

ORIGINAL ARTICLE

An Intervention for the Promotion of Supervisor's Incidents Reporting Process: the Case of a Steel Company

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ABSTRACT

The analysis of incidents is one way of increasing safety in workplaces. In this approach, the process of preparing exact and scientific report is a critical step. The aim of this paper was to describe an intervention supporting the improvement of supervisors' participation to report all occurred incidents. In this study, Future Workshop method was used with 44 supervisors in TAB Steel Company, Tabriz, Iran. In each subject, 11 supervisors were participated in four small groups, which they normally worked. In the Critique phase, the 4 teams reported 126 problems in the incident report process. During the fantasy phase, the teams produced 727 suggestions to solve the problems. Then, the supervisors made decisions on 35 commitments to change their incident reporting behaviors. Finally, in the implementation phase the number of reported incidents increased by 79.4% during the 1-year follow-up period. The discussion method used in Japan, Finland, and Sweden was also successfully implemented in Iran, and the process raised a great number of problems and suggestions related to supervisor's incident reporting process. Creating and maintaining the proper communicational canals among supervisors and the managers of safety and health unit are the suggestions, which have been presented to increase the amount of partnership.

Keywords: *Future workshop, Incident, Intervention, Participation, safety*

INTRODUCTION

In recent decades, new technologies and energies cause the classic safety moves to be system safety in a clear change [1]. In system safety, the main emphasis is on risk assessment and recognizing the hazards before they change to accidents [2]. Based on this, nowadays the results of changing hazards to accidents are so extensive and terrible that perhaps the offset of effects is not possible [3].

Accidents are the second highest cause of fatalities in Iran, which make it necessary to analyze them precisely, and taking corrective actions to prevent recurrence [4]. The European Agency for Safety and Health at Work has estimated that 4.6 million occupational accidents happen every year in the EU resulting in 146 million lost working hours. This means that approximately 2.6–3.8% of the collective EU gross national production (GNP) is lost every year [5].

Despite of all planned efforts because of reasons such as impossibility of recognizing all hazards, achieving 100% safety is not practical [6]. Therefore,

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the concept of As Low as Reasonably Achievable (ALARA) level of accidents has been raised [7].

It is obvious that the basis of analyzing accidents is collecting the facts, classifying and reporting them precisely and in time. So different organizations according to their needs and legislation requirements, try to design and use definite incidents reporting forms which making the gathering information process and incidents reporting easy.

Moir and Buchholz (1996) express compelling reasons that illustrates the necessity of participatory approach in manufacturing industries [8]. The dynamic nature of the workplace requires workers partnership in decision-making and implementation of safety changes. Manufacturing workers have greater autonomy than most other groups of employees and because of their constantly workplace changes, solving problems is an integral part of their job. While this talent is most often applied to solving production problems, it is equally applicable to safety problems.

Evidences obtained from investigations carried out in industries suggests that the involvement of supervisor is a key to successful implementation of safety changes [9-11]

Supervisors have a unique knowledge about the jobs they do and usually they know valid solutions to safety problems. Further, participation of supervisors in the process of making safety decisions builds trust, commitment and good will, which leads to increased job satisfaction and ultimately performance improvement [11]. Finally, in order to improve the acceptance of changes it is important to consider the economic and cultural values of both supervisors and workers in designing interventions [8].

In big organizations and companies, supervisors due to their direct connection with employees, equipments and operational environment have a critical role in presenting the incident's reports and they obtain the information of occurred incidents immediately [12].

This study was aimed to help companies in improvement their supervisors' incident reporting process by using the Future workshop method. It was conducted in TAB Steel Company, Iran. "TAB" steel company was established in 1999 with the purpose to become one of the largest privately owned hot rolled steel production mills in Iran located in Tabriz. There are more than 600 personnel working at the company consisting of engineers, technicians, skilled and semi skilled workers and administrative personnel.

MATERIALS AND METHODS

This study was carried out in TAB Steel Company, Tabriz, Iran. All 44 supervisors participated in the study. Discussion method used in this study was mainly based on the Swedish model [13].

First, the number of accidents reported by supervisors in order to determine their participation in incidents reporting was obtained before the study was begun. Then, the Future Workshop method has been used to increase supervisor's participation in incidents

reporting system. After that, during the discussion process the number of incidents reported by supervisors was determined. Finally, during the 1 year after the discussion process, the number of incidents reported by supervisors was determined. Each supervisor participated in four small group meetings. Meetings lasted 1 day. Every team selected one leader who was then trained to use the method, and to chair the team.

