

SPE 74067

## Behavior-Based Safety: The Next Step in Injury Prevention

Michael R. Gilmore and Sherry R. Perdue, Safety Performance Solutions Inc., and Peter Wu, KLAP & Partners Consultant Private Limited

Copyright 2001, Society of Petroleum Engineers Inc.

This paper was prepared for presentation at the SPE International Conference on Health, Safety & Environment in Oil and Gas Exploration and Production held in Kuala Lumpur, Malaysia, 20-22 March, 2002.

This paper was selected for presentation by an SPE Program Committee following review of information contained in an abstract submitted by the author(s). Contents of the paper, as presented, have not been reviewed by the Society of Petroleum Engineers and are subject to correction by the author(s). The material, as presented, does not necessarily reflect any position of the Society of Petroleum Engineers, its officers, or members. Papers presented at SPE meetings are subject to publication review by Editorial Committees of the Society of Petroleum Engineers. Electronic reproduction, distribution, or storage of any part of this paper for commercial purposes without the written consent of the Society of Petroleum Engineers is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. Write Librarian, SPE, P.O. Box 833836, Richardson, TX 75083-3836, U.S.A., fax 01-972-952-9435.

### Introduction

Historically, organizations have focused on improving safety by addressing the work environment surrounding employees. Providing hazard-free facilities and providing better tools and equipment have, understandably, worked well to improve safety. But many organizations have reached a plateau; continuing to rely solely on these approaches will produce only marginal gains. Despite having a workplace 'designed' to reduce hazards, incidents and injuries still occur with alarming regularity. We have come to realize (or be reminded) that 1) people are not perfect and will make mistakes despite their best intentions and working in the best of surroundings, and 2) the work culture often allows or encourages at-risk behaviors to be performed. In the last decades of the 20<sup>th</sup> century, the behavioral approach to safety performance improvement was developed to focus on reducing hazards by understanding employee behaviors in the context of their work culture.

Behavior-based safety (BBS) refers to a broad category of interventions (e.g., processes, programs, strategies, tactics) in which behavioral psychology principles are applied to change specific behaviors. BBS principles have been used, often in the form of a behavioral observation and feedback process, with considerable success to reduce the occurrence of incidents and injuries, primarily by increasing the frequency of safe behaviors and decreasing the number of at-risk behaviors. The techniques used are analogous to those used in the field of "performance management", where behaviors that increase

production and/or improve quality are identified and increased with the application of behavioral interventions.

However, as effective as behavior-based approaches can be, a true step change in safety performance will require more than simply ensuring that individuals perform their own jobs safely. It will also require that individuals work together, going "beyond the call of duty" for the safety of one another. That is, people must Actively Care for the safety of their coworkers by performing behaviors which directly or indirectly influence the safety of others. Actively caring may be demonstrated through a variety of behaviors such as offering to assist a coworker lift a heavy load, performing housekeeping duties beyond personal territories, participating in formal safety improvement activities, or performing informal activities like cautioning a coworker about a potentially risky behavior, or recognizing coworkers for their safe work practices.

Therefore, it is critical that behavioral change interventions be introduced in a way that will have a positive impact on the organization's overall safety culture. In fact, well designed and implemented behavioral safety processes can help move the organization toward the achievement of a Total Safety Culture. A Total Safety Culture is defined as a culture in which individuals: (a) hold safety as a value; (b) feel a sense of responsibility for the safety of their coworkers as well as themselves; and (c) are *willing* and *able* to 'go beyond the call of duty' for the safety of others. That is, individuals have the skills and tools necessary and *are supported by the culture* to intervene on behalf of the safety of others.

To understand how to influence safety-related behaviors, and to do so in a way that will positively influence the organization's safety culture, let's first consider why at-risk behaviors occur.

### Behavior is the Common Denominator

No matter how safely work places are designed, how thoroughly employees are trained, or how stringently compliance is enforced, organizations must still deal with the uncertainty of human behavior. Even if we assume perfect

compliance, good intentions, and a clear understanding of the job-related risks (and these are bold assumptions), people will make mistakes. It's simply a matter of *when*, not *if*. This expectation should guide our approach to managing risks and improving safety performance.

