

Studies on preventing accidents through behavioural safety

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ABSTRACT

This article is based on field observations during behaviour based safety (BBS) training interventions across multi-national organizations (such as petroleum, engineering, automobile, cement, power, chemical, pharmaceutical etc.) as a part of an on-going national action research survey of behaviour based safety in India including 1751 executives and 713 workers in 64 organizations. During BBS training interventions, the trained participants used a checklist of critical unsafe / safe behaviours to collect observation data from their respective workplaces with the help of behaviour observation and feedback process (BOFP) which is based on cognitive behaviour modification approach. It is assumed that the information gathered from this longitudinal nature of the research and the robust sample size shall be considerably useful for human resource / safety professionals while they would be implementing the concept and process of BBS for reduction of accidents, loss prevention and promoting safe behaviours for developing injury-free culture in their organizations.

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INTRODUCTION

Safety research and experience¹⁻¹⁸ (see bibliography) indicate that almost all of the accidents are due to unsafe human acts or behaviours; almost 50 per cent of the unsafe behaviours are identified or noticeable at any plant at any given point of time; 25-30 per cent of safety awareness is lacking among employees which gets reflected in their unsafe behaviours; A manager said, "Though we are aware of the magnitude of unsafe behaviours in our organization we did not know how to control them".

Unsafe behaviours are at the core of any near misses, injury, or fatalities. If we control unsafe behaviours, we may not even have near misses (Fig. A).

It is empirically established that intervening unsafe behaviours will reduce injury/fatality. The organizations need to target zero unsafe behaviour in order to achieve zero accidents or injuries.

Through BBS approach/training, organizations empower their workforce to routinely check unsafe behaviours of their employees before they get injured or damage the equipment/product, etc.

The unsafe behaviours at workplace take place due to lack of the following:

- Use of personal protective equipment (PPE) by workmen e.g. eye glasses, hearing protection, gloves, hard hat;
- Work area maintained appropriately, e.g. trash and

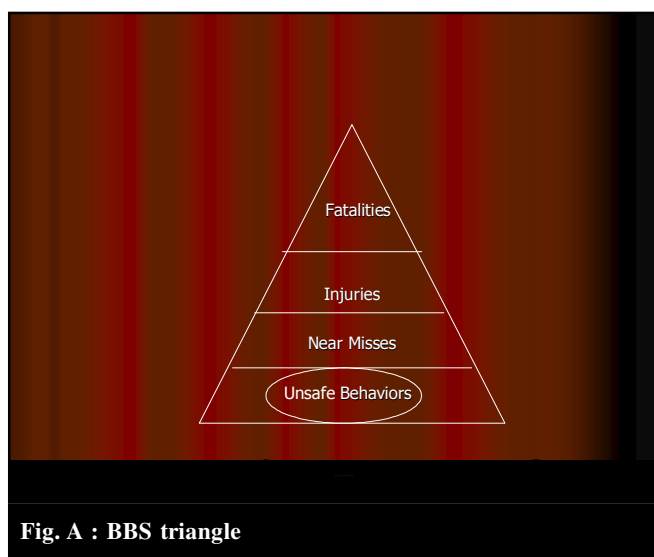


Fig. A : BBS triangle

scrap picked up, no spills, walkways unobstructed, materials and tools organized;

- Using correct tools for the job, using tools properly, and tool in good condition;
- Positioning / protecting body parts, e.g. avoiding line of fire, avoiding pinch points;
- Material handling e.g. body mechanics while lifting, pushing and pulling, use of assist- devices;
- Verbal and non-verbal interactions that affects safety;
- Following safety procedures e.g. obtaining, complying with permits, following safe operating

procedures, lockout, tag-out procedures; and

- Visual focusing (attentiveness); and

BBS is all about involving people across organization as a bottom-up approach. To reduce accidents, the managements have taken safety interventions which are all top-down approaches such as risk assessment, suggestion scheme, training, safety committee, auditing, motivational programmes (quiz, award, incentives), SOPs, plant inspection, work permit system etc. Most of these safety management systems have aimed at controlling unsafe conditions, whereas 95 per cent of accidents are triggered by unsafe behaviours. “Safety should be there in the behaviour of human beings which is lacking”- The Unit Head said.

BBC research:

The main objective of this national action survey is to gather information which shall considerably be useful for human resource/safety professionals while they would be implementing the concept and process of 'behaviour based safety' for reduction of accidents and promoting safe behaviours for developing injury-free culture in their organizations.

Table 1: Number of survey research participants

No. of organization and type	Number of employees	
	Executives	Workers
12 Chemicals	321	130
05 Power / Energy	110	90
09 Gas / Petroleum	270	53
16 Heavy Engineering	260	63
02 Cement	90	102
03 Shipping	121	48
03 Automobile	72	36
05 Pharmaceutical	190	87
09 Others (Construction, Nuclear, Paper, Electrical)	317	104
Total: 64	1751	713

The survey results:

Organization case 1:

Interactions with engineers of Cement Company in the Maharashtra state of India brought out the following issues on BBS interventions:

Three groups of 88 engineers observed 239 unsafe behaviours of the workers during three days of training on BBS. On an average, three unsafe behaviours per worker were identified which means a total workforce of 710 shop-floor employees possess 2030 unsafe behaviours which is a serious concern of safety for an organization. A manager said, “Though we are aware of

the magnitude of unsafe behaviours in our organization we did not know how to control them”.