Future Workshop (FW) is a socio-pedagogic method for identification of common problems, development of a vision, ideas, and action plan in an organization and/or company. It helps to develop a complete 'problem catalogue' related to the selected 'theme' of the workshop. The theme of the workshop can be selected freely, such as problems related to safety, 'working environment, productivity, quality, etc. The method was first introduced by the future scientist Robert Jungk [14]. Later it has been spread successfully to the Scandinavian countries and is now widely used as a successful participatory intervention method.

A classic future workshop consists of five phases:

- Preparation phase: In this phase the method, its rules and the scheduled course of the workshop (in accordance with the participants) is introduced.
- Critique phase: Originally, the Critique phase is the start of the workshop. Steps: Collection of critique points (by written cards, Systematization (clustering) on a pin board, Evaluation, condensation, intensification, priorities
- Fantasy phase: Imaginative introduction (meditation, work, Turn critique points into the opposite (bad Collect ideas (brain writing), Preparing and performing a role-play, fable, (as group work), A common analysis of these performances, Extract, write down an "idea store" on a pin.
- Implementation phase: Evaluate the concepts of the "idea store" with (PM-method), Put in more concrete terms, the best-suited, Choose the best one, Build an action plan: Who does what, where, when and how?

In the critique phase, the teams discussed the problems related to weak participation of the supervisors in incident reporting process. The idea of this session was to define the problems, not to find solutions; as in brainstorming. Every team wrote down their problems and sent the paper to the safety committee, who, together with the researchers, classified all the problems and wrote a summary of them.

The fantasy phase was based on the summary of the problems that had come up during the critique phase. The task of the teams was to suggest solutions to the problems.

They wrote a report to the safety committee, which together with the researchers classified the solutions into those, which dealt with the actions of the team, and those with the actions of the company.

In the Implementation phase, the teams received a summary of the suggestions. After open discussion, the teams made decisions about the changes in their reporting behaviors. The team members wrote down the decision of their team signed the paper and put it in their

Table 1. The most important reasons of supervisors' weak participation

No	Problem	Vote
1	Non existence of enough motivation	21
2	Afraid of the reporting results	17
3	Not believe in report's effectiveness	15
4	Afraid of system's negative viewpoint because of too many reports	6
5	Have no information about the results of report's analysis	5
6	Afraid for becoming an object of derision for presenting lots of reports	4
7	Supervisors who fills the form bound to perform corrective actions	4
8	Some of the accidents are repetitive	3
9	The accident forms must be verified by system	3
10	Filling the forms is time consuming	3
11	Not familiar with incidents reporting process	2
12	The report form isn't available comfortably	1

Table 2. The number of accidents reported by supervisors

	(Before) 2003–2004	(Discussion) 2004–2005	(After) 2005–2006	Change (%)
Near - miss	18	97	94	+422.2
Accident	45	32	19	–57.7
Incident	63	129	113	+79.4

own pockets. Later, the safety committee made decisions concerning the whole company.

RESULTS

In the Critique phase, 44 supervisors participated in four team meetings. The teams reported 126 problems altogether, which means on average 31.5 mentions per team. The most mentions concerned absence of enough motivation. As regards safety system (8 mentions), the most mentioned concern was the tendency of system to adopt a negative viewpoint because of too many reports. The results summarized in Table 1.

During the fantasy phase, four teams made 727 suggestions altogether as to how to solve the problems that came up during the critique phase. The average was 181.75 suggestions per team. Overall, 278 of these suggestions were the actions of a supervisor/team, and 449 suggestions were the actions of the company. Extra training of supervisors was the most repeated suggestion among those related to supervisors. The other popular suggestion was persuasion from upper management. The most important wish for improvement by authorities was evaluating the reports and giving feedbacks.

During the implementation phase, 44 supervisors participated in the decision-making. The teams made 35 decisions, which mean an average of 8.75 decisions per team. Most of decisions were related to the implementation of a system for award and punishment. Eleven commitments were to pay attention to worker in incident reporting. Six commitments were about the

upper management's support and attention to sent reports.

