

ACHIEVING A TOTAL SAFETY CULTURE THROUGH BEHAVIOR BASED SAFETY, ESTABLISHING AND MAINTAINING AN INJURY FREE CULTURE

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Abstract: Historically the focus in the industry has been on improving safety by addressing the work environment and eliminating, mitigating, and identifying hazards and risks. Industry has however reached a plateau regarding safety and safe procedures. It is therefore essential to focus on directives to establish a total safety culture through behavior based safety. The existence of a safety culture is evident when employees believe that safety is a value in life and the employer enhances employee safety ownership.

Positive and negative reinforcement can encourage safe behaviors. Behavior based safety aims at increasing safety in industry by positively influencing the behavior of all stakeholders involved. In focusing on a total safety culture, it is important to also focus on behavior and to understand the ABC model. Behavior based safety includes the four steps of the improvement process: define, observe, intervene and test, which will empower a shift in the employee safety culture from bad to good behavior.

An injury free culture requires the reconsideration of safety activities and the engagement of employees. Creating a workplace with an overall injury free culture that includes safety and empowers employees can only be done by establishing and maintaining a total safety culture.

Keywords: Safety culture, behavior based safety (BBS), safety ownership, ABC model, injury free culture, total safety culture

1. INTRODUCTION

Historically the focus in industry has been on improving safety by addressing the work environment and eliminating, mitigating, and identifying hazards and risks. To this end better tools and equipment have been provided and safe procedures enforced. Industry has, however, reached a plateau, regarding safety and safe procedures. It is therefore essential to focus on directives to establish a total safety culture through behavior based safety (BBS). Behavior based safety is an approach that appears to be successful and it is gaining more interest across the industry. The directives built into achieving a total safety culture through behavior based safety will bring about significant and certain changes to the industry in the future. Nowhere will this be as apparent as the role of establishing and maintaining an injury free culture by making behavior safe. To be able to use BBS as a guideline for establishing a total safety culture, realistic and clear goals must be set with clear communication between management and employees. This will lead to employee safety ownership through employee investment and participation. There is growing evidence that a safety culture can exist in any industry. BBS is based on people, safety, values and risks and can be implemented successfully in any organization. The existence of a safety culture is evident when employees believe that safety is a value in life and the employer enhances employee safety ownership.

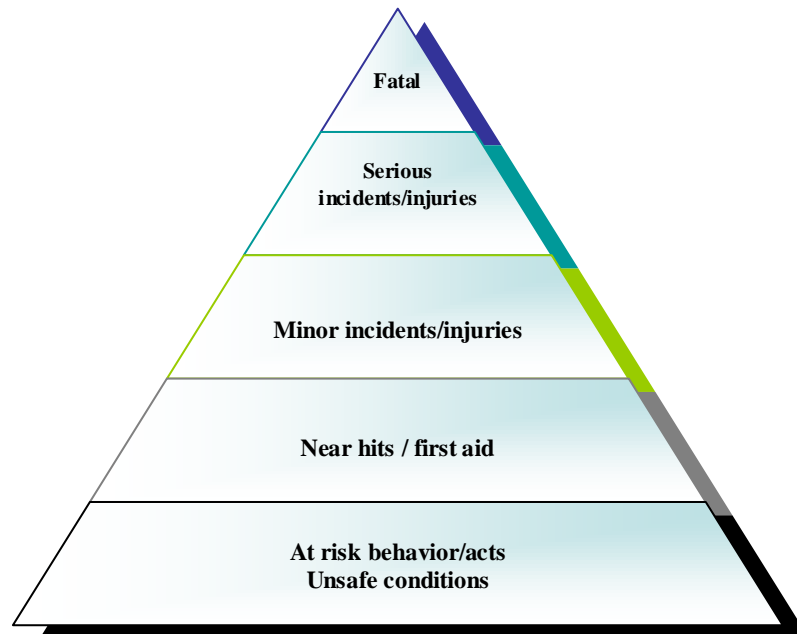
2. BEHAVIOR BASED SAFETY

Behavior based safety is an approach used in the ongoing process of safety management and in order to achieve this, human behavior needs to be understood. Learning occurs over time as a function of positive and negative reinforcement of specific behaviors. This reinforcement can encourage safe behaviors.