In fact, the National Safety Council has estimated that the vast majority of incidents and injuries share at-risk behavior as a common denominator; that is, the victims (or coworkers) performed an at-risk behavior that led to the incidents/injuries. This finding is not intended to blame employees, but to focus the analysis of the incident. Organizations should be investigating what encouraged or allowed the employee to perform the at-risk behavior. The answer to that question will lead to the real root causes and long-term solutions.

**ABCs of Behavior.** Behavior is influenced by two distinct factors: *activators* and *consequences*. Activators precede behavior and serve to guide, prompt, direct, or catalyze a behavior. That is, activators tell us what we should be doing. While driving, roadway signs instruct the driver to comply with the speed limit, come to complete stops, and yield to oncoming traffic. However, other activators influence the driver to take shortcuts: being late for an important meeting, or seeing others exceed the posted speed limit. Faced with these competing activators, what behavior will be performed? The answer comes by examining the consequences the driver expects to gain or avoid.

As with activators, there are typically consequences which both encourage and discourage the at-risk behavior. Let's examine the potential consequences of speeding. One potential negative consequence of speeding is to receive a speeding ticket. On the other hand, the time saved by speeding is a potential positive consequence. Which of these two consequences is more powerful? While receiving a ticket is a very aversive consequence, drivers realize that the likelihood of actually receiving one is quite low, based on their own and others' experience. Saving time, however, is virtually certain. As a result, the potential time savings tends to be a more powerful consequence than the possibility of receiving a speeding ticket.

In the example above, the *probability* of the expected consequence greatly influences the behavior. However, most situations are not quite that simple. In addition to probability, we must also consider the *timing* and *significance* of the consequence. Consequences that occur sooner rather than later tend to be more influential, and consequences that are personally significant are more motivating than those that are insignificant. In the speeding example, the driver expects to save time, s/he will save time immediately, and the time saved, even if just a few minutes, is often significant. *If* the driver were caught by the police, s/he would receive the ticket immediately, and it would be significant, but because s/he doesn't expect that to occur, he or she isn't concerned about the timing or the significance of the ticket.

Daily, employees are faced with similar decisions to perform safe or at-risk behaviors. Understanding the activators and consequences motivating someone to take a risk does not imply the behavior is acceptable. But understanding *why* a risky behavior occurs can help design *effective* interventions. That is, tools and strategies based on principles of behavioral psychology can facilitate a more thorough analysis of the situation, help determine the root causes for the at-risk behavior, and therefore guide the implementation of interventions to encourage employees perform the behavior safely.

But that is only part of the story. It is also important to consider the internal *person factors* that influence behavior. Behavior-based psychology provides the tools and the techniques to target safety-related behavior, while person-based psychology helps to create the desire and the passion that will be needed to help a behavior-based process succeed. The understanding of *both* are necessary in order for a behavior-change processes to truly help achieve a Total Safety Culture.

### Person-Based Psychology and BBS

When individuals feel good about themselves, their work teams, and the organization as a whole, they are more likely to go out of their way to assist others (i.e., to Actively Care). Certain person factors (i.e., expectancies or mood states) influence people's safety-related behaviors and their willingness to intervene on behalf of another's safety. In particular, five person factors have been shown to predict Actively Caring behavior: self-esteem, self-effectiveness (known in the research literature as self-efficacy), personal control, optimism, and belonging.

Research shows that people often possess the right values and intentions for safety. The problem occurs when they are faced with the opportunity to act on those values and intentions. Consider the typical response pattern (shown in Figure 1) to a set of questions contained in a survey frequently used by the authors to assess an organization's safety culture. The graph show the average percent agreement with the following statements:

- *Employees should caution a coworker if they see them performing an at-risk behavior.*
- *I would be willing to caution a coworker if I see them performing an at-risk behavior.*
- *I often caution coworkers when I see them performing at-risk behaviors.*

As shown, most people respond favorably to the first two statements, indicating most have the necessary values and intentions. But far fewer respondents agree with the final statement, indicating there are personal and organizational barriers to this critical behavior. The barriers are numerous