During the years (2003–2004) before the intervention, there were 63-incident reports (Table 2). During the discussion process (2004–2005), 129 incidents were reported by supervisors. During the 1 year after the discussion process, the number of incident reports decreased to 113.

Table 2 illustrates that the group discussion method increased supervisor's participation in incidents reporting (comparing 2003-2004 with 2004-2005) about 79.4%. This reduced about 12.4% in 2005-2006. It is necessary to say that just Future Workshop method was used during the intervention period in order to increase the number of reports by supervisors.

Fig. 1 shows that by increasing near miss reporting and analyzing them, the number of accidents decreased.

DISCUSSION

Experiences provided by autocratic safety showed that this approach could not be successful because it does not consider the styles, theories, capacities, and limitations of target groups [15].

The discussion method used in Japan, Finland, and Sweden was also successful in Iran. This process highlighted a number of problems and suggestions related to incidents reporting process. After free discussion, the teams made decisions to change their reporting behavior, and group pressure in teams will help to maintain this change.

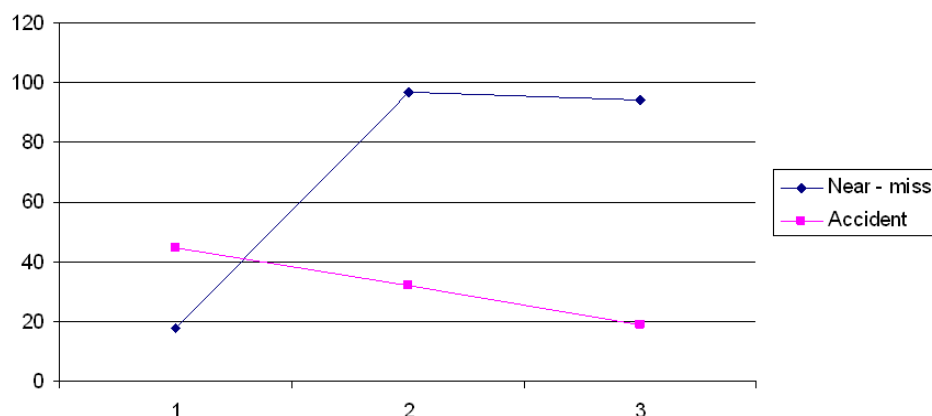


Fig 1. The procedure of reporting, considering accidents and near miss, during the study

The results showed that the number of reported incidents increased during intervention and decreased after the discussion process.

In addition, it is recognized that by increasing near miss reporting and analyzing them, the number of accidents is decreased. This finding is similar to the findings of the same studies, which indicates that it is important to analyze and control the near miss and its straight affect on controlling the accidents that lead to loss [16].

Management's commitment to the discussion process was the main problem in implementation of this study. Of course, it is possible to take them as partners of discussion process but that can eliminate employees' participation. On the other hand, when the management illustrates its commitment, it is also possible to increase reported incidents. In the safety management, the involvement of top management was usually seen as a requirement for successful prevention of occupational accidents [13].

The future workshop method decreased occupational accidents in the steel company by 57.7%. This is less than decreases in Japanese workplaces, 80–97% [17] but more than in the Swedish telephone company, 59% [18].

The strength of the future workshop method is the employees' participation in the process of decision making in several phases. This participation will result in more willing to follow the decisions.

The other factor facilitating support of the decisions is group pressure [18] because in teams, co-workers remind each other to respect the decisions were made. These factors make changes in supervisors' behaviors permanent. For example, the increase of productivity in sewing-machine operators lasted over 6 months [15], and the number of crashes decreased during the 2-year follow-up period after the discussion groups [19].

The main weakness of the future workshop method is that it does not ensure the same kind of commitment at company level as it does at worker level. If the implementation of the future workshop process were cheap for companies, there would be no commitment based on the economic contribution. The discussion

method requires the development of commitment at company level.

CONCLUSION

In conclusion, the FW method can be recommended as a tool to promote supervisor's participation in incidents reporting system and is a useful method to increase safety at work.

Considering the results, the following items are suggested:

1. Design and implementation of punishment and award system considering employees' patterns of behaviors;
2. Periodic evaluation of workers' behaviors in order to provide proper inputs for interventions and measuring their effectiveness;
3. Holding training courses regularly, analyzing, and reporting the accidents for supervisors.

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