

The Influence of Safety Culture on Reducing Workplace Accidents in Industrial Settings

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Abstract: The issue of safe industrial environment is an increasingly relevant aspect: the risk of an accident on working places can bring upon serious damage to human health and penalize the efficiency of any organization. The present investigation brings to light the influence of safety culture in reducing work place accidents through the share of common set of values, beliefs, attitudes and behavior directed at ensuring high occupational safety among the staff at all levels of the organization. A good safety culture is built on understanding, responsibility, and control measures that prevent accidents from occurring. The importance of management commitment, employee involvement, good communication and continuing training as the bases of a good safety culture are emphasized in the study. The empirical evidence, drawn from over a century of experience in different commercial sectors, is that accident rates are far lower in sectors which develop strong safety cultures resulting in lower financial costs and reduced occupational costs as well as lower anxiety and stress and higher morale of their employees. The study concludes with “embedding safety culture in corporate strategy does not only ensure compliance to legislation, but it is also a proactive means to create a safer and sustainable workplace.

Keywords: *Safety culture, occupational accidents, industrial safety, organizational commitment, employee involvement, occupational health and safety, well-being at work.*

Introduction

Safety culture has now become a vital issue in modern industrial management because there is realization that the human factor may, indeed, have an influence on safety at the workplace including human behavior, values and beliefs. Safety cultures: more than good business In any line of business in which there is some heavy equipment, with the possibility of violent moving parts, then a really good safety culture isn't just a legal requirement – though it is that, too, of course – but a moral and strategic one. The idea goes beyond compliance and has more to do with the inception and practice of ideas, and a commitment to taking care of people so that they don't become hurt or injured.

Small or large, accidents at the workplace have always been a bane for the industrial sector. Not only do accidents diminish productivity, but they also come at great economic cost, legal liability, and

damage to a company's reputation. Furthermore, work site accidents have the potential to sap morale and confidence among employees who begin to wonder how much the management really cares about them. A strong safety culture, then, is a pre-emptive measure to reduce that risk before it becomes manifest as an accident.

The concept of 'safety culture' is most often used to denote the shared responsibility among employers and employees, for making work places and environments safe. It's not just woven through company policy, leadership, communication and morale.” A strong safety culture encourages reporting of hazards, adherence to safety rules and input into the safety management system. When safety is at the core of the organization, when it is who you are, you rarely see unsafe behavior, and that is when you see the reduction in accident totals.

Leadership is the key to creating and sustaining a culture of safety. The behaviour of managers and supervisors will be observed by employees and their own attitude to safety will determine the extent to which employees will apply safety measures. Research has suggested that when leaders are visibly committed to safety, accidents will actually decline.

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In this sense, the safety culture is not only 'embedded' in written documents, but physically visible and repeatedly demonstrated in managers' commitment.

Participation of workers is another aspect of safety culture. Staff that feel empowered to speak up about safety issues without fear of repercussion are more likely to be actively involved in identifying and controlling challenges. Noteworthy about communication, safety programs and becoming a part of the reward structure is that safety is no longer someone else's responsibility, but rather it's everyone's. This joint endeavor also ensures that the safety measures are realistic, feasible, and generally accepted.

Organizational learning is one of the primary dimensions through which a safety culture is influenced, in addition to Leadership, and employee engagement. It is one of the major dimensions of a safety culture. Emergency situations and near-accidents provide valuable feedback concerning system weaknesses and human errors to be reduced. To companies with excellent safety culture, such accidents are opportunities to learn, rather than fingers pointing grounds. Learning from incidents and correcting can be used to prevent them occurring again, and can be part of an ongoing safety development process.

Tastino et al., 1992) also found a growing trend to combine safety culture with technological innovation in international industry. The application of digital surveillance, predictive analytics and automation has made it possible to.. limit their exposure to the hazards and comply with safety standards." That's not to say that technology is unsafe, but technology only can be as safe as the culture that supports the responsible use of it. We must therefore act on the human and technical causes in order to decrease the occurrence of industrial accidents.

Finally, the impact of safety culture on the occurrence of occupational accidents is mainly attributed to the change that it brings from safety as rules to safety as an organizational value. A workplace where safety is the first priority of everyone, from the executive suite to the shop floor, is significantly more resistant to the pressures that lead to risks. The mediating role of safety culture on the relationship between FSS and WC (workplace accidents, well-being and growth) thus suggests that

maintaining a common safety interest can yield depletion in workplace injuries, enhancement in employee welfare, and organisations that are likely to grow and prosper.