Organization case 2:

In the Gujarat state of India, 23 senior and middle management employees of a chemical manufacturing company (who had work experience between 10 to 30 years) participated in a one-day BBS workshop and raised and discussed the following concerns on behavioural safety in their organization:

On an average 2.5 unsafe behaviours were observed at the shopfloor which means about 1125 unsafe behaviours existed in the organization at present (450 employees x 2.5 unsafe behaviours = 1125).

There are two kinds of employees as far as safety consciousness is concerned. One kind of employees who has internal locus of control for safety meaning they are internally conscious. The other kind of employees who are externally conscious meaning they require external stimulus to alert them regularly.

Whether fear factor is necessary for creating safety culture? No, because fear or punishment will not give sustainable result in changing unsafe to safe behaviours.

How much time BBS would take to give results? What changes can be acquired through BBS? Surprisingly, BBS starts giving results quickly. More the observers, more the observations, more the safe behaviours. The outcomes or changes are the reduced unsafe behaviours, safe working conditions, building safe culture etc.

Is BBS a new approach which would be out soon like 'quality circle?' Not really, because BBS is a data driven approach. What gets measured gets done. As long as it gives results in terms of reduced unsafe behaviours, it is most likely that BBS would stay in the organization. It prevents accidents and accident-related costs.

Organization case 3:

186 employees including workers and executives of a pharmaceutical organization in Gujarat state of India were trained on BBS. They came out with the following aspects on BBS during discussions in six days of their training interventions.

During observation tours, the observers calculated 3.5 unsafe behaviours on an average per worker being practiced at their workplace on daily basis. They also found 34 unsafe conditions and corrected 30 on the spot. Though 20 per cent of BBS observers are selected per department in an organization, 70 per cent of them must also observe contract workers as 70 per cent of accidents happen to them. In this organization, a lady officer from quality department was found to be the only BBS observer

in India.

The lessons learnt from the present survey research:

- The hundreds/thousands unsafe behaviours are noticeable at any workplace on daily basis depending upon size of an organization. Hence, the potential for accidents exist in every organization unless unsafe behaviours are tapped and controlled daily. It would not come as a surprise any time if there is a fire or major accident as thousands of unsafe behaviours are observable at any workplace.
- Showing zero accidents record and international certifications do not really ensure safe organization unless we target zero unsafe behaviours at workplaces;
- Organizational case studies revealed that a single unsafe behaviour can prove to be fatal.
- Lack of or partial safety enforcement reinforces unsafe behaviours at the workplace.
- Preventing unsafe behaviours can bring down costs related to injury/near miss/accidents.
- BBS interventions have demonstrated fall in unsafe behaviours and rise in safe behaviours. BBS training also assist in reducing the number of unsafe conditions in the organization;
- The managements have started believing that engineering and administrative controls alone do not provide adequate safe workplace unless behavioural safety is practiced and unsafe behaviours controlled in order to ensure total safety at workplaces;
- Though OHSAS 18001:2007 has included three clauses that emphasize behavioural aspects of safety, the organizations have yet not followed it exactly as the OHSAS 18001:2007 does not provide any guidelines on how to implement these clauses;
- In order to implement BBS at workplace and create safety culture, the following steps are recommended.
 1. Organize an awareness programme on BBS for management staff at all levels.
 2. Conduct awareness training of employees across the plant;
 3. Select observers and form steering committee from amongst BBS trained employees;
 4. Carry out in-plant practical training of BBS observers and steering committee members on how to set up the observation process, how to develop the measure, making accuracy and consistency checks, steering committee functioning etc.
- The Indian multi-national organizations have begun to consider the human behaviour aspects of workplace safety more as compared to yester years.
- In Indian organizations, BBS is referred as to 'become brothers of safety to save lives of people

at the work place'. Employees observe and correct unsafe behaviour of each other.

- Unsafe behaviour can happen to anyone regardless of position, education, experience and age. A Vice-President went up on the fourth floor to inspect a construction project, he received a call on his mobile and started talking, got so engrossed that he just put his step forward and fell down from the 4th floor and died on the spot. An engineer on the shop floor thought of crossing a conveyor belt while it was stopped, as he crossed, it started working, he got crushed and died. A Deputy General Manager got a serious eye injury when he was observing a workman without wearing safety goggles and an object flew from the machine and hit him. So accident/injury spares no one, even managers.

“If you observe anybody behaving unsafe, you need to save him immediately, beyond which you may not get time to save him. I failed to alert one person as I was about to tell him, before that he turned and fell”, a plant head.

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