

Behavioral Intervention: Designing the Approach to Fit Your Purpose

Safety pros intervene every day in an attempt to improve safety performance. When they target people's behavior they are implementing a behavioral intervention. They are intervening to increase safe behavior or to decrease at-risk behavior with the intention of preventing injury.

Whether behavioral intervention works depends upon many factors, including the type of behavior targeted, personal characteristics of the individual performing the behavior, and the context or environmental setting in which the behavior is occurring. Also important, of course, is the type of intervention used to affect the target behavior. All of these factors interact in complex ways so that certain intervention strategies work better for certain behaviors and under particular circumstances determined by both environmental and personal dynamics.

In this article I offer some basic guidelines for selecting the most appropriate behavioral intervention. Following these guidelines will not guarantee success, because of the dynamic interaction of various person, behavior, and environment factors. However, knowing the kind of behavioral intervention called for in a certain situation can certainly improve your success rate.

Three Types of Behavior

First, it's important to understand the difference between other-directed, self-directed, and automatic behavior, a distinction I introduced in an earlier article this year on safety self-management (July, 1998). All voluntary behavior starts out as other-directed, in the sense that we follow someone else's instructions, as reflected for example, in a training program, operation's manual, or policy statement.

After learning what to do, essentially by memorizing or internalizing the appropriate instructions, our behavior enters the self-directed stage. In other words, we talk to ourselves before performing a behavior in order to activate the right response. Often we talk to ourselves after performing a behavior in order to reassure ourselves we performed correctly or to figure out ways to do better next time. In this stage (and state), we are usually willing to consider corrective feedback if it's delivered well.

After performing some behaviors frequently and consistently over a period of time they become automatic. A habit is formed. Some habits are good and some are not good, depending on their short and long-term consequences. If implemented correctly, some behavioral interventions can facilitate the transfer of behavior from the self-directed stage to the habit stage.

Of course our self-directed behavior is not always desirable. When we take a calculated risk, for example, we are choosing "willfully" to ignore a safety precaution or take a short cut in order to perform more efficiently or with more comfort or convenience. In this state, people are "consciously incompetent." Behavioral intervention can change such behavior, but not easily. Attempts to change self-directed behavior from incompetent to competent is often difficult, because it usually requires a relevant change in personal motivation.

Some behavioral interventions can help change a bad habit to a good habit. But for this to occur, the target behavior must first become self-directed. In other words, people need to become aware of their undesirable habit (as in at-risk behavior) before adjustment is possible. Then if the person is motivated to improve (perhaps as a result

of a behavioral intervention), their new self-directed behavior can become automatic. This process can be facilitated by the right kind of behavioral intervention.

Let's see what kinds of behavior-based interventions are appropriate for the three transitions referred to here -- changing from an *at-risk* habit (unconscious incompetence) to self-directed behavior, from *at-risk* self-directed behavior (unconscious incompetence) to *safe* self-directed behavior, and from safe self-directed behavior (conscious competence) to a *safe* habit (unconscious competence).

Three Kinds of Behavioral Intervention

Behavior-based safety trainers and consultants teach the ABC model (or three-component contingency) as a framework to understand and analyze behavior or to develop interventions for improving behavior. As I've written before in this column (for example, in November 1992 and January 1994), the "A" stands for activators or antecedent events that precede behavior or "B", and "C" refers to the consequences following behavior and produced by it. Activators typically direct behavior, whereas consequences motivate behavior.

Activators and consequences are external to the performer (as in the environment), or they are internal (as in self-instructions or self-recognition). They can be intrinsic or extrinsic to a behavior, meaning they provide direction or motivation naturally as a task is performed (as in a computer game), or they are added to the situation extrinsically in order to improve performance. A behavioral intervention is external and extrinsic. It adds an activator and/or a consequence to the situation in order to direct and/or motivate desirable behavior.

Instructional Intervention

Instructional interventions are typically activators or antecedent events used to move behavior from the automatic (habit) stage to the self-directed stage, or to improve behavior already in the self-directed stage. The aim is to get the performer's attention and instruct him or her to transition from unconscious incompetence to conscious competence. You assume the person wants to improve, so external motivation is not needed -- only external and extrinsic direction.

This type of intervention consists primarily of activators, as exemplified by education sessions, training exercises, and directive feedback. Since your purpose is to instruct, the intervention comes before the target behavior and focuses on helping the performer internalize your instructions. As we've all experienced, this type of intervention is more effective when the instructions are specific and given one-to-one. Role playing exercises provide instructors opportunities to customize directions specific to individual attempts to improve.