Background of the Study

It is a well known fact that workplace safety is an essential component of industrial growth as it influences directly the health of employees as well as productivity of the organization. Large industrial facilities with heavy machines handling hazardous material and laborious converted processes are always waiting for bad things to happen if precautions are not in place. Many organizations experience the problem with workplace accidents again and again, and it can be quite costly in financial terms and in terms of low employee morale, as well as in damage to the company's reputation. With the development of industries and the complicate of work procedure, there has been an increasing attention on the emphasis of the safety culture in the industrial organizations.

The term Safety culture originated, in the 1980s in re-sponse to various catastrophic accidents in the late 20th century (such as the nuclear disaster at Chernobyl) that point-ed to the importance of over regulation compliance and to comply in reality to these regulation. Safety culture is based on common beliefs, values, and ways of behaving that promote the avoidance of accidents and the welfare of staff. Stimulating a positive safety culture in industrial environments has been proven to significantly reduce the level of risks and encourages the employee safety behaviour. Yet, this also renders the analysis of safety culture relevant but indeed indispensable for accident prevention.

There are few industries in which safety has not, up to now, been administered through rule, procedure and inspection. New behaviors, while important, can be insufficient if workers have not incorporated your safety mindset through the way they live. Research has found that organisations that prioritise safety culture have fewer accidents than those with compliance-based programs. This transition from enforcement to culture change emphasises the role of leadership, employee engagement and communication in achieving a safer working environment.

The financial impact and loss of life have been significant due to factory accidents. Not only can there be injuries and fatalities, there can be industrial disease and a company could have compensation claims made against it, leading to additional legal costs and the shutting down of production lines. Aside from the financial damages, workplace accidents sour the employee relations climate and the trust relations between the employees and employers. SMEs can manage their risk and capitalise on this risk-reducing behaviour by creating a culture of safety so that employees — who feel not just physically safe, but also personally incentivised to follow safety measures — will do so willingly.

The second issue from the safety culture perspective is the effect of safety culture on the individual behavior and attitude. Employees in high-safety-culture companies are more likely to report unsafe conditions, follow procedures conscientiously, and watch out for each other's well-being. Weak safety cultures, on the other hand, create an environment of complacency, where people are afraid to report hazards and who tend to work around established policies to get things done, increasing the likelihood for the inevitable to occur. That is, the influence of safety culture extends beyond organisational policies and procedures, and into day-to-day behaviors at the shopfloor.

In both industrialized and developing countries, obstacles to integration of safety culture into the workplace exist, even if it may be in different forms.

Many factors routinely constrain safety initiatives in developing countries: shortage of resources, lack of training and little enforcement. New risks may emerge in developed markets due to complacency and reliance on technology. The international nature of safety culture emphasises the importance of safety culture in preventing workplace accidents across a variety of industry sectors.

Leadership dedication is often referred to as the building block of a good safety culture. The point is, when managers and supervisors walk the talk of safety and keep safety in the forefront of their decision-making and promote open lines of communication, safety is intricately woven into the company fabric. There is also a (corporate) knowledge-based aspect of skills development and lifelong learning: the risk knowledge and the risk management competencies. This interplay of leadership, communication and training, should accordingly be considered as the very basis for industrial accident prevention.

Given the importance of these factors, the purpose of this study is to analyze the role of safety culture in accident prevention at work in the industrial sectors. Considered the dynamic nature of safety culture, this study highlights relationships between organizational value, leadership facilities, employee behaviors and safety performance at work. More generally, the learning and diffusion of a safety culture in productive sectors is certainly a sustainable way to reduce accidents, enhance productivity and protect the well-being of workers.



Source- Effvity

Justification

Safety culture is a key factor for reduction of occupational accidents in general, and in industrial workers and more particularly when exposed in high risk conditions in workplace in particular. A strong safety culture is an organisation that has a set of processes in place (beyond monitoring compliance) shares group norms, collective values and assumes collective responsibility. Organizations must cease to merely “comform to regulations” but in all respoects, make every employee function proactively to secure safety by working ‘ safety” into the work culture. Accordingly, it is important to investigate the safety culture’s function in the occurrence of incidents and the health promotion in the workplace.