Safety within the work environment is too vast a field to cover by management and safety officers alone, therefore it is necessary to emphasize BBS. Employees need to take ownership of their own safety and unsafe behaviors.

BBS is a data-driven, decision-making process. (Kaila, 2008:1). By empowering employees to observe and correct unsafe behaviors, they become the force in measuring safety and making a difference in an organization's safety culture. Actively caring about unsafe and safe behaviors will lead to improved safety behavior since BBS creates changing individual and social characteristics for safety.

Graph 1: Accident pyramid



Based on international research on the “Accident pyramid”, unsafe behaviors and conditions at the bottom of the pyramid mean that a large number of at-risk behaviors/acts contribute to accidents and incidents. Reducing unsafe behavior would help to eliminate serious accidents/incidents.

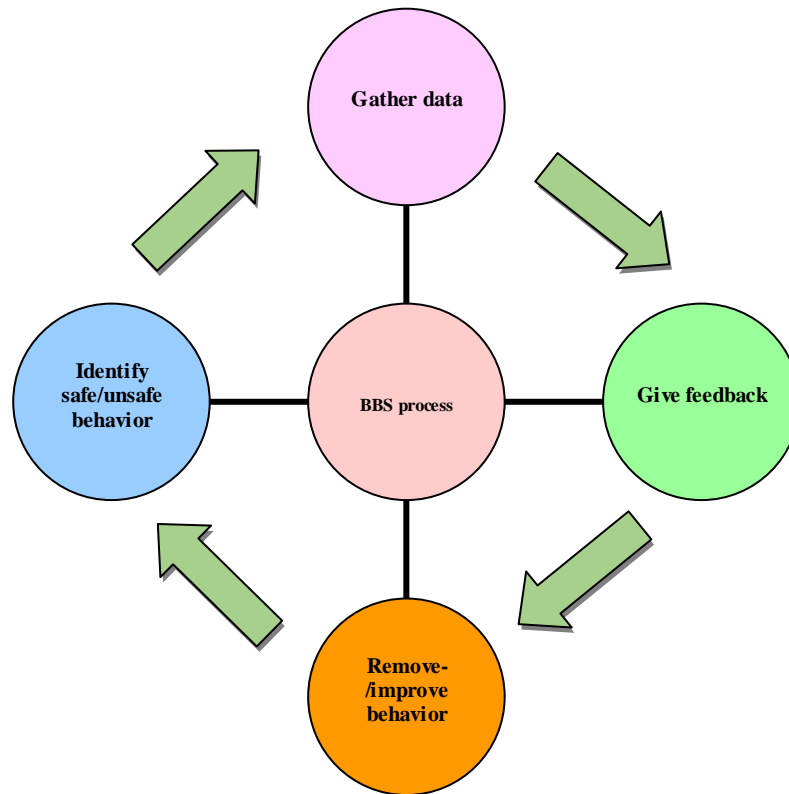
Through BBS a positive safety culture will be formed with an increase in production and job satisfaction. BBS therefore aims to implement behavioral observation and feedback as an effective means of reducing incidents and injuries in the work environment. As BBS is a tool, correct motivation is needed to ensure a positive influence in an organization's safety culture. Employees need to be motivated and presented with strategies to enable a total safety culture and to maintain an injury free culture.

2.1 The Process of Behavior Based Safety

The Health and Safety Authority describes BBS as a bottom-up approach with top-down support from safety management. It promotes interventions that are people-orientated and that focus on the observations of employees performing routine tasks, setting goals and giving feedback on observations.

It is therefore clear that the BBS approach is based on motivating, assisting, reinforcing and sustaining safe behaviors among employees. It has to be ongoing, implementing a new way of thinking and working more safely, and must consequently promote continually positive results. BBS aims at increasing safety in the industry by positively influencing the behavior of all stakeholders involved. This is only possible by establishing a safety culture by means of observation, coaching and communication.