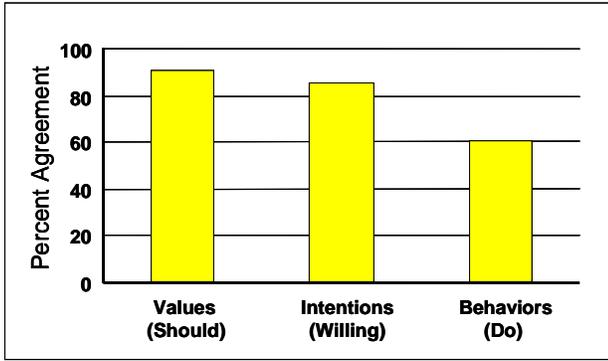


Figure 1. Responses vary when asked whether one ‘should’, ‘is willing’, and ‘does’ actively care for others.

(e.g., not my job, I’ll get a negative reaction, don’t know how to give tactful feedback, don’t know the job he’s doing so I can’t give feedback, people here don’t interact with each other in that way), but in all cases, these barriers can be minimized by increasing employees’ person-factors (e.g., self-esteem, belonging, and empowerment).

Designing, implementing, evaluating, and sustaining a behavior-based observation and feedback process can help employees feel more engaged in, and possess greater ownership over safety. When organizations design and implement behavioral safety initiatives, they should do so in a way that increases these necessary person factors.

**Behavioral Observation and Feedback**

One of the most common applications of BBS principles takes the form of a behavioral observation and feedback process. In this process, employees routinely observe one another, using a brief checklist to guides their focus. After the observation, the observer reviews his or her observations with the observee. Positive feedback is given for safe behaviors and corrective feedback is given for any behaviors thought to be at-risk. In addition to the one-on-one discussion between the observer and observee, the data from an entire group’s observations are periodically compiled and analyzed to determine areas warranting further attention.

While the immediate goal of a behavioral observation and feedback process is to identify and increase critical safety-related behaviors, the process, *when done right*, can achieve much more. This process can be key to improving an organization’s overall safety culture. For example, by providing a structured approach to encourage systematic peer observation and feedback, interpersonal feedback and problem solving occurs more frequently on an informal basis. This frequent informal communication between coworkers about safety is critical to achieving a Total Safety Culture.

Therefore, *how* the process is designed and implemented is critical. A more detailed description of the process itself, as well as criteria for successful implementation, follows.

**Process Design, Implementation, and Administration.** A cross-organizational Implementation Team (IT) comprised primarily of production-level employees, but including sufficient management representation, should be used to oversee the design, implementation, and administration of the process. This team should receive extensive training to allow them to become the “in-house” experts in behavioral safety, allowing them to design, and then administer an effective process.

**Developing the Checklist.** The IT develops the initial behavioral checklist by examining several information sources such as injury and near miss reports, and job safety analyses. The IT selects the top 3-10 categories of behaviors they believe to be most critical. Specific behaviors are then listed within each of the selected categories. For example, the category of *Body Position* might include specific behaviors such as *Lifting, Bending, and Twisting*. The Team also determines the demographic information to be included on the checklist. Information such as *Observer Name, Date, and Department/Area* are commonly used. Finally, the IT designs the format of the checklist, depending upon their expectations for how it will be used. It can be as small as a 3” x 5” index card or as large as an 8.5” x 11” sheet of paper. See one example of a behavioral checklist in Figure 2.

**Developing the Process for Using the Checklist.** Once the checklist has been designed, the Implementation Team develops guidelines for its use. The team determines who will serve as observers and who will be observees. They suggest how many observations should be conducted within an area by

Generic Behavior Checklist			
Area: _____	Immediate follow-Up Needed: YES NO		
Date: _____	Observer: _____		
	Safe	At-Risk	Comments:
<b>1. PPE:</b>			
A. Eye/Face			
B. Hearing			
C. Head			
D. Hand			
E. Breathing			
F. Body			
<b>2. Body Positioning:</b>			
A. Cramped			
B. Ergonomics			
C. Extended			
D. Lifting			
E. Line of Fire			
F. Pinch Points			
<b>3. Tools and Equipment:</b>			
A. Use			
B. Condition			

Figure 2. Employees use a behavioral checklist as they observe and give feedback to one another

each team or employee, and how long the typical observation should last. They determine where blank checklists may be acquired, and where completed checklists may be deposited.

