Beyond Observation and Feedback:
Integrating Behavioral Safety Principles
Into Other Safety Management Systems

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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 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.

Traditional safety management systems and activities (e.g., incident and near-miss reporting, incident analyses, safety meetings, safety committees, safety accountability processes, safety reward and recognition programs) can undermine efforts to improve the safety culture. Ineffective or counterproductive systems should be identified and modified.

This paper reviews 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 principles from the field of psychology which underlie the observation process and illustrates, through real-world example, how these principles should also influence the design of other safety management systems. Finally, the paper presents a strategy for assessing and modifying traditional safety systems so they support the achievement of a Total Safety Culture.

Behavioral Observation and Feedback Reviewed

A behavioral observation and feedback process is a tool designed to encourage safe work practices and discourage at-risk work practices. Using simple but effective observation techniques, employees periodically observe each other's work-related behavior. Following a brief observation period, the observer gives tactful one-on-one feedback regarding safe and at-risk behaviors recorded on a "critical behavior checklist". Giving permission to be observed increases a worker's mindfulness about safe work practices. In addition, the one-on-one feedback can provide *information* to the individual, pointing out a risky behavior he or she was unintentionally performing. Or, it might provide *social support* by encouraging peers to take the time and make the effort to perform the behavior safely.

In many cases, however, feedback alone is not sufficient to eliminate an at-risk work practice. 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. 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 addition to the one-on-one discussion between the observer and observee, the data from an entire group's observations are periodically collected and compiled. Then the compiled data are 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 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. 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 recurring. For example, if a mechanical hoist is rarely used when needed, the work team would analyze the situation 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.

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 process eventually achieves much more. A behavioral observation and feedback process is 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 a critical to achieving 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 personal 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. They "actively care". 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 by the author at 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 personal initiative to correct hazards when found.
- Line workers 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 negative "discipline" does not inhibit discussions.
- Safety-related 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.
- Education/training programs teach employees 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.
- Managers never (knowingly or mindlessly) encourage employees to take unnecessary risks.
- Regular behavior-based feedback on safety matters is a way of life. Corrective feedback is constructive and appreciated.
- Peer pressure acts toward, rather than against safety (and is really peer support).

- All business activities are managed with a constant focus on injury prevention and occupational health.

Principles of Psychology Behind an Observation and Feedback Process

If designed and implemented correctly, an observation and feedback process drives beneficial change in an organization's safety culture. The optimal implementation incorporates principles developed 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 is necessary for behavioral improvement.
- Although negative consequences can lead to behavior change, they usually have undesirable side effects.
- Sometimes 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 behavioral improvement requires people to be self-directed (change from the inside out).
- 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.
- Perceived personal choice increases commitment, ownership, and involvement.

An observation and feedback process cannot, however, succeed on its own to improve an organization's culture, no matter how well it is designed, implemented, and executed. Other safety management systems as well as individual management practices are needed to support a Total Safety Culture. In fact, in the absence of a positive (or improving) safety culture, the success of an observation and feedback process will be limited and short term.

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 analysis, safety communications, safety suggestions, group celebrations, and rewards and recognition. Each safety management system has an important contribution to make in terms of not only improving workplace safety, but also helping to achieve a Total Safety Culture. At best, when the system is poorly designed or operating ineffectively, its ability to affect beneficial change is compromised.

A poorly designed, badly implemented, or ill-functioning system can actually have a destructive influence on an organization's overall safety culture. Achievement of a Total Safety

Culture is inhibited, for example, when incident analyses 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 focus on outcome number rather than process accomplishments.

To compound the situation further, safety systems are interactive and, in many cases, overlap. For example, hazard identification and correction requires a) a climate that fosters employee participation, b) sufficient training so employees can recognize and correct hazards, and c) ample communication of the hazard and/or its removal. Therefore, the poor qualities of one system can have a negative impact 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 analysis system. Or when the incident analyses process is viewed as extremely blame-oriented, it is not reasonable to expect employees to feel comfortable when their safe and at-risk behaviors are 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 analyses of safety-related incidents were not very effective. In particular, when the incidents involved some form of human behavior (and most did), the analysis nearly always stopped at identifying the contributing behavior(s), failing to identify environmental and interpersonal factors encouraging the at-risk behavior and inhibiting the safe alternative.