Graph 2: Behavior based safety process



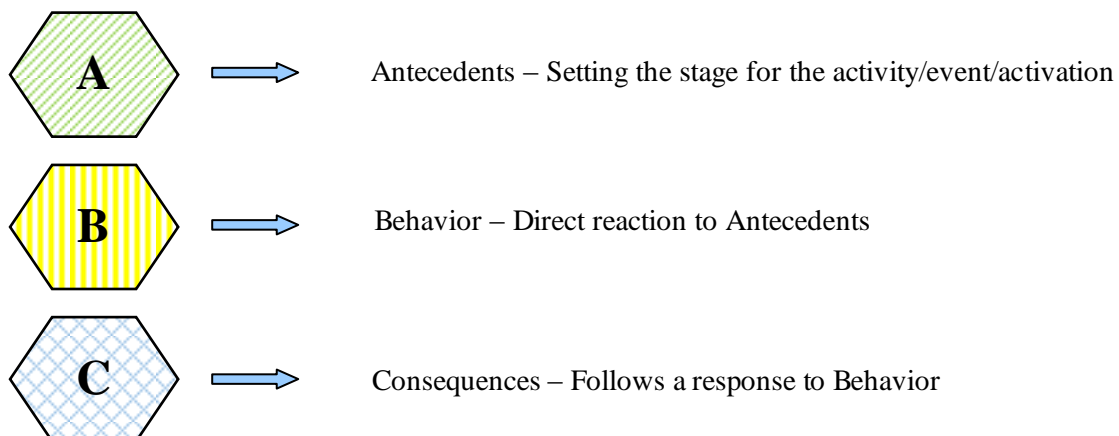
The BBS process is based on people, safety, values and risks and can be implemented successfully by using the ABC model.

2.2 The ABC Model

Behavior based safety aims at increasing safety in industry by positively influencing the behavior of all stakeholders involved. This is only possible by establishing a total safety culture, which implies repeated attention to three aspects: personal, the environment and behavior.

In a total safety culture it is needed to focus on behavior and to understand the ABC model. This understanding of Antecedents, Behavior and Consequence will reduce incidents, improve safety and productive quality of work, prevent injuries, increase profit and save lives.

The letters in the ABC Model refers to the following:

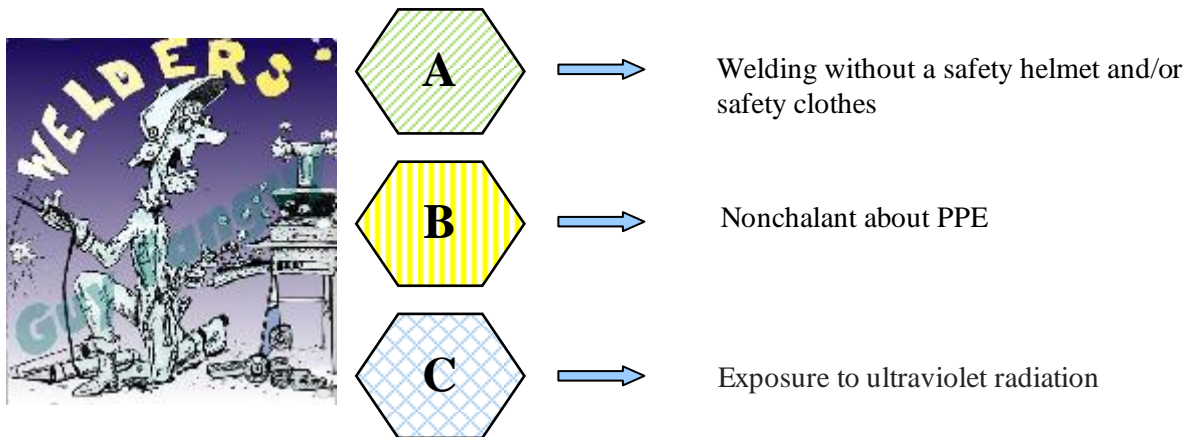


Behavior is activated by an event or activity and the result causes or influences behavior, leading to a consequence. The ABC Model can help motivate employees to develop positive and productive behavior. The most effective way to analyze behavior is to do so while employees function in the work environment.

People cannot be changed, but the way they behave can be influenced or changed. With the ABC Model behavior can be shaped, especially through positive reinforcement or the removal of a negative aspect. By using the ABC Model as a direct observation tool, an observer can record descriptive information in a systematic and organized way. A hypothesis can be formed to remove unsafe behavior or improve safe behavior.