There are a myriad of possibilities for each of these design criteria; there is no single best approach for all organizations. The eventual success of the observation process is contingent on these details being chosen to fit within the nature of the work performed, but also the existing culture of the organization.

**Designing the Process for Analyzing the Data.** Finally, the IT determines how the data will be analyzed, how the information will be shared, and how follow-up activities will be initiated and completed. Systems should be developed to ensure smooth operation of all of these functions.

**Planning the Implementation.** Once the process has been designed by the Implementation Team, it should be carefully introduced to the remaining workforce, management and production-level employees alike. Thorough training on the mechanics of the process, as well as the underlying principles of behavioral psychology should be provided to all participants and supporters. Employees at all levels of the organization should understand their roles and responsibilities in ensuring the process' success. One of the primary roles of production-level employees is to conduct observations and give one another feedback.

**Conducting the Observation.** Before observing a coworker, the observer is encouraged to ask the observee for permission (see the Voluntary section for the rationale). If granted, the observer watches the observee for a short period (typically 5 – 15 minutes). During the observation, the observer records what he or she sees. For each safe behavior seen, the observer makes a check mark in the Safe column; for each at-risk behavior observed, a check mark is placed in the At-Risk column. Behaviors seen more than once would have the corresponding number of check marks entered into that particular category. Comments would also be added to clarify anything seen by the observer, as well as serving as the 'script' for the observer's feedback.

**Giving Feedback.** After the observation is complete, the observer gives tactful, non-threatening feedback to the observee. The observer provides praise for safe behaviors and corrective feedback for any at-risk behaviors. The observer should review the entire checklist with the observee, and should ask open-ended questions to encourage a meaningful dialogue between the observer and observee. Observee comments should be added to the checklist where relevant. Upon completion of the discussion, the checklist should be deposited into a collection box to await pick-up by a member of the Implementation Team.

The one-on-one feedback between peers following an observation often informs the individual of a risky behavior he

or she was performing without realizing the risk. In other cases, it provides *social support* by encouraging peers to take the time and make the effort to perform a behavior safely which s/he had chosen to perform unsafely. In these cases, the feedback alone is often sufficient to allow the employee to change their future behavior.

**On-the-Spot Problem Solving.** Often, however, feedback alone is not sufficient to eliminate an at-risk work practice. In many cases, at-risk behaviors are encouraged or even required by the work environment. For example, improper lifting practices may be necessary because of the layout of a particular workstation. Using a metal ladder for electrical work may be facilitated if fiberglass ladders are needlessly inconvenient to get. In these cases, changes to the work environment should be made to reduce barriers to safe work. Therefore, a critical component of an observation and feedback process is for the observer and observee to analyze the work situation and determine the contributing causes of any at-risk behaviors and define opportunities for improvement. In some cases, immediate changes can be made by the employees to reduce the likelihood of the behavior being performed. In other cases, they would need to contact the appropriate person(s) to facilitate the change.

**Data Entry and Analysis.** Data from the checklist is entered into a database, usually by a member of the IT. The summarized data are shared with all employees as a second form of feedback, illustrating the areas in which the team is excelling and those which provide the greatest potential for improvement. Again, however, feedback alone may be insufficient to realize optimal behavior change. Where the compiled data reveal frequent occurrences of a particular at-risk behavior, there are likely system-level influences affecting it.

Therefore, the Implementation Team analyzes the data during their regular (e.g., monthly) meetings and implements appropriate behavior-change interventions using a structured, problem-solving methodology similar to that found in continuous improvement approaches such as Total Quality Management and Six Sigma. For example, if the data reveals that a mechanical hoist is rarely used when needed, the Team would examine the situation, determine why the hoist was not being used, and introduce appropriate change(s). Perhaps the hoist is inconveniently located or in constant use, in which case relocating the hoist or the purchase of a second one may be justified.