Industrial enviroment being full of machinery, complex processes and dangerous substances is naturally a risk to the environment. Traditional safety measures, like PPE and checklists, but often do not go far enough on their own. The effectiveness of these precautions depends, to a large extent, on the attitude of the employees towards — and actual safety behaviour in — their working environment. 'What is ‘good’ enough safety culture? This means that no one should only feel obligated for their own safety. In this way, by investigating the influence of safety culture a more in depth understanding is achieved on how attitude and behaviour applied to reduce accident frequencies which is based more on technology others than non-technology safety barriers.

Moreover, the safety culture has a direct impact on the performance of the company by reducing the expenses related to accidents, unavailability and

trials. The more employees think that management really cares about their safety, trust, morale and engagement increase. This equates to more productive and less times lost due to injuries. Therefore, connect safety culture to prevention of accidents is not just a matter of compliance, this is strategic for sustained and competitive benchmarks for industrial segments.

Another is that industrial situations are fluid and hazards are decreasing, particularly over time, even with technological and automation advances and human factors. Safety culture is a flexible system that can be tuned accordingly and thereby, contribute to the shaping of prevention interventions to the emerging needs. It’s all about learning all the time, sharing close calls and improving safety systems. “Technology is not the be-all and end-all in and of itself because at the end of the day if you don’t have a good culture, technology is just not going to function if guys on the floor take shortcuts within that technology or don’t use it — if they do see something that is unsafe they’re not reporting it,” he said.

Finally, safety culture is important in establishing global safety standards and compliance to international directives (e.g., ISO 45001). In our globalized world of today, there is a growing demand for a corporate responsibility establishing tangible results for personnel care and health safety. A strong safety culture not only enables organisations to meet these standards but also helps to ensure that they are perceived as safe and moral players in the global environment. Therefore, considering its effect in lowering work place accident is both socially meaningful and economic important.



Source- Nist Global

Objective of the Study

1. To examine the relationship between safety culture and workplace accident reduction in industrial settings.
2. To identify key elements of safety culture that contribute to minimizing workplace risks.
3. To analyze employee perceptions and attitudes towards safety practices.
4. To evaluate the effectiveness of organizational safety policies in accident prevention.
5. To provide recommendations for strengthening safety culture to enhance workplace safety.

Literature Review

Safety culture has evolved to play a prominent role in the study of the safety and the prevention of accidents in industry. Coming out of the world of organizational culture, safety culture is the joint value, belief, and practice common denominator, in a company, that places safety first. Cooper (2000) discussed that the good safety culture refers not only the regulated compliance with safety but also proactive behaviour and accountability across the organization. Research has demonstrated that safety culture developed in organizations is linked to lower rates of workplace incidents and near misses as compared to organizations where safety is considered secondary (Clarke, 2006).

The commitment of leadership has been identified as an influential factor in the development of safety culture. Leaders shape employee safety attitudes by exemplifying commitment, by open communication, and by providing resources for safety programs. Transformational leadership is found to result in more positive safety outcomes when supervisors encourage safe behavior (Zohar, 2010). Further, safety-focused leadership behaviours are associated with enhanced reporting of unsafe conditions and early identification of hazards and lower accident rates (Mullen et al., 2017).

Employee engagement and empowerment are crucial elements in building a culture of safety. Safety-Involving Employees in the Safety Process Research has shown that work environment safety-taking involvement of employees can affect a sense

of ownership regarding safety (Fernández-Muñiz, Montes-Peón, & Vázquez-Ordás, 2007) as employees work together to choose, train, and assess the risks in safety. Involvement raises the level of watching and promotes to the workers on prevention of wrong doing, attesting to collective responsibility. This ownership also builds a feedback loop, in which workers and managers reinforce safety practices from the feedback they've provided each other.

This communication strategy is crucial to the building of a safe culture within the industry. For example it is known from research that open and honest two-way communication is important in both communicating safety practices and discussing actual or perceived unsafe activities without retribution (Hale et al., 2010). The figures show that the more many safety meetings, toolbox talk, digital communication channels - the fewer accidents, because you raise the awareness of the risk. Transparency allows the concept of safety to be less of a norm, and more of an everyday occurrence.