A disadvantage of the ABC Model may be that data may not show an immediate pattern related to antecedent and consequence. A functional analysis with strategies can help overcome this disadvantage. Some consequences observed may be more powerful than others and the most effective consequences could be certain, and sizeable where they are meaningful or significant.

Figure 1: Example of the use of the ABC Model

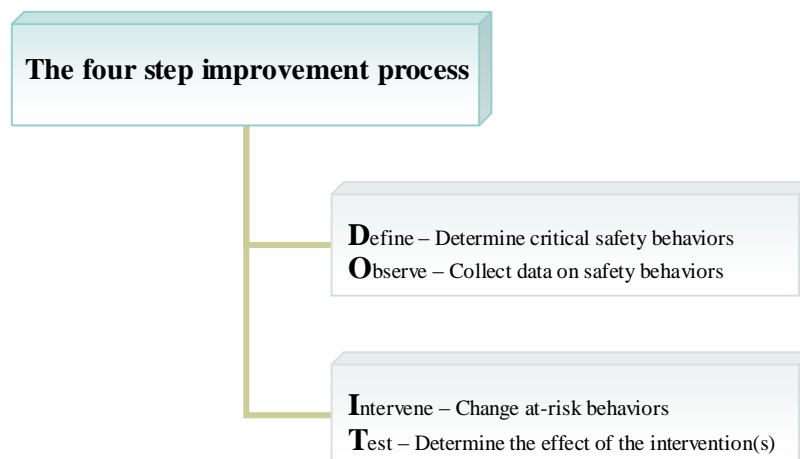


Behavior based safety uses a continuous improvement process, i.e. the DO IT process. This was developed by Geller (2001:13), and it is a process for sustainable behavioral improvement. This will capitalize on an employee safety culture where there is a shift from bad to good behavior.

2.3 The DO IT Process

Figure 2 provides a visual illustration of the DO IT Process.

Figure 2: The DO IT process



The Transportation Research Board (2007:7-8) describes the DO IT Process as follows:

Define safety behaviors by employees and target them by means of a behavioral checklist; the target areas should be included. Observe behavior entails collecting data, which is recorded by using the behavioral checklist. These observations will continue until a baseline of the target behaviors is achieved. Intervene to change the at-risk behaviors by influencing the target behaviors. This can be done by studying the baseline rate of target behavior and interventions can be developed to increase and/or decrease target behaviors. Test to determine the effect and success of the intervention and whether goals have been achieved. This scientific method of observations, intervention, development and implementation allows continuous improvement. The intervention may be refined at any time to reach the set goals.

3. TOTAL SAFETY CULTURE / INJURY FREE CULTURE

To achieve a total safety culture, employees must take personal accountability and responsibility for their own safety and that of other's. A total safety culture requires an injury free work environment. The ultimate goal of this culture is to create an injury free culture within and through BBS.

An injury free culture requires the reconsideration of safety activities and engagement of employees. Although this culture does not mean that "no injuries" occur, it does imply the design of a work environment where injuries are not acceptable and where everything possible is done to prevent them. An injury free culture is certainly not about statistics and numbers or the prevention of injuries; rather the objective is to change behavior to establish a total safety culture with shared values, justice, fairness and agreements.

The key challenges in establishing an injury free culture are observation, communication and being open minded.

Figure 3: Key challenges of an injury free culture



The most effective way to record a pattern or behavior is by means of observation. In BBS, the best way of inducting employees is to allow them to observe specific tasks and behaviors. Employees are observed in their natural surroundings from a holistic perspective.

