Beyond Observation and Feedback: Integrating Behavioral Safety Principles Into Other Safety Management Systems[1.]

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Abstract

A behavioral observation and feedback process is a very effective means of reducing injuries and incidents in the workplace. By observing and providing feedback, peers encourage safe rather than at-risk work practices of one another. In addition, the data collected provides a leading metric predictive of downstream safety performance. However, a behavioral observation and feedback process is just one tool that utilizes principles of psychology to encourage an improved safety culture. In fact, in absence of a positive (or improving) safety culture, an observation and feedback process is likely to meet limited success.

Traditional safety management systems and activities (e.g., incident and near miss reporting, incident investigations, safety meetings, safety committees, safety accountability processes, safety reward and recognition programs) may undermine safety culture change efforts. Systems which are ineffective or counterproductive should be carefully examined and modified.

This paper provides a review of a behavioral observation and feedback process and discusses the tool's broader purpose of influencing an organization's safety culture. Next, the paper reviews some of the principles from the field of psychology which underlie the observation process and illustrates, through case study, how these principles should also influence the design of other safety management systems. Finally, the paper will present a strategy for assessing and modifying traditional safety systems so that they support an organization's safety culture change efforts.

Behavioral Observation and Feedback Reviewed

A behavioral observation and feedback process is a tool designed to help encourage safe work practices and discourage at-risk work practices. Using simple but effective observation techniques, employees periodically observe each other. Following the brief observation period, the observer gives tactful one-on-one feedback regarding safe and at-risk behaviors observed. This one-on-one feedback itself can be instrumental in changing at-risk work practices. In some cases, the feedback provides *information* to the individual, pointing out a risky behavior he or she was unintentionally performing. In other cases, the feedback provides *social support* to encourage peers to take the time and make the effort to perform the behavior safely.

In many cases, however, feedback alone is not sufficient to address the at-risk behavior. Often, 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.

1. In *Proceedings of the 39th ASSE Annual Professional Development Conference and Exposition*, American Association of Safety Engineers, 2000.

Using a metal ladder for electrical work may be encouraged if fiberglass ladders are needlessly inconvenient to get. In these cases, changes to the workplace should be made to increase the likelihood of safe work practices occurring. Therefore, the next step of the observation process is for the observer and observee to analyze the work situation to determine the contributing causes of any at-risk behaviors and determine improvement opportunities.

In addition to the one-on-one discussion, the data from an entire group's observations are periodically collected and compiled. The compiled data is shared with the employees as a second form of feedback, illustrating the areas in which the team is excelling and those which provide the greatest potential for injury. Again, however, feedback alone may be insufficient to encourage behavior change. Where the compiled data reveal frequent, repeated occurrence of a particular at-risk behavior, there are likely system-

level influences effecting the behavior. These areas are analyzed in detail by the work team, which then develops relevant intervention strategies to reduce the likelihood of the at-risk behaviors reoccurring. For example, if the at-risk behavior of failing to use a mechanical hoist is observed repeatedly, the work team would investigate why the behavior occurs and introduce appropriate change(s). Perhaps the only hoist available in the area is in constant use, in which case the purchase of a second hoist may be justified.

A Total Safety Culture Defined

While the immediate goal of a behavioral observation and feedback process is to identify and increase critical safety-related behaviors, the ultimate goal of the process is much greater. A behavioral observation and feedback process is a key tool to influence an organization's overall safety culture. By providing a structured approach to encourage systematic peer observation and feedback, the likelihood that such feedback and problem solving will begin to occur more frequently on an informal basis is increased. This frequent informal communication between coworkers about safety is a key characteristic 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 ACT on the sense of responsibility they feel. That is, individuals have the skills and tools necessary and are supported by the culture to go "beyond the call of duty" on behalf of the safety of themselves and others. In workshops conducted within dozens of organizations across the country, participants were asked to list specific components of a Total Safety Culture. Common responses include:

- All employees comply with safety rules and regulations at all times.
- Employees continuously search for safety hazards and take initiative themselves to correct hazards when found.
- Employees are eager to participate in safety-related activities. Participation in safety-related activities is promoted and encouraged through respect and positive recognition.
- All safety-related issues are openly communicated. Fear of reprimand or discipline does not inhibit discussions.
- Safety incidents are viewed as an opportunity to identify system failures and therefore improve the system. Individuals are not assumed to be, and are rarely found to be, at fault.
- Training systems result in all employees having the needed knowledge, skills, and abilities to perform their jobs safely.
- All employees fully understand and appreciate the potential hazards of the operations performed.
- Employees do not consider taking unnecessary risks.
- Management never (knowingly or otherwise) encourages employees to take unnecessary risks.
- Regular safety-related feedback is a way of life. Corrective feedback is constructive and appreciated.
- Peer pressure acts toward, rather than against safety.
- All business activities are managed with a constant focus on accident prevention and occupational health.