As part of an overall effort to improve the company's incident analysis process, including 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 was asked to complete a survey describing their experience in the reporting and investigating of incidents. The survey focused on three areas. First, a series of questions addressed the individual's history of reporting near misses, minor incidents, and major incidents. Those indicating they had ever elected to not report an incident (or would consider not doing so), were asked to indicate the reasons why. Next, the questionnaire asked the resondent's history of participating in incident analyses. Finally, the questionnaire included several items asking for personal opinions of the analysis process. The questionnaire was anonymous and was administered and collected in a manner to ensure confidentiality.

Certain results of the analysis of the questionnaire responses were particularly noteworthy. 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 actually showed very few instances of punishment following the report of an incident or injury.

In examining employees' opinions of the existing incident analysis process, the survey responses were separated by position (hourly and salaried) and by whether the respondent had been involved in an incident analysis within the previous 12 months. The results for two of the questionnaire items are shown in Figures 1 and 2.

As illustrated in Figures 1 and 2, the non-hourly employees responded fairly positively. Most felt the analyses were of a "fact-finding" nature and resulted in accurate conclusions. However, the perceptions of the hourly workers were not as favorable. Those who had been involved recently in an incident analysis had somewhat mixed opinions. Although some opinions were quite negative, a significant portion were neutral. On the other hand, those who had not recently been involved in an analysis rated the process quite negatively.

Unfortunately, however, the negative (and inexperienced) group accounted for most of the hourly respondents and is representative of a large majority of the plant population. Although not ideal, the analysis process was apparently not as bad as the rumor mill had suggested. So, although participation in the process enhanced most people's opinion of it, the pervading opinion was overwhelmingly negative. Follow-up focus groups confirmed these opinions. Overall perceptions of the analysis process is probably best summarized by the nickname given it: Kangaroo Court.

