

Safe by Accident? Safety Practices that Take the Luck out of Safety

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Introduction

Despite decades of reduction in safety-related deaths and injuries on-the-job, catastrophic accidents appear to be on the rise. In the last ten years, there have been at least nine industrial accidents that resulted in more than 125 deaths. Two accidents in 2010, the BP oil spill in the Gulf of Mexico and the Upper Big Branch mining disaster in West Virginia, have not only caused injury and death; they have wreaked untold economic and environmental havoc in the communities in which they occurred.

Why are we seeing such catastrophic accidents when workplaces, on the whole, are safer? In my opinion it is because there is a widespread lack of understanding of the science of behavior in the safety profession.

Behavior-Based Safety

In my opinion, (and I admit to having a dog in this fight) the introduction of behavior-based safety is one of the most important innovations in the practice of industrial safety in the last 40 years. Although as an identifiable entity it has only been practiced since the mid to late 1970's, it is so popular now that if you do not have a behavior-based safety program of some kind, your safety system is suspect. However, it has become a commodity.

Due to the effectiveness of behavior-based safety interventions, it has become very popular. Unfortunately, its popularity has created problems, in that many organizations have implemented behavior-based safety systems or programs with only a passing acquaintance with the science on which the field is based, behavior analysis. In spite of this almost all have been associated with improved safety numbers. This is unfortunate because the results are attributed to the behavior-based training practices and processes without scientific validation of a link.

The result of a quasi-scientific understanding of behavior is that many things safety professionals do border on the superstitious and interfere with the development of a high-performance safety culture. Many practices that have resulted not only don't contribute to safety but are a waste of time and money as well.

Safety Practices that Waste Time and Money

There are no doubt more examples than I will cover here, but these are some of the more common.

Focusing on Lagging Indicators

This is the basis of a reactive safety management system. Managing safety with incident rate (or other lagging measures) is like managing quality with customer complaints. Once an incident has occurred, it is too late to manage it. The metrics we use to manage safety should be largely behavioral—what are people doing to prevent injuries?

Injury-Based Incentive Systems

This focus can be seen in practices such as Safety Bingo, celebrating hours without a lost-time accident, and paying bonuses based on safety results. The basic problem can be seen in a quote from famous baseball player and manager Leo Durocher who said, "I never did say that you can't be a nice guy and win. I said that if I was playing third base and my mother rounded third with the winning run, I'd trip her up." Incentives, improperly used, cause lying, cheating and "tripping your mother" to get them. Most of these programs allow employees to get the incentive even when they have engaged in many unsafe behaviors but have been fortunate not to have been injured. Many managers have received safety bonuses because of good safety results that were not caused by their actions but in spite of them—a clear waste of money. Most troubling is that these systems encourage non-reporting. Incidents, near-misses and at-risk behavior are opportunities to learn and improve. It is impossible to excel in safety if people won't report what is really going on.

Safety Signage

If I never see another "Think Safety" sign I will be happy. To my knowledge, no one has ever demonstrated any effect of such signs. While informational signs such as "wear safety glasses in this area" are helpful, motivational signs are not. Although motivational signs are one way of saying that the company is committed to safety, it often consumes time and energy that could be better spent on changing conditions and management behaviors to keep people safe.

Punishing People Who Make Mistakes

Of all the things managers do to improve safety in organizations, punishing people who make mistakes is the most counter-productive. Sabotage deserves punishment; very few other things I can think of do. Instances where people have done the wrong thing are most often corrected by changes at the management level, not the front line. They are usually the result of inadequate

training, improper management, production pressures, or poor policies and processes, none of which are correctable by the front-line employee.

Punishment stops behavior. Unfortunately, stopping unsafe behavior does not guarantee that safe behavior will take its place. Accidents caused by inattention are the result of inadequate reinforcement of safe work practices. I often hear that, “he knew better.” The fact that he had an accident is evidence that he did not know better. The behavior analysis of such a situation is that the safe behavior had not been trained to the level of habit. In other words, the safe habit was not automatic – not the fault of the performer.

Although the act of punishing gives management a sense of “doing something to improve safety,” it doesn’t. What it usually does create is a culture where things are covered-up, errors go unreported, and where employees play “the blame game.”

Thinking Checklists Change Behavior

If checklists changed behavior, no one would ever “pencil whip” a checklist. It is not a shock for a manager to find that a checklist has been completed when items have not been examined or viewed as prescribed. We know what changes behavior and it is consequences. It is not that checklists are not helpful. It is that many people think that the problem is solved when they come up with a checklist, train employees in its use, and stress the importance of doing it as prescribed. It is the behavior reflected by the checklist that is important. If those behaviors don’t receive the proper consequences, the checklist will just be another piece of useless paperwork.

The Science of Behavior

Safety has a clear mandate to focus on behavior. The focus should never be exclusively on the behavior of front-line employees but on the behavior of all. Management and executive behavior sets the context for the behavior of everyone in the organization. The behavior of leaders is important in removing obstacles to doing a job safely and making sure that management systems, processes, and practices create a workplace where it is easy to work safely.