Principles of Psychology Which Underlie an Observation and Feedback Process

If designed and implemented carefully, an observation and feedback process is a key tool to help drive change in an organization's safety culture. When done right, it is built upon principles from psychological research. These behavioral science principles, fifty of which are compiled and reviewed in Geller, 1996, include concepts such as:

- Behavior is directed by activators and motivated by consequences.
- People are motivated to maximize positive consequences and minimize negative consequences.
- Feedback can be a powerful consequence.
- Although negative consequences can lead to behavior change, they may have undesirable side effects.
- People compensate for increases in perceived safety by taking more risks.

- People view behavior as correct and appropriate to the degree they see others doing it.
- Long-term behavior change requires people to change "inside" as well as "outside".
- When people feel empowered, their safe behavior spreads to other situations and behaviors.
- People feel more personal control when working to achieve success than when working to avoid failure.
- Choice increases commitment, ownership, and involvement.

The observation process cannot, however, succeed on its own in changing an organization's culture, no matter how well it is designed, implemented, and executed. Other safety management systems as well as individual management practices must also support the desired culture. In fact, in the absence of a positive (or changing) safety culture, an observation and feedback process is likely to meet limited success.

Application of Principles of Psychology to Other Safety Management Systems

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 investigation, safety communications, safety suggestions, and rewards and recognition. Each safety management system has an important contribution to make in terms of not only improving workplace safety, but also influencing an organization's safety culture. At best, when the system is poorly designed or operating ineffectively, its ability to accomplish its primary purpose will be compromised. At worst, a poorly designed, badly implemented, or ill-functioning system can also have a destructive influence on an organization's overall safety culture. For example, when incident investigations create an air of mistrust and fault-finding, safety incentive programs discourage injury reporting, accountability processes fail to recognize individuals for their accomplishments, and performance evaluations only consider safety performance to be whether the individual was involved in an incident or not, the culture cannot advance.

To compound the situation further, the systems are interactive and, in many cases, overlap. For example, hazard identification and correction requires a climate that fosters employee participation, sufficient training so employees can recognize and correct hazards, and ample communication of the hazard and/or its solution. Therefore, poor features of one system can have negative influences on other systems. For example, when 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 and investigation system. Or when the incident investigation process is viewed as extremely blame-oriented, it is not reasonable to expect employees to feel comfortable having their safe and at-risk behaviors observed and recorded. Consider the following example.

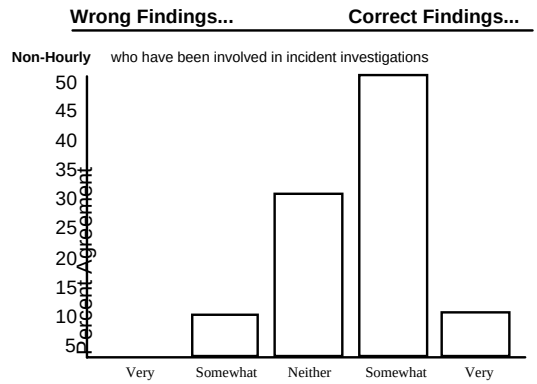
An Illustrative Case Study

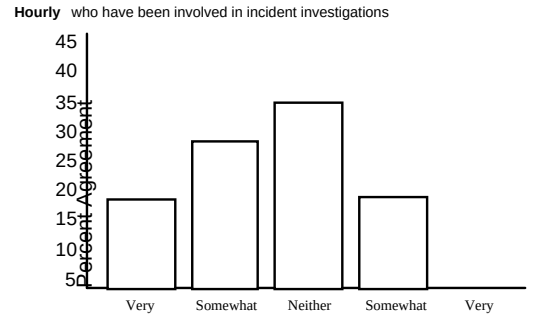
Despite a long standing, fairly structured protocol for investigating employee safety and process safety-related incidents, the management team of a mid-sized chemical manufacturing plant was concerned that the investigations were not very effective. In particular, when the incidents involved some form of human behavior (which of course most did) the analysis nearly always stopped at identifying the contributing behavior, failing to explain *why* the behavior had occurred.

As part of an overall effort to improve the company's investigation process which would include process redesign and training, an attempt was first made to better understand the employee's perceptions of the existing investigation process. A random sample of employees were asked to complete a questionnaire describing their experience in the reporting and investigation of incidents. The questionnaire focused on three areas. First, a series of questions addressed the individual's history of reporting near misses, minor incidents, and major incidents. For those indicating that they had ever elected to not report an incident (or would consider not doing so), they were asked to indicate the reasons why. Next, the questionnaire asked their history of participating in incident investigations. Finally, the questionnaire included several items asking their opinion of the investigation process. The questionnaire was anonymous and was administered and collected in a manner that ensured their confidentiality.