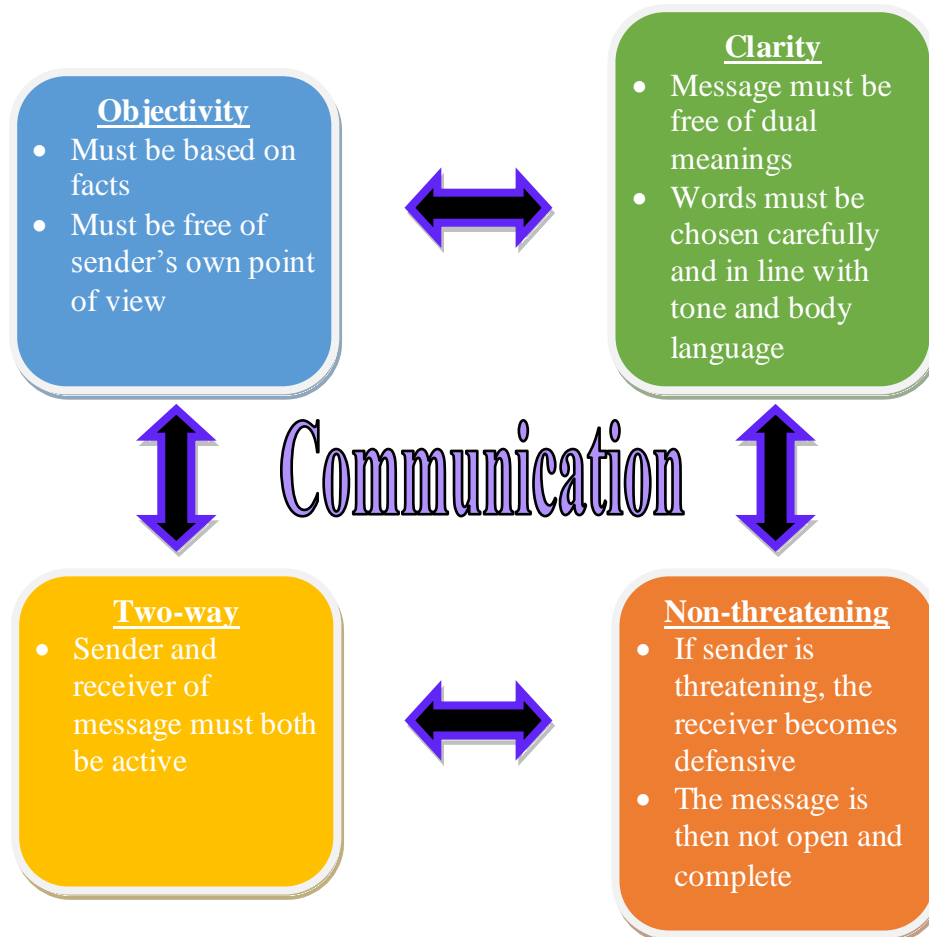
Communication plays a vital role in how employees will engage in establishing and injury free culture. It comprises three basic elements of the spoken language:

- Verbal – The words used to convey a message

- Vocal – The tone of the voice in which the message is conveyed
- Visual – The body language of the person conveying the message

There are four qualities that contribute to effective communication, which can be seen in Figure 4.

Figure 4: Qualities of effective communication



Most people are not easily influenced to accept change. Through BBS, employees are coached to learn and manage new ideas and should be open-minded to visualize future goal setting in achieving an injury free culture.

Any industry's greatest asset is its employees. Creating a workplace with an overall injury free culture that embraces safety and empowers employees can only be done by establishing and maintaining a total safety culture.

3.1 Culture Defined

Understanding the term "culture" will help in the implementation of a total safety culture within an organization. Dr. Edgar Schein (2004:13) formally defines culture as a pattern of shared basic assumptions that the group learned as it evolved its problems of external adaptation and internal integration. Over time this pattern of shared assumptions has worked well enough to be considered valid and therefore, to be thought of by new members as the correct way to perceive, think, and feel in relation to these problems. Culture accordingly includes perception, values, beliefs, and assumptions and can be defined as how individuals see reality and how it affects human behavior.

Culture is an ongoing process and consequently change is difficult, and gaining acceptance of a new idea or change seems to be a challenging task. Culture plays a decisive role in productivity, quality, and safety performance, and once employees are aware of BBS, better choices can be made and changes more readily achieved.

