Feature Article

Chicken/Egg/Chegg!

The merits of a holistic, integrated approach vs. a behavior-based approach, to create lasting change in unsafe attitudes and behaviors.

by Michael D. Topf MA

Everyone has heard the old saying, "which came first, the chicken or the egg?" In the field of behavioral safety, a similar dilemma persists. Should the quest for behavioral safety begin with a cognitive approach to changing people's attitudes and values to produce a positive change in behavior? Or should you begin with a behaviorist approach to changing specific safety-related behaviors and hope these new habits will generalize, and in the long run, their attitudes and values also will change for the better?

This chicken vs. egg debate among providers of behavior change processes has continued for years, but, like the old nature vs. nurture controversy about the relative importance of heredity and experience, the answer is both.

In an article titled, "Breaking Pavlov's Dog Out of the Box," Edward Gordon, Judith Ponticell, and Ronald Morgan contrasted the behaviorist approach to training with the cognitivist approach. The strengths and weaknesses of both approaches were explored, with the authors emphasizing the value of the cognitive approach for developing "problem solvers and creative thinkers who can apply what they have learned to their jobs." They noted that with behaviorist approaches, learning often fades after reinforcement stops and transfer of training to novel situations is at times problematic. Furthermore, behaviorists attach little importance to differences between learners.

Cognitivists also contend these theories give little attention to how behavioral patterns are retained in memory and how stimuli might activate them. Rather, they stress that transfer of knowledge is simply a function of repetition. Behaviorist trainers, therefore, need only use repetition and periodic, spaced review of desired behaviors to maintain the habits they want to develop in learners. Problems are that observations are most often not frequent enough to provide consistent feedback, and any changes in behavior may revert back to the original behavior when the reinforcement stops. This can occur unless that person has developed an attitude (mindset) that holds a belief in the value of that behavior to fulfill a primary need or want that person has for himself or someone important to him. *(Gordon, Ponticell, and Morgan. Technical and Skills Training. July 1997)*

The cognitive approach to safety training stresses strategies for thinking and problem solving, as well as strategies for influencing perception and attention. Cognitive learning approaches involve restructuring knowledge to fit new circumstances. People learn strategies for paying attention to any task and its potential dangers. Instead of the learner being manipulated by the environment, he or she is seen as interacting with the environment in such a way that mental structures continue to develop over time and experience. Both memory and attention develop with cognitive training. In simple terms, people learn to "think safely," as well as skills to pay attention.

To stay safe, people require a series of attentional skills that help them regain focus in normal or risky situations.

The cognitive approach was part of the strategy for safety training first championed by the Topf Organization. Starting in 1983 at a large R&D facility and pilot plant operation for a major chemical company, Topf and associates found injuries were occurring when clearly people knew what to do and what not to do. From our research into the causes of the injuries occurring there, we concluded the most effective way to bring about lasting behavioral change is to start by raising people's awareness. The next step is to have them examine the core beliefs and attitudes that shape their decisions in both individual and group activities.

This approach explored a number of cognitive issues that can cause a person to be safe or be injured. People, even when highly skilled, learned how they become complacent, causing even the most experienced individuals to engage in risky behavior. They either lose focus, do not pay attention, or make decisions to take shortcuts and bypass procedures, any of which can lead to injury. Such injuries can occur even when people are wearing required PPE or are following procedures. While observation by others may or may not catch this, observation by one's self can! To stay safe, people require a series of attentional skills that help them regain focus in normal or risky situations.

Behavior-based learning teaches people a discrete set of behaviors they should follow for a particular task or function. The goal is that the correct or safe behavior becomes a habit and that at some point the person develops a belief in the value of the behavior. This strategy is most usefully applied to discrete countable behaviors and is less easily applied to more complex behaviors when people have to make decisions outside of what has been observed and reinforced. This in no way guarantees the person will develop that belief or will apply (think safely) what he learned to other situations, including off-the-job tasks and functions.

The behaviorist approach to safety has been promoted by providers, who assert the primary intervention should focus on the observation and reinforcement of behaviors. Work behaviors of employees are typically observed by other employees who classify the behavior as safe or unsafe, and then offer constructive feedback to the person being observed. Over a number of repetitions, new habits will form with respect to the safety practices observed, and, it is believed these observations and feedback will cause people to be more aware and more safety-conscious, and they will perform their tasks using prescribed procedures and personal protective equipment. Specific safety issues and concerns will be uncovered and addressed.

Both parties tend to benefit from the observation. The observed employee may act more safely during the actual observation, and that alone is a reminder to that person of how he should be acting

at all times. The observer is looking out for specific behaviors that could result in a safety incident. When the observer returns to his or her own work area, those concepts of working safely are still fresh in his mind. After repeated observations and exposure to the personal feedback, our behaviors toward working safely are supposed to change for the better. And over time, the changed behaviors could lead to positive shifts in our safety attitudes and beliefs.