In some cases, the Implementation Team may determine that a specific checklist is needed to focus improvement efforts on a particular behavior (lifting), task (replacing a pump), position (operators), or injury (burns).

**Sustaining the Process.** The observation and feedback process should be evaluated regularly by internal and external sources. Members of the IT should review their procedures often and seek input from employees throughout the

organization for ways to improve the process. In addition, the IT should consider having outside experts periodically evaluate the observation process for improvement opportunities. Finally, the IT should remain in regular contact with teams from other organizations to benchmark their respective progress.

**Voluntary Participation.** As implied earlier, there are distinct benefits to making participation in the observation process (as an observer and observee) voluntary. Before someone is observed, they should grant their permission. While this may seem puzzling at first, the advantages are numerous. First, the process cannot be ‘employee-owned’ if employees don’t have the chance to opt out. Second, it expands the non-punitive message of the process: this is not a spy program. The intention is to help people recognize risk, perform the task more safely, and reveal and correct any system-related influences on at-risk behavior. Third, voluntary observations increase trust between the observer and the observee. Anything more than casual observations of others without their permission is an invasion of their personal privacy. And fourth, gaining the observee’s permission makes it easier to give him/her feedback, because he has given consent. Without that permission, it would be easy for the observee to ignore or mistrust the ‘unsolicited’ feedback. Besides, observations resulting from ‘coerced’ participation will likely be superficial at best, adding little or no value. And such a situation will only serve to discourage employees from ever genuinely participating in the future.

There may be some concern that the data resulting from an observation may be invalid if the observee knows s/he is being observed. Granted, the observee will attempt to perform as safely as possible, many at-risk behaviors are performed subconsciously, such as placing a hand in a pinch point, or lifting without using proper technique. If an individual isn’t aware of an at-risk behavior, s/he can’t change the behavior because they are being observed. And, after the novelty of the process diminishes and employees begin to trust that it is not punitive, they are much less likely to change their behavior during an observation. As employees begin observing and giving one another feedback as part of the formal process, the conversation becomes comfortable. Eventually, employees will find themselves *informally* observing and giving feedback on a regular basis. Thus, the benefits gained from having both observer and observee willingly participating far outweigh the decrease in validity of the data.

### Success Criteria

As mentioned before, the ability of an observation and feedback process to truly impact the organization’s culture depends on the *details* of how the process is designed and implemented. There are several key characteristics of a successful observation and feedback process:

- Customized
- Employee-owned
- Confidential

- Anonymous
- Employees First
- Non-punitive
- Non-directive
- Dynamic.

Each is briefly explained.

**Customized.** The process must be adapted to the unique needs of the organizational culture. This works best when the BBS principles are well-understood and fitted to the culture, as opposed to the culture being forced to fit the constraints of a particular program. This customization can occur with outside consultants helping the organization design the process or with the consultants training organizational personnel to be the ‘in-house experts’ who then can help design the process with remaining sites, departments, or work teams.

**Employee-owned.** The observation and feedback process has the best chance for long-term success if employees perceive they actually own the process. This can best be accomplished by giving employees a great deal of influence when the process is selected, designed, and implemented. This typically occurs when an Implementation Team comprised of mostly production-level employees (with some management representation) designs the process after appropriate education and training, and with the support of individual(s) with expertise in the area of behavioral safety.

**Confidential.** Employees will find it difficult to participate in the observation process if they feel the observation data is not confidential. With a guarantee of confidentiality, employees will be more likely to agree to be observed, and be more likely to perform their ‘normal’ behaviors.

**Anonymous.** Similar in concept to the previous issue, employees are more likely to support a process that doesn’t include their individual name, allowing the data on a checklist to be tracked back to them. Instead, data is typically tracked by demographic information such as date, time, and/or area. As employees become more comfortable with the process and gain confidence that no one is being punished as a result of the data, they will become far less anxious about having their name on a checklist. In fact, many mature observation and feedback processes include the name of the observee, with no ill effect.