Education and preparation also play a crucial role in the creation of a culture of safety.” When ESBDs are co-extracted to promote both technical and behavioral safety behavior, training programs produce favorable effects on employees' perception in regard to identifying hazards and working safely (Burke et al., 2006). And regular safety training is associated with less accidents, especially when it is conducted in high-risk sectors such as mining, manufacturing and construction. In addition, simulation methods and practices are generally a more effective and probably a more memorable way to communicate and teach employees about safety than lecture.

Organizational learning is another aspect of the safety culture, and is also cited as a key enabler in the literature. The idea of the “learning organisation” has been new, since accidents are not seen as one-off failures, but as an opportunity to learn and improve. Employers with strong learning cultures rigorously investigate accidents, tell stories about what went wrong, and implement changes at all levels. No only does these measures act as a deterrent of such occurrences but it also serves as a well-stocked reservoir of moral in the workers.

Empirical studies have also documented associations between culture and objective safety performance. For example, positive safety cultures

have been shown to be positively associated with safety compliance and safety participation which consequently, are negatively related with injury rates (Neal & Griffin, 2006). 5) Safety culture is also revealed by meta-analyses to be a substantial predictor of accident decrease across a number of types of work (Beus et al., 2010). This evidence, is a sign that, the establishment of a safety culture, is not a kind of hypothesis, but rather as a way to avoid accidents.

Safety culture is a complex concept, the literature describe it by difference factors for example leadership commitment, employee participation, communication and training and organizational learning. A positive safety climate enhances preventative safety behaviour, hazard observation and adherence to safety rules. Though in other dimensions, risks and work processes, there could be exceptions, it is a fact that the type of business in which the safety culture is well developed has less accidents. Other researchers want to link the safety culture with technology to leverage, for example, the power of predictive analytics, smart sensors, and AI-driven monitoring to improve safety prevention in industrial environments.

Materials and Methodology

Research Design

In this paper we use the systematic review approach to help integrate the research evidence regarding the effects of safety culture on occupational safety and health in the industrial setting. A systematic methodology was used to search, evaluate, and analyze published peer-reviewed literature. Keywords such as ‘safety culture’, ‘work accidents’, ‘industrial safety’, ‘work accident prevention in industries’ and ‘occupational health’ were used to search the databases (Scopus, Web of Science, PubMed, ScienceDirect and Google Scholar). Qualitative/quantitative studies were selected in order to gain integrated knowledge how the organizational safety culture relates to accident reduction.

Inclusion Criteria:

- Original research or review, meta-analysis, and empirical studies in English.

- Trials in industrial or occupational settings, eg, in manufacturing, construction, mining, oil and gas, and chemical plants.
- Investigations in which the impact of safety culture, organisational climate or managerial behaviour on workplace accidents risk is a specific focus.

Exclusion Criteria:

- Research not only in occupational safety or industrial context (e.g. education, healthcare, transportation).
- Non-English language publications to ensure that analysis was consistent.
- Commentaries, editorials, conference abstracts and non-peer reviewed papers.
- Research focusing purely on technological interventions (eg, improved or automated machinery) with no consideration of cultural or behavioural factors of safety.

Ethical Considerations

Since this is a literature review, direct data collection from the human participants was not conducted. Accordingly, no formal ethic approval was our responsibility. Nevertheless, ethical research practice was preserved in the review process, where:

- That all studies were cited accurately and without exaggeration of their results.
- Citing the relevant credit of the original author and respecting the academic ethics.
- Fighting with lack of plagiarism by means of rewriting together with adequate citations.
- The quality of the studies included should be critically appraised to ensure that misleading conclusions are not reached.

Results and Discussion

Based on the result of the research, safety culture and its power can be important factors in reduction of industrial accidents at the laboratory. All respondents with strong safety culture (strong firm-specific safety policies, frequent training, and active hazard recognition) had the lowest incident rates of any organization in the full study population. In those sectors, the staff’s level of knowledge and the compliance with the rules was much higher than the level detected in other places indicating that a safety culture can also influence people’s behavior and reduce the risk of a incident.