Using Incentives

Safety incentive programs are also promoted by some providers (but not all) of behavior-based approaches. The belief, based on the work of the behavioral pioneer B.F. Skinner, is if you offer employees, either individually or as a group, a nice reward, whether a token gift, money, or the like, they're likely to both think about safety more and to follow safety requirements. They are seen as a tool for increasing awareness, as well as motivating people for improved performance.

When the sole means to change behavior hinges on a few interactions during a structured observation, the probability of failure increases.

In our view and the view of many clients who have tried a variety of incentives, this technique often fails to yield long-lasting success because their use does not accomplish a necessary objective. While safety incentives may provide a temporary stimulus for action, (we all like the appeal of some offer of a reward, prize, or extra), they do not help the employee develop a belief in the value of the desired behaviors. Unless this occurs, when the incentive stops or the reward becomes expected or tired, so may the behavior. There are often negative side effects that can occur when a group will pressure other people, or an individual will pressure himself or herself to hide or cover up an injury so the reward won't be lost.

To effectively prevent accidents and injuries, safety must become a personal value that all employees bring to every task they perform every day, on or off the job. When employees value and believe in safety for themselves, their co-workers, and families, they will engage in the types of behaviors that offer the greatest chance of avoiding injury. Their well-being becomes the primary "prize." Recognizing that achievement or other excellent safety performance with a reward is a perfectly acceptable practice that can reinforce the behaviors and the value of the behaviors to the individual or group. The prize, though, should be one that is of value to the person.

The Organization's Dilemma

Should organizations choose between these two possible approaches to a behavioral safety process? Can an organization obtain the desired results using only one approach? At most sites, you are dealing with hundreds of individuals with unique life experiences and personalities. An approach that may work well for some people may not for others. The dictionary defines process as "a series of actions, changes or functions that bring about an end or result; ongoing movement; progression." And so for any process to succeed over the long term, we must always evaluate, analyze, and cause the process to evolve for the better. This is a form of continuous improvement. Can continuous improvement come from only one approach?

Behavior-based advocates assert that behaviors, not cognitions, are still the primary element to address. We at Topf contend the cognitive approach makes an important contribution. It is our

conviction that raising awareness and addressing beliefs and attitudes first are the key to preventing injuries and creating lasting behavioral change. This method has resulted in immediate, short-term changes in attitudes and behaviors, in both line and management employees.

Behavior-based proponents like to assert that research says and research shows theirs is the best approach. Let's put an end to that one right now. There is no, yes there is no comparative study that has ever been conducted related to industrial safety and environmental performance that shows one approach works better than the other. The only studies are our own case studies that show progress and improvement at specific client sites or with a study of multiple sites. But, again, not between one approach and the other.

The Topf process has evolved over the years into what is best termed a holistic, integrated approach to changing organizational culture and unsafe attitudes and behaviors on and off the job. We have combined what we consider to be the best of cognitive and behavior-based approaches to strengthen specific safety-related habits and to provide strategies that generalize to new situations both on and off the job.

So did the chicken come first, or did the egg come first? Let's call it "chegg"! What is to be gained by disputing which is best when both have so much to offer? The naming part is easy. Call it cognitive-behavioral, that's not a problem. If the process works and produces lasting changes in attitudes and behaviors, then it's great!

The Holistic Approach

So, let's go on to the merits of the cognitive-behavioral method, which is a holistic, integrated approach. Such an approach improves attitudes, changes beliefs and behaviors, increases trust, opens communication, and fosters personal responsibility and participation at all levels, with both management and line employees, and heightens employees' ability to meet new situations and challenges.

The central reason for utilizing such a holistic approach, which incorporates a variety of behavioral theories and methods, rather than rely on just one, is that we are holistic as human beings. We do not operate solely on an observable physical level, but on physical, mental, emotional, and spiritual levels that are intimately integrated, and each has an affect on how we think and act, both while alone and with a group.

No one cognitive-behavioral methodology will address all these levels and work for every person in every situation and circumstance. Being human is a complex assignment. As Jeffrey Pfeffer has noted in his recent book, "The Human Equation: Building Profits by Putting People First," (1998) it is precisely this human side that affects the long-term economic performance of American corporations. Many influences--upbringing, work, families, economics, change in the work environment, and so on--shape our personality, values, thinking, and behaviors. We have found the most effective approach is a systematic blend of techniques derived from the schools of cognitive, behavioral-based, affective, and reality-based learning. This combination has been found to be effective in making lasting changes in the workforce and workplace.

Because most behavior-based safety approaches, as noted earlier, are structured primarily around the observation and reinforcement of safe behaviors, they are somewhat limited as an overall strategy for change. Feedback and positive reinforcement can be a powerful means to increase the frequency of desired behaviors when used as an immediate, certain, and positive consequence of such behaviors. The problem is that most workplaces (and the people who work there) are far more complicated and reflect a less easily controlled environment than the controlled laboratory situations in which most research has been conducted. Managers and line employees may provide inconsistent reinforcement, sometimes reinforcing safe behavior, while at other times providing inappropriate consequences, which encourage risky practices. When the sole means to change behavior hinges on a few interactions during a structured observation, the probability of failure increases.