**Employees first.** Most observation process should start with observations among production-level employees only. Managers and supervisors are often asked not to participate as observers during the first three to six months. As employees become more comfortable participating in the process, they’ll be more comfortable with their supervisors actively participating.

**Non-punitive.** Punishment should never be an outcome of the observation and feedback process. The sole outcome of an

observation is to give and receive feedback, and to improve any identified hazards. See the section on Discipline for a more complete discussion of this issue.

**Non-directive.** The intent of the observation is not to have the observer tell (or ‘direct’) the observee how to perform their job, or even to ensure that s/he changes an at-risk behavior. Instead, the feedback is intended to merely point out any behaviors that appear to place the observee at-risk, and to discuss safer alternatives. It is then the choice of the *observee* whether s/he changes the behavior in the future. The process is not intended to put peers in the position to force one another to change.

**Dynamic.** The observation and feedback process should remain dynamic, evolving and maturing to meet the needs of the organization or team. The process may evolve by changing the type or extent of checklists, changing the length or frequency of observations, changing who observes, who is observed, or who observes whom, and otherwise adapting the process to meet the changing needs of the group.

### Discipline and the Observation Process

Always an emotional topic, discipline becomes even more relevant when discussed in light of a behavioral observation and feedback process. The success of an observation and feedback process relies on the support of the rank and file employees. If people think discipline is a possible outcome of the observation process, their participation isn’t likely, and what little does occur, is likely to be artificial.

When contemplating the role of discipline, it is important to remember that BBS processes are intended to focus on the at-risk behaviors in order to identify the root cause(s) that influences the at-risk behavior; not to blame the employee. For example, a maintenance worker observes a coworker performing an at-risk behavior. During the ensuing discussion, the influences on the at-risk behavior should come to light. For example, the observee may reveal he never attended the training class for this particular task, or he doesn’t have the proper tool to perform the task safely, or he must bend in an awkward position to reach the part, or he feels production pressure and is rushing to finish the task quickly. Any number of system influences may have accounted for the at-risk behavior, and the observation tool helps identify them. Of course, the observee may simply say he was distracted by personal problems or that the safe behavior was too inconvenient. In situations where there are no systemic influences, the process is intended to use ‘positive peer pressure’ to encourage individuals to perform the job safely.

There are two critical issues. First, observation data cannot lead to any negative consequences. If an observer reports a peer’s at-risk behaviors to management or if a member of management requests to see individual data from somebody else’s observations, then large-scale participation is not likely. Management should be able to view anonymous

group data, but should refrain from viewing a specific individual’s data.

Second, if management participates as observers (and there are pros and cons for either position), they should treat the observation as a ‘no fear’ zone. In other words, if they see the observee performing non-compliant behavior during the

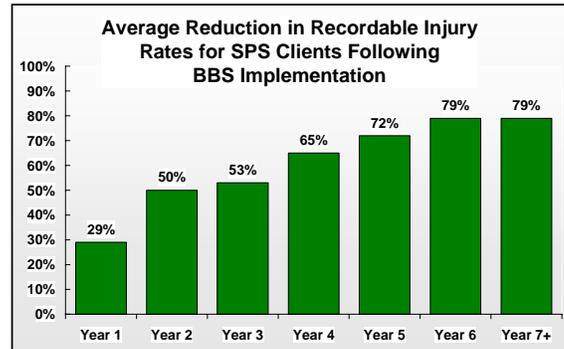


Figure 3: Graph shows the average percent reduction in recordable injury rates in consecutive years after implementation of SPS’ observation and feedback process

observation, the management observer should stop the observation, place the checklist in his or her pocket and coach the employee. Outside these observations, the normal organizational response by management is in effect. But during the observation itself, employees must feel confident they won’t be persecuted after volunteering to be observed.

### Results

When designed and implemented correctly, behavior-based observation and feedback can be very effective at helping the organization reduce injuries and incidents. Figure 3 shows the average percent reduction for a sample containing 34 organizations during consecutive years after the implementation of an observation and feedback process.

