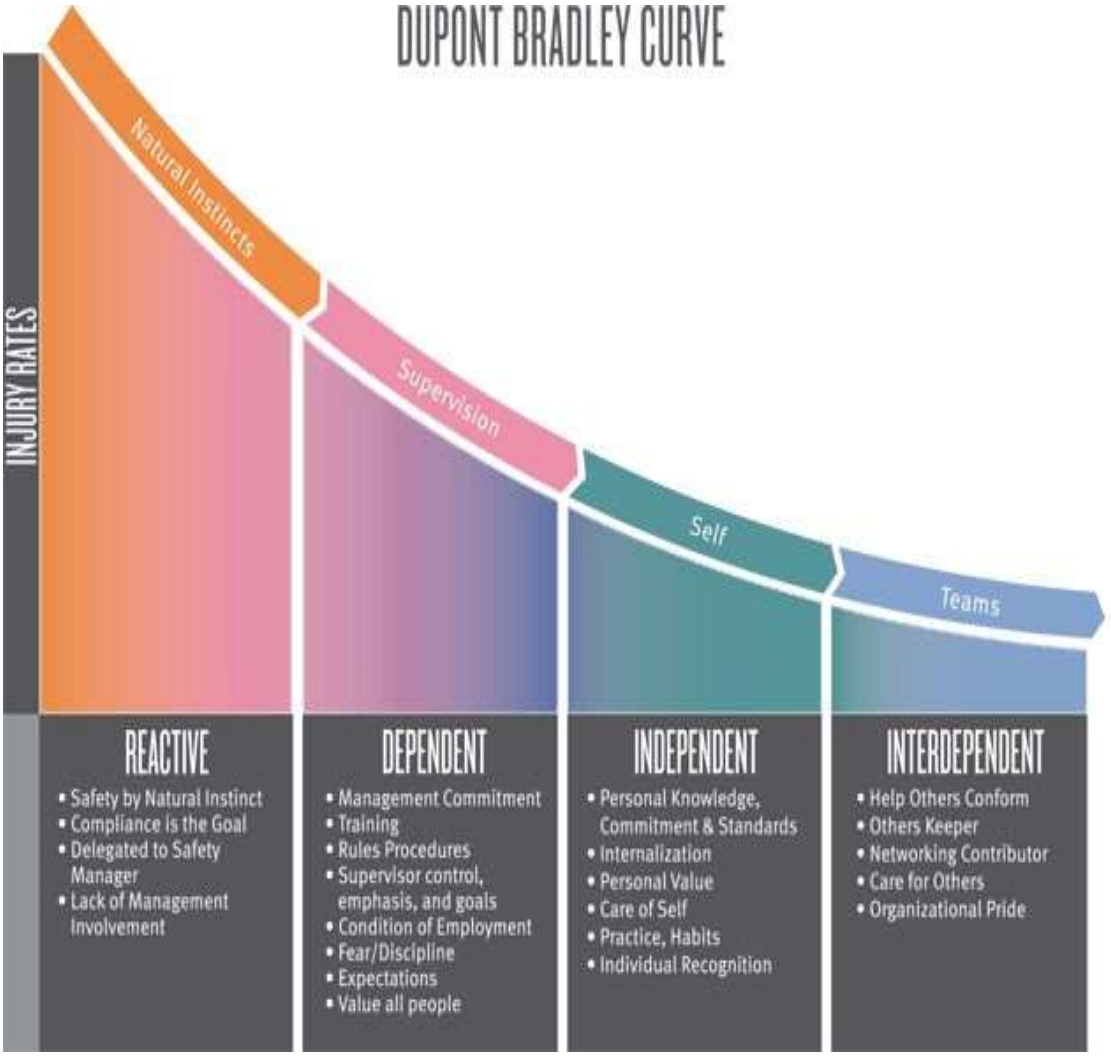

Figure 2. Dupont Bradley Curve, [9]

4.3. New Approach: Occupational Health and Safety (OHS) Maturation Pyramid

It follows from the above studies that a new and different approach to work safety is needed [7]. This approach requires that work safety should be an education itself and that it should allow maturation step by step in every time process from childhood to adulthood. Considering accidents, problems and troubles experienced in work health and safety, a new approach pyramid should be defined as follows:

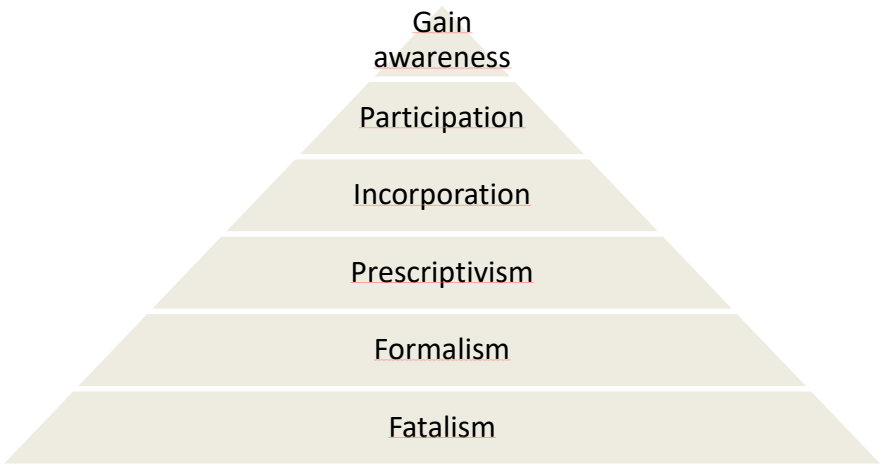

Figure 3. A new approach: Occupational Health and Safety Maturation Pyramid

- **Fatalism:** At this stage, employees and employers do not take job accidents seriously. Occupational hazards are in the ordinary course of life in these hierarchical individuals and do not require measures to reduce accidents. Occupational safety trainings are a waste of time and money for themselves. Frequent individuals in this hierarchy hear such as "I have been doing this for years and nothing happens to me".
- **Formalism:** At this stage, Pyramid seems to give importance to the company management not to reduce worker safety accidents but to get rid of legal responsibilities following the accident. It takes time to prepare documents rather than train protective measures for employees. Pages of instructions and undertakings that employees do not read are signed and plates are placed on the walls. In this step we can call it desk-based occupational safety; therefore there is no healthy communication between employees and occupational safety managers. There are occupational safety trainings, but general trainings are given, but they are not job-specific. In this step there could be a slight decrease in rates of accident.
- **Prescriptivism:** In a company that reach this stage, management also sets out its own rules and regulations in order to avoid accidents and thus checks whether the rules are applied or not. Such rules usually depend on the use of PPE. Managerial approach that employees using PPE will not accidents will not provide the economic support needed to reduce accidents. Occupational safety is treated only as engineering precautions in such companies. Psycho-social risk factors are not emphasized. There is a decrease in the number of fatal accidents, especially as the result of the rules and supervision.
- **Incorporation:** Employees are aware of hazards and risks associated with their work. They know that the measures are for their own health and now they recognize safe working methods. Occupational accidents are reduced by safely working individuals in the normal flow of work without the need for a supervisor. Management is a good role model in this step. Psycho-social risk factors are also part of work safety studies in these enterprises. There is no distinction between blue collar and white collar. When operating, areas are considered common areas. From the point of view of business security, it is no longer

just preparing documents. Work security education focuses on the purpose of putting rules, not rules. There is a serious reduction in the number of accidents in this step.

- **Participation:** Employees at this stage of the pyramid provide management ideas on how to create a job safety policy. It also provides suggestions for solutions when reporting dangerous situations to authorities within the enterprise. They warn their colleagues about making potential mistakes. Accidents have decreased considerably.
- **Gaining awareness:** There are no mandatory documents in bureaucratic instructions and undertakings in the businesses which have come to this stage. After the accidents, it is not considered the accident only because accident and constant improvement is not the issue. Safe working for employees and management has become a reflex.

Because of occupational safety activities in Turkey, they are now in the step of formalism, according to the new created model. In order to be able to step up to these steps, occupational safety training should be given more importance first. Employees should be given more emphasis on health and safety measures to be taken in workplace-specific issues. In particular, senior management must comply with the rules and must assure business safety. On the other hand, taking occupational safety measures can be seen initially as an economic expense. Therefore, senior management might not be warmed to business safety measures. However, this philosophy is not available in the above [3, 4, 7, and 15]. Cost of occupational safety measures in 299 enterprises participating in a survey conducted in Turkey in 2010 were calculated as 28.737,38 TL whereas amount of numerical gain corresponding to preventive occupational health and safety expenditure is 54.800,000 TL [10]. If the profitability of occupational safety measures could be explained to employers, employers' approach to this issue would of course change. Ensuring employers to prioritize occupational safety and supporting them will allow employees not to be in insecure behaviour. Hence, the occupational safety culture in a company could begin to develop. In the long run, job safety must be taught as a compulsory course at every step of the formal education from the elementary school and more occupational safety should be provided at the printed and visual level.

NOTE

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