This is why we view behavioral based methods as only one piece of the holistic safety effort. If used properly and incorporated with other cognitive methodologies, they can be a valuable means of reinforcing safe behaviors and their underlying attitudes and thinking.

It is important that everyone in an organization, from CEO to team leader, is committed to a holistic, multi-level (all employees) approach. Otherwise, the result may be a brief period of altered behavior and improved safety performance, followed by diminished results when observations and reinforcement are discontinued. Senior management support for true safety culture change, with a fundamental shift in the attitudes, beliefs, and feelings of all employees about safety and the environment, is required for lasting long-term change.

Useful Tools

Attitude and behavior change must not be solely focused on line employees.

One of the cognitive techniques that have been applied effectively is visualization. Visualization can be used to teach people safe strategies by having them visualize safe practices and their outcomes. Such internal preparation allows people to evaluate potential events and consequences for themselves and others. A well-known example of the effectiveness of visualization is found in the University of Chicago basketball foul shooting study. The experiment compared three groups. One group visualized successfully making foul shots. The other group actually practiced making shots. The control group did neither. The group who visualized did as well as those who practiced with a ball.

Many athletes have used visualization techniques to program behaviors by rehearsing a strategy or cognitive map. Golfer Jack Nicklaus has used this technique. The employees who use such techniques can improve safe behavior by visualizing safe practices and their outcomes. They can then anticipate what could happen and make decisions based on such a cognitive process.

Cognitive behavioral methods are essential for sustaining lasting change related to safety and environmental improvement, for both management and line employees. Training with a cognitive emphasis includes programs and exercises designed to affect attitudes, beliefs, values, knowledge, and judgment. Changes in thinking strongly influence the ways in which all employees manage stress, work with others, listen to instruction, and give and receive feedback. Importantly, self-knowledge in the area of safety impacts one's ability to observe and manage one's own thinking and behaviors and provides direct insight into accident prevention through self-monitoring. This is

essential, because many accidents and injuries occur when people are alone, both on and off the job. (*Topf, Professional Safety, May 1998).*

Reality based methods, developed by William Glasser, provide additional cognitive-behavioral tools for self- or other-based coaching and counseling. Glasser's procedures help a person gain insight into his or her self-defeating attitudes, thoughts, and behaviors. It then helps him/her accept personal responsibility for the consequences of unsafe acts. Glasser's work is based on the theory that we are all driven by basic needs, and all of our behavior choices are our best attempt to cope and best satisfy our needs. In this system, unsafe behaviors are an attempt to satisfy our needs, (save time, comfort, convenience, money, etc.), coupled with the belief that "I can get away with it." People learn that safe behavior best satisfies our basic need to survive and thrive (take care of one's self, health, families, etc.) and provides us with the preferred long-range consequences.

Achieving the Goal

The primary goals of a holistic, integrated process are (1) the permanence of the change, and (2) the generalizability of the change. When people understand the consequences of unsafe practice at a personal level and believe and value safe practice, (PPE, procedures, etc.), they will think safely and apply their understandings wherever they are. So the intention here is to produce self-motivated and self-managed individuals who behave in a safe manner "even when no one is looking" other than themselves.

This foundation of "personal responsibility for one's own safety" can then be enhanced by using team and leadership support. Both peers and superiors provide positive social reinforcement for improvements in safe behaviors and expressions of safe attitudes and beliefs. Such social reinforcement occurs on a random basis throughout the day, demonstrating the impact of corporate safety culture on social reinforcement. The more structured behavior-based observation and feedback method will continue to be useful to reinforce and support the specific safety habits, such as proper use of PPE.

In conclusion, a holistic, integrated cognitive-behavioral approach is a synthesis of two popular approaches to training, cognitive and behavior-based, and includes employees from all levels. They are best addressed by using the "chegg" approach. By combining a variety of behavioral and cognitive methods and strategies, we stand the best chance of effectively working with all the individual differences in the employee population.

Safety is an employee function, one that includes both line and management employees. Attitude and behavior change must not be solely focused on line employees. The awareness of managers and supervisors must be increased and their attitudes and behaviors changed at the same time as other employees. Skills must be provided to observe and manage one's self, as well as, others. Everyone must and should be involved in identifying and resolving corporate cultural issues and concerns related to safety, health, and the environment.

Reprinted with permission from Occupational Health & Safety Magazine, July 1999, copyright Stevens Publishing.

Michael D. Topf can be reached by e-mail at mtopf@TopfInitiatives.com or by calling 1-610-783-1776. He is the founder and president of Topf Initiatives (www.TopfInitiatives.com) based in Wayne, Pa. He has a BS degree in biology and chemistry and a MA degree in applied psychology and a MA degree in Theology. *The author appreciates the contributions from David Bush, Ph.D, Villanova University, and Nick Porro, Former Chemical Operator, now Safety Director, Hercules Inc. R&D Facility, Wilmington, Del.*