### Application of BBS Principles to Management Systems

A behavioral observation and feedback process can be a very effective means of reducing injuries and incidents in the workplace and of affecting genuine change in an organization’s safety culture. However, a behavioral observation and feedback process is just one tool that applies principles of psychology to encourage an improved safety culture. In fact, without a positive (or improving) safety culture, an observation and feedback process is likely to meet limited success.

Organizations rely on a number of processes and procedures to manage risk and thereby decrease the chance of incidents and injuries. These generally include systems such as safety rules and procedures, safety training, hazard identification and correction, discipline, incident reporting and

analysis, safety communications, safety suggestions, group celebrations, and rewards and recognition. Certainly, each of these safety management systems has an important contribution to make in terms of improving workplace safety. Equally importantly, each system also influences the organization's safety culture. At best, when the system is poorly designed or operating ineffectively, its benefits will be lost. At worst, a poorly designed, badly implemented, or ill-functioning system can actually have a destructive influence on the organization's overall safety culture.

For example, in many organizations, *reward* or *reinforcement* in the area of safety focuses on outcomes (i.e., injury rates) and avoiding failure. If employee incentive programs and/or supervisor performance evaluations are based primarily on injury rates, it is unreasonable to expect those employees to embrace an open injury reporting system or to feel comfortable being observed performing risky behavior which may result in injury. A second system which is often very telling of an organization's culture is *incident reporting and investigation*. The level of first aid cases and near miss reporting is higher in organizations where employees share trust and a problem-solving perspective. If incident reporting is suppressed, investigations may be less than thorough, communication of findings may be spotty, or discipline may be feared.

To further compound the situation, these systems are interactive and, in many cases, overlap. For example, *hazard identification and correction* requires an atmosphere fostering *employee participation*, sufficient *training* so employees can recognize and correct hazards, ample *communication* of the hazard, and its sufficient resolution. Poor features of one system may have negative influences on other systems, making the problem areas more difficult to isolate and correct.

The same principles of psychology which underlie the behavioral observation and feedback process are equally applicable for creating other safety management systems which motivate and reinforce safe work practices and create a culture which promotes true interdependency for safety. Therefore, the principles behind an effective observation process should serve as a ruler against which to measure and improve all organizational safety management systems. Then they can be effective not only with regard to their primary mission, but also have a positive influence on the organization's safety culture.

If an assessment of an organization's existing safety management systems shows deficiencies, two options should be considered. First, consider the actual practices of the company, department, or team to assess the strengths or weaknesses. For example, *safety training* concerns may be caused by a variety of issues, each with different solutions. Safety training may be too short, too complicated, poorly conducted, or too general for application on the job. Training may be given by employees who lack credibility, or may be

conducted on required overtime either for the trainee or his counterpart back on the job. The training itself may be top notch but is treated by the employee's supervisor as a nuisance or as secondary to "getting the work done." All these issues and more may give training a bad reputation and, more importantly, cause it to be ineffective at maintaining or improving employee safety and health.

The second option is to analyze how *perceptions* of the system are being managed (or not managed). For example, a *safety suggestion process* may be seen as beneficial only by those whose suggestions have been implemented or have received feedback. Suggestions may be actively solicited, objectively evaluated by a cross-functional team of employees, amply funded, and quickly acted on *but* poorly communicated to the rest of the workforce. Employees may negatively evaluate this system, but the situation is addressed easily without revising the entire safety suggestion system.

Organizations serious about changing their safety culture

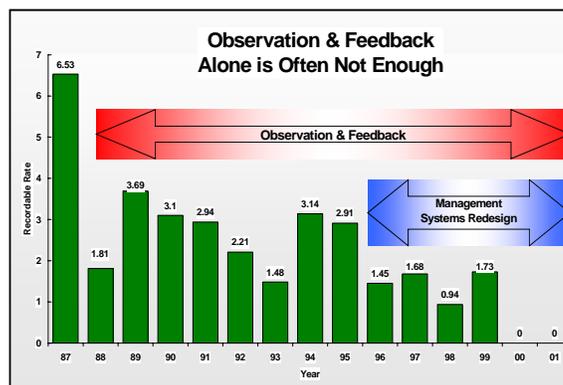


Figure 4: Graph shows the reduction in injury rates after the implementation of an observation and feedback process (1988) and an assessment and redesign of other safety management systems (1996; petrochemical plant of 350).