A sophisticated understanding of positive reinforcement by managers leads to systemic changes in organizational systems, management practices, and executive decision making. By building natural reinforcers into work processes, organizations can strengthen safe behaviors while at the same time increasing production, quality, and cost efficiencies.

One of the best indicators of whether a behavior-based process is based in the science or common sense is in the way that supervisors talk about and integrate positive reinforcement into the safety system. I have heard too many safety conference presentations where positive reinforcement is presented in the most simplistic way. It is most often talked about as some pat phrase such as, “thank you for picking that box up with a straight back” or as some tangible item given at a celebration. There is almost no reference to a change in the frequency of the target behavior, the real criterion. Remember, positive reinforcement increases the likelihood of a

behavior occurring again. The consequences that promote more of a behavior can come in many forms, some of them related to interactions with supervisors and managers, but many of them are produced by interactions with equipment, processes and interactions with peers. All need to be harnessed in a way that sufficient reinforcement is available to produce and sustain safe working habits.

It is quite possible to get improvement in any safety program by simply doing three things:

1. Implement an observation system where employees are observed while working;
2. Track the rate of safe behaviors and post graphs of the data, and
3. Celebrate reaching or exceeding behavioral safety goals.

If you are not doing these three things, start them now and you will get improvement...for a while. You can do all three of them without ever using positive reinforcement. Observations are not inherently positively reinforcing but are usually used as an occasion for punishing. Graphing the data is neither positive nor negative. A celebration for group achievement is not the same as a positive reinforcer for safe behavior. Employees may like celebrations because they get time away from work, something to eat, and possibly a t-shirt; but as far as impacting safe behavior; the way these events are typically done does nothing to improve working safely. Managers may want to dispute this statement because safety celebrations have been a central part of most safety systems for many years.

Unfortunately, these three elements are the sum and substance of many behavior-based safety programs. The point is that many organizations have behavior-based safety programs and get positive results without knowing anything of substance about the science on which it is based.

I need to state here that observations, tracking and celebrating can be made positively reinforcing and are indeed important to sustaining results. However, in order to achieve this, a more detailed knowledge of the science is needed.

A Few Things We Know About Human Behavior

The closest thing behavior analysis has to a law of behavior as gravity is a law of physics is that "Behavior is a function of its consequences." People do what they do because of what happens to them when they do it.

Behavior that is reinforced increases. Positive reinforcement generates the highest rates of behavior.

Behavior that occurs without reinforcement is weakened and will eventually stop. The technical term for that is extinction.

Behavior that is punished decreases. Behavior that is stopped by punishment will reappear when the threat of punishment is removed or is remote.

Small consequences that are immediate and certain are more powerful than large consequences that are delayed and uncertain.

For a behavior to reach the level of fluency (what is needed in safety) hundreds of reinforcers are required.

While the above might be called an “executive summary” of the science, each statement has many implications for safety. Indeed, I have written six books on the subject. This space will not allow further detail but safety professionals need to know the “further detail.”

Extinction – The Invisible Threat to Safety

I have been asked many, many times, “How long do I need to do this reinforcement stuff?” The answer of course is, “How long do you need the behavior?” Behavior that is not reinforced will eventually stop, just as an engine that runs out of fuel will eventually stop.

The implications for safety are many, and with modern technology they are increasing. With the reliability of equipment and with the many computer-controlled processes in business today, errors are few. Consequently, when we ask an employee to monitor a computer screen or inspect equipment, there is rarely a problem. The fact that there are rarely problems creates a significant behavioral problem. Since the reinforcer for looking or inspecting is finding a problem, each time the person monitors or inspects and finds no problem, the behavior of looking or inspecting has been weakened.

Depending on the employee’s history of reinforcement for the behavior, extinction may take a long time or in some cases it can occur in a single day. Oddly enough, the fewer errors there are in a system, the lower the percentage that will be caught compared to the system that has many errors. This is why security personnel at the airport miss banned objects; why police don’t see crimes committed in full view of the camera; why inspectors of all kinds did not see problems even when they were easily seen after the fact. Employees look but they do not see. This is simply because the behavior of spotting anomalies is inadvertently put on extinction. Looking produced no reinforcement. This is the breeding ground for catastrophic failure.

The symptoms of extinction are subtle, and unless you are specifically looking for them, they are usually missed. Many problems that are characterized as lack of attention, distracted, careless, unmotivated and lazy are often nothing more than extinction-produced variance. When you understand behavior, you understand that punishing performers does not solve this problem. This is why safety professionals need to help the organization build reinforcers into all manufacturing and service processes. It might not seem like important safety work to build in reinforcers at all levels, but it is the kind of work that best fulfills the safety mission while also helping the organization fulfill its obligations to employees, stockholders and customers.