3.2 Accomplish Culture Change

There are basically three strategic elements in achieving a culture change:

- Driver(s) for change – BBS with bottom-up action and management (top-down) support and motivation
- Management support – BBS contributes positively through fewer incidents, higher productivity and quality and cost effective expenses
- Structure for managing change – A dedicated structure is needed and should include the six phases of culture change:
 - Define and communicate the need for change
 - Predict a desired future
 - Assess the current and future culture
 - Do strategic planning
 - Implement changes
 - Evaluate changes

3.3 Existence of an Injury Free Culture

An injury free culture can only exist when every employee shares safety as a value in life, is concerned about the safety of themselves and their colleagues and knows how to assist in creating safe working conditions. Furthermore the employee will demonstrate concern and knowledge in caring about safety behavior on a consistent basis.

This requires rethinking the approach to safety management. Groover (2014) suggests a five-step approach when an organization moves towards an injury free culture.

3.4 Five-step Approach to an Injury Free Culture

- Establish alignment and ownership
 - Focus on what “injury” means and how to establish continuous and sustainable improvement within an organization
 - The aim is thus to have longer injury free periods
 - Management should take ownership of systems, conditions, climate, and culture that influence safety outcomes
- Challenge helplessness
 - This starts with management being aware of the currents among employees
 - When an incident is labeled as an accident, people feel helpless to deal with it and a mind shift needs to be made
 - Consciously express messages that prevent employees from feeling helpless when it comes to safety issues
- Focus on exposures
 - An injury free culture strives to see and understand exposures that could lead to potential injuries within the work environment
 - Employees use the identified patterns, respond to potential exposure and understand the relationship between non-safety behavior and safety performance

- Increase metrics set
 - Standard cover metrics indicators will still carry value, but an organization striving to establish an injury free culture will add to these standard measures in order to gain better safety outcomes
- Engage employees
 - The best safety programs are only successful and effective if supported by employees
 - Organizations should give employees the opportunity to engage meaningfully, help in measuring and managing exposures and identify solutions to safety problems

These steps will help build an injury free culture along with the ability to reach higher goals and meet greater challenges.

3.5 Maintaining an Injury Free Culture

When maintaining an injury free culture, employees need to understand where the risks are and feel the need to change these risks. Employees also need to be involved in avoiding identified risk and improve and reinforce safe work practices of themselves and other employees.

After behavior change coaching and the establishment of an injury free culture, the focus shifts to maintaining this. Management can reward efforts and success with an incentive / reward system. This system also needs to be continuously refined in order to keep employees motivated. Geller (2001:243) states that employees would stay motivated and aligned to the mission if they were frequently reminded of the good they have done and if they were given the opportunity to improve on their interventions.

Hagan (et al) (2009:51) suggests that an injury free culture should be a group effort, supporting the avoidance of lost-time injuries, however, this may cause manipulation to an injury free system by underreporting injuries. Therefore an incentive / reward system must be closely monitored and evaluated, not abused or become an act of deceitful goal concealment of injuries.

The US Department of Energy (2009:3-10) suggests how employees can be shaped to follow an injury free culture:

- Facilitating communication
- Promoting teamwork
- Coaching and reinforcing expectations
- Eliminating organizational weaknesses
- Valuing prevention of error

4. CONCLUSION

Research has shown behavior based safety to be cost-effective. Conventional and easy administrative management is needed for monitoring target behaviors by employees. It furthermore has the major advantage of involving commitment from both the employee and employer. Both a bottom-up approach is needed from the employees and top-down support from management in achieving safety goals. BBS comprises the four steps of the improvement process, which are: define, observe, intervene and test. This will empower an employee safety culture to shift from bad to good behavior.

So often the blame is placed on employees for a poor safety culture, forgetting that poor or weak management can also be the reason for it. Positive, strong and proactive management is required, because leadership will influence the direction of an organization towards a successful injury free culture. Through BBS coaching, a positive safety culture will be formed, which in turn will lead to an increase in production and job satisfaction, and hence an injury free culture.

An injury free culture requires integrating behavior-based and person-based approaches to understand and influence BBS. Behavior based safety is often criticized as an unreliable science that creates fear among employees in reporting injuries and/or near misses. Other critics of BBS implies that it contradicts risk management efforts as many injuries then go unreported and this will influence financial costs. However, it is believed that BBS can be a practical way of correcting a hazardous condition and that it can change human behavior, in continuously striving to maintain an injury free culture.

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