should critically analyze each system to be certain it is aligned with Total Safety Culture principles. Even when weaknesses are identified, organizations should be cautious about overhauling existing safety management systems too abruptly. For example, employees accustomed to receiving "a payoff" for working a certain length of time without an injury may be resistant to a change in incentive programs. The redesign process is not a quick one and some systems may transition through several intermediate stages before they reflect employee ownership, achievement orientation, or a systems perspective.

Figure 4 shows a mature observation and feedback process being helped by focusing on improving other safety management systems.

## Social Psychology and BBS

In addition to the behavioral principles discussed here, there are principles derived from *social* psychology that influence behavior. Several are reviewed here—to be used not to manipulate others, but to positively influence the safety-related behaviors of others; to Actively Care for friends and coworkers.

**Consistency.** When someone makes a decision, particularly if they verbalize it to others, they tend to act in ways consistent with that commitment. People don't want to be seen as 'inconsistent' (or worse, 'hypocritical') by others. Not adhering to a previous verbal commitment or exhibiting behavior inconsistent with an opinion voiced earlier is unappealing. Giving safety-related feedback to a peer, making a public statement supporting safety efforts, or even receiving sincere praise after safe behavior can all lead to increased personal safety performance as individuals strive to conform to their earlier decision (or live up to the expectations of others).

**Reciprocity.** This principle is commonly understood as the "you help me and I'll help you" phenomenon. People feel pressure to reciprocate someone's treatment of them in the same way and at the same level of intensity. Using a negative example, if you insult someone or cause them grief, they'll feel the urge to 'even the score' by doing the same to you. On a positive note, giving praise for safe behavior taps into this strong desire by encouraging others to return the rewarding feedback. Even if the object of someone's feedback cannot respond to them, he or she will feel an urge to provide supporting feedback to someone else.

**Conformity.** Individuals tend to conform to the norm expressed by the group's majority. Those who go against the grain invite the disapproval of the group. This principle is even more effective if the group itself develops the performance standard. If enough employees perform safety behaviors or actively care for their peers, others will feel compelled to follow their example and conform to the new standard.

**Scarcity.** People tend to desire things that are in short supply. As availability or opportunity decreases for something coveted, demand increases. If we can present opportunities to participate in safety activities (e.g., joining safety teams, conducting observations, revising a job safety analysis) as being rare, limited, or special, we can potentially create greater demand for participation.

**Ingratiation.** People tend to follow the advice or examples set by people they like and respect, rather than those they dislike. This doesn't mean everyone should try to be everyone else's best friend, but it should influence how people interact with others. Tactful, respectful, and non-threatening feedback will leave the receiver with a favorable impression of the giver, making it easier to comply with the safety feedback and

increasing the likelihood they'll be open to feedback in the future

## References

1. Geller, E. Scott. *The Handbook of the Psychology of Safety: How to Improve Behaviors and Attitudes on the Job*. Boca Raton, FL: CRC Press, (2000).
2. Perdue, Sherry R. "Beyond Observation and Feedback: Integrating Behavioral Safety Principles Into Other Safety Management Systems". *Proceedings of the 2000 American Society of Professional Engineers (ASSE) Conference and Exposition* (June, 2000).
3. Perdue, Sherry R. "Addressing Ergonomic Hazards Through Behavioral Observation and Feedback. *Proceedings of the 1999 American Society of Professional Engineers (ASSE) Conference and Exposition*. (June, 1999).
4. Safety Performance Solutions. *Keys to Behavior-based Safety*. Rockville, MD: Government Institutes (2001).

## Contact

For further information, please visit  
<[www.safetyperformance.com](http://www.safetyperformance.com)> or contact us at  
Tel: 540.951.7233 or <[safety@safetyperformance.com](mailto:safety@safetyperformance.com)>.