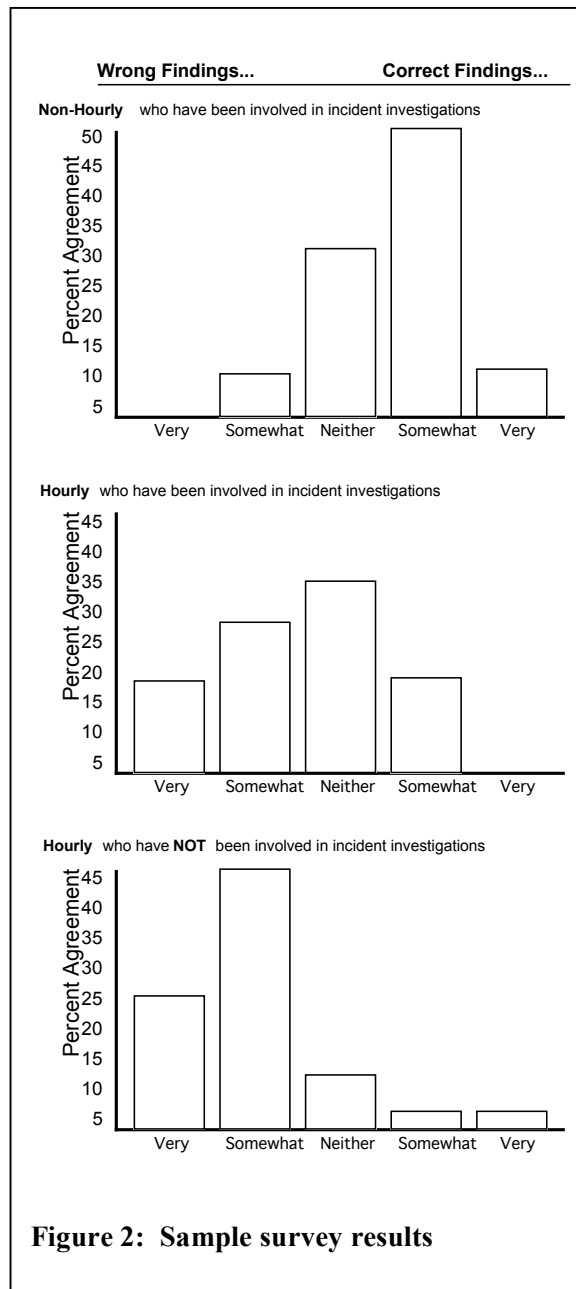

Figure 1. Sample survey results

Not only was the existing analysis process failing to provide the organization with information to enable and facilitate 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, people were hiding incidents whenever they could manage to do so, and were guarded in providing information to the analysis team whenever an event was reported. As a result, analyses were carried out with less than adequate information, leading to less than optimal conclusions. This further enhanced people's negative perceptions of the process, resulting in a spiraling situation continuing to get worse.
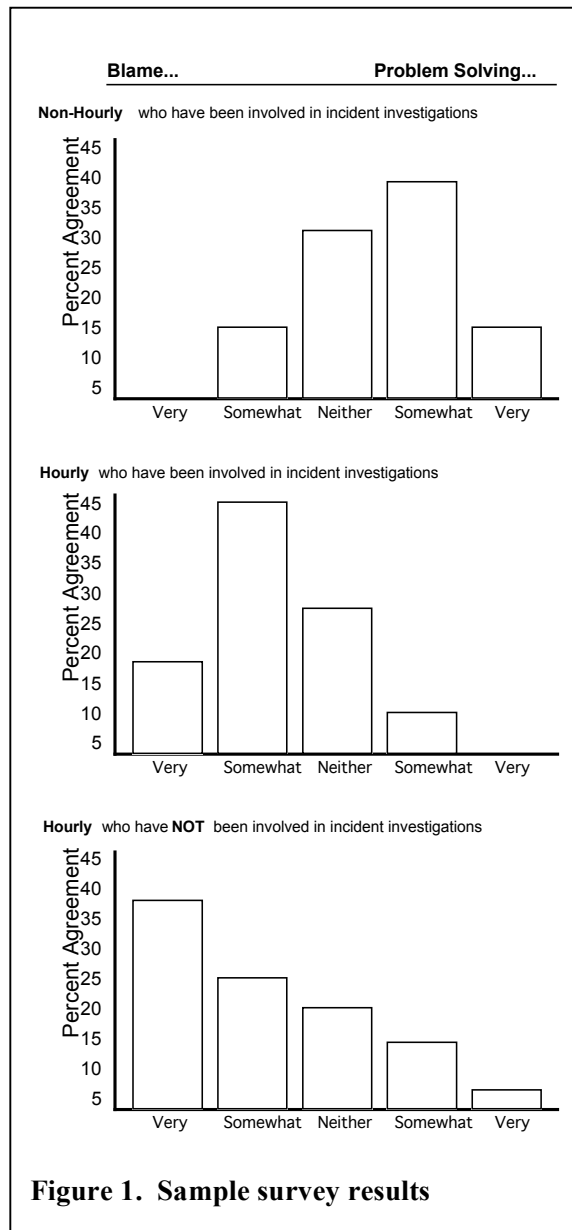
Upon examining the incident analysis process itself, several shortcomings were identified which could account for these negative perceptions. First, the incident analysis teams were composed entirely of salaried employees, namely the department manager, area supervisor, process engineers, and safety department representatives. Hourly individuals involved in the incident were interviewed, but were not included in the analysis of the event or the development of corrective actions. Likewise, other hourly representatives with area-specific knowledge were questioned, but not involved in other activities of the analysis team.

Such limited involvement from hourly employees does not allow the team to take advantage of the expertise of those closest to the work situation. As a result, the team inevitably had insufficient information to thoroughly analyze the situation, determine all of the contributing causes, and implement effective interventions. Equally important, such lack of involvement does not facilitate buy-in and ownership a corrective action plan.