The results of the analysis revealed some interesting information. Of all employees surveyed (both hourly and salaried), 60% indicated they would *not* report an incident if they could avoid doing so. Sixty percent suggested they would likely not report an incident because "they or someone else would be blamed", while 40% feared that discipline would result. Interestingly, company records showed very few instances of the use of the disciplinary procedures.

In examining employees' opinions of the existing investigation process, the survey responses were separated by position (hourly and salaried) and by whether individuals had or had not been involved in an incident investigation within the previous 12 months. The results for two of the questionnaire items are shown in Figures 1 and 2. As illustrated, the salaried employees responded fairly positively. Most felt the investigations were of a "fact-finding" nature and resulted in accurate





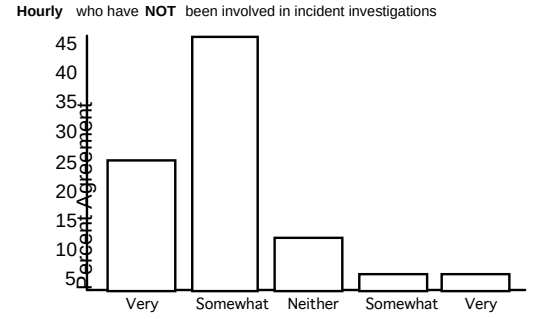


Figure 2: Sample survey results

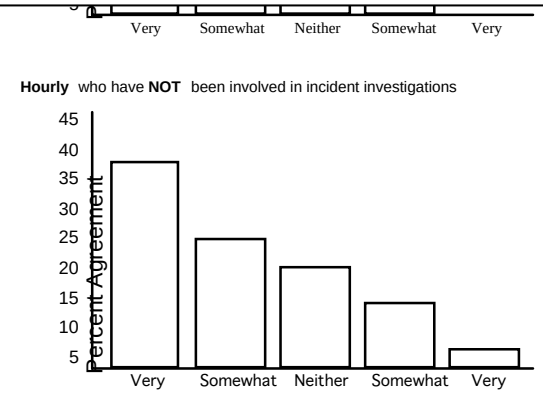


Figure 1. Sample survey results

conclusions. The hourly respondents' perceptions were not as favorable. Those who *had been involved* in an investigation had somewhat mixed opinions, with some holding fairly strong negative opinions, but most being neutral. On the other hand, those *who had not* recently had the experience of being involved in an investigation rated the investigations quite negatively. Unfortunately however, this group accounted for most of the hourly respondents and is representative of a large majority of the plant population. Although not ideal, it's apparently not as bad as the rumor mill has it painted. So, although participation in the process enhances most people's opinion of it, the pervading opinion is overwhelmingly negative. Follow-up focus groups confirm these opinions. Overall perceptions of the investigation process is probably best summarized by the nickname given it: Kangaroo Court.

Not only was the existing investigation process failing to provide the organization with information to allow them to make true improvements and therefore minimize the possibility for similar events to be repeated, it also had an extremely destructive influence on the organization's culture. As a result, not only were people hiding incidents whenever they could manage to do so, they were also guarded in providing information to the investigation team whenever an event was reported and investigated. As a result, the investigation was carried out with less than adequate information, likely resulting in poor conclusions, further enhancing people's negative perceptions of the process, resulting in a spiraling situation likely to continue to get worse.

Interestingly, this same organization had attempted several years before, to introduce a peer observation and feedback process. After having designed the details of the process and trained a pilot group of employees, the safety coordinators were surprised and disappointed to see extremely low participation rates within the pilot group. The employees did not seem interested in participating in this safety improvement process. Although the employees were assured the process was anonymous and the data would be confidential, they were still reluctant to observe and record the safety-related behaviors of their coworkers. Wonder why?

An Assessment Tool To Evaluate Safety Management Systems

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 central themes of a Total Safety Culture should serve as a ruler against which to measure and improve all organizational safety management systems so that they are effective not only in their primary missions, but also have a positive influence on the organization's safety culture.

To help organizations assess and redesign existing safety management systems based on principles of a Total Safety Culture, an assessment tool comprised of a set of "Maturity Paths" (one for each of several common safety management systems) was developed. Each Maturity Path lists between 10-20 key components of the system to be evaluated. Each component is evaluated on a four-point scale (i.e., *Beginning, Improving, Achieving, Leading*), with each level describing a stage in the evolution of that particular safety management system, with *Beginning* indicating the component is nonexistent or poorly designed and *Leading* indicating the component is "cutting edge". Again, the tool is not intended to be a thorough evaluation of the system's effectiveness at accomplishing its primary mission, but rather to assess its influence on the organization's safety culture as it operates. An example of a portion of one of the Maturity Paths is shown in Table 1.