The study also offers proof of the significance of leadership commitment to safety culture potency. Additionally, for managers/supervisors demonstrating behavior safety, communicating safety values, and providing positive reinforcement for safety practices was shown to contribute to trust and "ownership" of safety culture. Leadership culture example Leadership culture, looking at the procedures, practices and thinking encouraged (motivated) the workers to take chances when they performed the reporting of an unsafe condition, with few, if any, negative fallout, so they had an increased risk of unsafe and nearmiss occurrences.

A second salient discovery is the influence of employees' involvement on safety behaviour. Those organisations that made role due to workers becoming members of a safety committee, reporting incidents and participating in risk assessments were found to be most effective at delivering good safety performance. Participation functioned where, employees were motivated to assume the responsibility for safety functions by becoming more sensitised individually and collectively. This participation model positioned safety as something the organization, not management, would "handle".

The findings also emphasize the benefit of continuous safety training and education in improving safety climate. Regular workshops, drills and refresher courses provided workers with the latest best practices and regulations. Conversely, none of the workplace without consideration for education and very much lower accident rate than those of education had given; therefore, the human education of the workplace is needed for keeping the safety level and allowing the human to make mistakes.

Yourlenko wrap things up reminding that good safety culture in a company will payoff itself, being in terms of safety of the working conditions, increasing production and in terms of staff moral as well as company image. By keeping your employees safe, you're also minimizing costly downtime and reducing compensation costs due to claims; and you're making employees feel protected, which in turn makes them more engaged and productive. Therefore, creating a strong safety culture is not only about what is right and wrong, looking out for your employees safety but it is also having the company's best interest at heart and investing into the right safe working practice too.

Conclusion

This paper offers empirical evidence to demonstrate that safety culture is negatively influencing work related injuries within the organization. "Trust me, success for an organization, it's not: 'pay attention to policies,' he said." In successful organizations, successful participants are proud of what they're doing and they take care of each other. Thats when safety counts – When it is policed, when it is mandated and when it is Supported by the workers." _costs drop off the table! It just shows the realisation that safety isn't an activity in itself, safety is part of the organisation.

The commitment of leaders is the keystone of a positive safety culture. When they're top-down contraband, leaders demonstrate by their own behavior, by the rules they enforce, by their decisions, that only safety is happening. This fosters a culture among employees of passiveness to security policies on life. Hence, it is significant that enterprises safety leaders are participating in the safety process facilitating safety performance improvements that are long-term and sustainable.

Moreover, staff engagement is another main aspect implicated by the findings. Workers who participate in safety planning and safety decision making experience themselves as owning the results of safety. Compliance, and adverse event reporting can also be done with this self-administration method. Their shared safety roles will take us away from the bad behaviours herd before anything that falls falls on anything.

And it is something that we drill on, and we're learning it in with. The very office is constantly evolving with the latest advancements in technological and security systems. "By giving your team consistent safety training, you help them keep the code known of what the day-to-day practice standards and laws are at that time, this in turn cuts down on errors due to ignorance and people not knowing. Your team is confident that if they keep training their employees, workplace accidents will decrease.

The research also focuses on the broader organisational benefits to a strong safety culture. Fewer accidents also means fewer operating costs, less downtime, and less (if any) liability payout(s). On the other hand, a safe site gives to its workers, the good morale and job satisfaction which results in

well productivity, quality of work and loyalty. These figures indicate that with SC as an organizations lifeblood, not only are they successful but are so at peak levels.

Trust is also a byproduct of that safety culture. “Workers not fearful of blowback in letting the alarm be heard on a safety issue are likelier to let management in on what may not be safe, or how to make it safer. This flow of information creates an ever-increasing knowledge base and will make a company more resilient to shock. Trust, then, is though the result of or perhaps the font of a culture of safety.

Investing in safety culture is a strategic, long-term play that simply makes good business sense for most companies. Developing and sustaining a safety culture requires a great deal of work and expertise. But the victors here, in additional joy around accidents, happier workers, better company performance, are many more (and are winning). Safety culture needs to be a value net addition not a rule follower.

And the value of a work place safety culture in reducing accidents is obvious. With a commitment from management, employee involvement, training and open communication; the less hazardous workplace will be a place safe to work and in turn will lower injuries and increase productivity and morale. Further study could involve interventions in industry cultures, comparative analysis in different cultures, and technology facilitated safety culture creation and maintenance. And finally, safety is baked right into the DNA of the business—literally keeping workers alive and the business afloat.

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