A second major shortcoming was the analysis team members' lack of background information necessary to determine behavioral contributions to incidents and injuries. As described previously, a typical team was composed of individuals from a variety of positions throughout the organization. However, the participants typically had chemistry, engineering, or other technical backgrounds. And while the organization had provided prospective analysis team members with training in analysis skills such as task analysis and event and causal factor charting, no education had been provided on the subject of human behavior. As a result, when the information collected during an analysis identified an at-risk behavior as a contributing factor, the team members were ill equipped to determine the underlying causes. That is, they did not have the understanding of behavioral psychology needed to determine all of the factors within the work situation that allowed, promoted, or even necessitated the at-risk behavior(s) contributing to the incident. As a result, the team often erroneously identified an individual's behavior as the "root cause". Not only did

Wrong Findings... **Correct Findings...**

Non-Hourly who have been involved in incident investigations

Percent Agreement — Very, Somewhat, Neither, Somewhat, Very

Hourly who have been involved in incident investigations

Percent Agreement — Very, Somewhat, Neither, Somewhat, Very

Hourly who have **NOT** been involved in incident investigations

Percent Agreement — Very, Somewhat, Neither, Somewhat, Very

Figure 2: Sample survey results

this lead to ineffective corrective actions such as "counseling" or "discipline", it fostered a strong "blame-oriented" atmosphere which discouraged reporting of incidents and open participation in analyses.

In addition, feedback to those involved regarding the conclusions of the incident analysis and corrective actions to be implemented was limited. For those not directly involved but yet affected by the results, it was virtually non-existent. Responsibility for the development and implementation of corrective actions was assumed by safety department personnel who rarely involved individuals from the targeted area(s) (e.g., via employee-led safety committee). Further, corrective actions were not systematically tracked to ensure prompt follow-up, so closure on items was sometimes needlessly lengthy or nonexistent. As a result, employees often saw no action being taken following a reported incident to make improvements. Therefore, they had little motivation to report future events.

Finally, when improvements were identified and made, there was little attempt to generalize the learnings to other similar situations. That is, corrective actions were rarely applied outside the specific area involved. As a result, employees developed the impression that there was little interest in proactively addressing safety hazards. Improvements were made strictly in a reactive manner and largely for the purpose of being able to document that some action was taken.

Interestingly, this same organization had attempted to introduce a peer observation and feedback process several years earlier. 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 data would be confidential, they were still reluctant to observe and record the safety-related behaviors of their coworkers. This is certainly understandable, given the atmosphere of blame and mistrust created by the incident analysis procedures in place.

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 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 achieving a Total 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 and 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. *Beginning* indicates the component is nonexistent or poorly designed and *Leading* indicates 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 ongoing influence on the organization's safety culture. An example of a portion of one of the Maturity Paths is shown in Figure 3.

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 are generally needed for the assessment to accurately rate system components. Survey data (e.g., from a comprehensive culture survey or safety-specific survey) and focus groups are ideal inputs.

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. Analysis team leaders receive detailed training in analysis 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 analysis results and corrective action implementation is haphazard.	1 2 3 4	Feedback concerning analysis 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.

Figure 3: This table illustrates a portion of the Maturity Path for Incident Analysis.

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 an expert from outside the organization may be useful for facilitating the evaluation. 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 improvements, it is important to remember this assessment focuses on employee *perceptions*, not necessarily reality. That is, the results indicate how employees *feel* incident analyses 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 punished. But if that event is what employees remember, punishment 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 in employees' current perceptions.

So, when considering modifications to any system, two primary options for action should be considered. First, look at the <u>actual systems</u>. 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 <u>perceptions of the system</u> 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, evaluated fairly by a cross-functional team of employees, amply funded, and quickly acted upon. But if their results are 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 low appreciation for their input and lack of concern for their 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 beneficial change in an organization's safety culture. But, other safety management systems also influence an organization's safety culture, and, without care, that influence can be negative rather than positive.

This paper has presented a tool used to help assess traditional safety management systems against key psychological principles, many of which underlie an effective behavioral observation and feedback process (e.g., behavior is motivated by consequences, feedback is necessary for behavioral improvement, involvement increases buy-in and ownership). By modifying safety

systems to be consistent with these principles, all systems will be 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.