Maturity Path for Incident Reporting & Analysis

	Beginning (1)		Leading (4)
1.	All but the most serious incidents go unreported.	1 2 3 4	All incidents (e.g., near misses, property damage, injuries) are reported in a timely fashion.
5.	Analyses are conducted by safety professionals and/or supervisors only.	1 2 3 4	An incident analysis team is composed of members representing a cross-section of the organization and includes individuals involved in the event.
7.	No training is provided for incident reporting and analysis.	1 2 3 4	All employees receive training in the *philosophy* and *process* of investigating incidents. Investigation team leaders receive detailed training in investigation skills such as interviewing and root cause analysis.
9.	Analyses often result in identifying "who's to blame." Corrective measures such as discipline or "counseling" are common.	1 2 3 4	Incident analyses focus on determining system-level root causes and minimizing or eliminating them. Individuals are not assumed to be at fault. *Appropriate* behavior-based corrective actions are introduced where warranted.
10.	Corrective actions and follow-up activities are handled by the safety department only.	1 2 3 4	Corrective actions and follow-up activities are handled by appropriate personnel (e.g., safety department, safety committee, area personnel).
14.	Feedback concerning investigation results and corrective action implementation is haphazard.	1 2 3 4	Feedback concerning investigation results and corrective action implementation occurs without fail with all stakeholders.
16.	Employees characterize the incident reporting and analysis systems as unsystematic, fault-finding, and/or ineffective.	1 2 3 4	Employees have confidence in the incident reporting and analysis systems to reduce the chance of future incidents.

Table 1: This table illustrates a portion of the Maturity Path for Incident Analysis Processes.

Naturally, because the purpose is to assess the impact of the system on organizational culture, many of the components evaluated have to do with *employee perceptions.* Therefore, additional data is generally needed during the assessment to accurately rate system components. Survey data (e.g., from a comprehensive culture survey or safety-specific survey) and focus group results are ideal inputs.

The assessment can be completed in a variety of ways, but is most effective when representatives from throughout the entire organization participate. The use of experts from outside the organization to facilitate the evaluation may be useful. The assessment can be completed by a single team or through the compilation of several teams' results.

The results of the assessment readily reveal areas in which modifications are needed and provide direction for doing so. When planning system modifications, it is important to remember this assessment focuses on employee *perceptions*, not necessarily reality. That is, the results indicate how employees *feel* incident investigations are being handled, not necessarily how the actual process works. Similarly, items on the Maturity Path for discipline primarily measure what employees *perceive* as common practice. Perhaps only one incident in one hundred results in an employee being formally disciplined. But if that event is what employees remember, discipline may be viewed as the norm. Further complicating this scenario is the fact that perceptions often lag reality. Therefore, recent changes to any management system may not be reflected employees' current perceptions.

So, when considering modifications to any system, two primary options for action should be considered. First, look at the *actual process*. 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, too boring, or too general for application on the job. Training may be given by employees who lack credibility, or may be conducted on overtime either for the trainee or his counterpart back on the job. Alternatively, the training itself may be top notch, but treated by the employee's supervisor as a nuisance or as secondary to "getting the work done." Therefore, it is also important to consider how *perceptions* of the system are being managed (or not managed).

Consider another example. A safety suggestion process will likely be seen as beneficial only by those whose suggestions have been implemented, and perhaps by those who have at least received feedback to their input. Suggestions might be actively solicited, fairly evaluated by a cross-functional team of employees, amply funded, and quickly acted upon, but if they're poorly communicated to the rest of the workforce, employees may perceive the system as being useless. Worse still, they may view the system as an indication of management's lack of appreciation for their input and low concern for safety. Here, the situation can be addressed easily without revamping the entire safety suggestion program, just the communications aspects.

Conclusions

A behavioral observation and feedback process is not only an effective means of reducing workplace injuries, it can be instrumental in driving change in an organization's safety culture. But, other safety management systems also influence an organization's safety culture, and that influence may be either positive or negative. This paper has presented a tool used to help apply the same psychological principles that underlie a behavioral observation and feedback process to these other systems so that every system is working together to support an organization's drive toward a Total Safety Culture.

References

Geller, E. Scott. *The Psychology of Safety: How to Improve Behaviors and Attitudes on the Job*. Radnor, PA: Chilton Book Co, 1996.