Supportive Intervention

Once a person learns the right way to do something, practice is important so the behavior becomes part of a natural routine. Continued practice leads to fluency and in many cases to automatic or habitual behavior. This is an especially desirable state for safety-related behavior. But practice does not come easy, and can benefit greatly from supportive intervention. We need supportive intervention to encourage us to keep going and to reassure us we are doing the right thing.

While instructional intervention consists primarily of activators, supportive intervention focuses on the application of behavioral consequences. Thus, when we

give people rewarding feedback or recognition for particular safe behavior, we are showing our appreciation for their efforts and increasing the likelihood they will perform the behavior again. And each occurrence of the desired behavior facilitates fluency and helps built a good habit.

So after people know what to do, they need to perform the behavior many times before it can become a habit. Therefore, the supportive consequences we give people for their safety-related behavior can go a long way toward facilitating fluency and a transition to the automatic or habit stage. Such supportive intervention is often most powerful when it comes from one's peers -- as in peer support.

Motivational Intervention

Note that supportive intervention is typically not preceded by an activator. In other words, when you support self-directed behavior you don't need to provide an instructional antecedent. The person knows what to do. And, you don't need to activate desired behavior with a promise (an incentive) or a threat (a disincentive). The person is already motivated to do the right thing.

When people know what to do and don't do it, however, a motivational intervention is needed. In other words, when people are consciously incompetent about safety-related behavior, they require some external encouragement or pressure to change. Instruction alone is obviously insufficient because they are knowingly doing the wrong thing. In safety we refer to this as a calculated risk.

We usually perform calculated risks because we perceive the positive consequences of the behavior to be more powerful than the negative consequences. This is because the positive consequences of comfort, convenience, and efficiency are

immediate and certain, while the negative consequence of such behavior (an injury) is improbable and seems remote. Furthermore, the safe alternative is relatively inconvenient, uncomfortable, or inefficient, and these negative consequences are immediate and certain. As a result, we often need to add both activators and consequences to the situation in order to move people from conscious incompetence to conscious competence.

As I've written in prior *ISHN* articles (see March, 1994), an incentive/reward program attempts to motivate a certain target behavior by promising people a positive consequence if they perform it. The promise is the incentive and the consequence is the reward. In safety, this kind of motivational intervention is used much less than a disincentive/penalty program. This is when a rule, policy, or law threatens to give people a negative consequence (a penalty) if they fail to comply or take a calculated risk.

Often a disincentive/penalty intervention is ineffective because like an injury, the negative consequence or penalty seems remote and improbable. The behavioral impact of these enforcement programs are enhanced by increasing the severity of the penalty and catching more people taking the calculated risk. But the large-scale implementation of this kind of behavioral intervention can seem inconsistent and unfair. And because threats of punishment appears to challenge individual freedom and choice, this approach to behavior change can backfire and activate more calculated risk taking, even sabotage, theft, or interpersonal aggression.

Motivational intervention is clearly the most challenging, requiring enough external influence to get the target behavior started without activating a desire to assert

personal freedom. Remember that the objective is to motivate a transition from conscious incompetence to a self-directed state of conscious competence. Powerful external consequences might improve behavior only temporarily, as long as the behavioral intervention is in place. Hence the individual is consciously competent, but the excessive outside control makes the behavior entirely other-directed. Excessive control on the outside of people can limit the amount of control or self-direction they develop on the inside.

It is possible that a long-term implementation of a motivational intervention, coupled with consistent supportive intervention, can lead to a good habit. In other words, with substantial motivational and supportive intervention, other-directed safe behavior can transition to unconscious competence without first becoming self-directed.

From Other-Directed to Self-Directed

How can we facilitate a transition from the state of conscious competence/other-directed to conscious competence/self-directed? This is perhaps the most important and hotly debated question in the domain of behavior change. I've addressed this challenge in several prior *ISHN* articles with topics like "How to maintain behavioral improvement," "How to transfer motivation from the outside to the inside of people," "How to increase actively caring throughout a work culture," and "How to facilitate a safety self-management process." In fact, my recent book published by J. J. Keller, entitled "Beyond safety accountability: How to increase personal responsibility," deals exclusively with this critically important issue.

Obviously, I cannot summarize a 175-page book here, but it might be useful to identify the topics of this book's five chapters. Each is relevant for developing a safety

accountability system that promotes personal responsibility, and my recommendations are founded on behavioral research.

1. **Decrease top-down control for safety** by a) focusing on fact finding rather than fault finding, b) discussing disadvantages of punishment, c) considering differences between a human error and a calculated risks, and d) recognizing the role of interpersonal and environmental context on at-risk behavior.
2. **Increase feelings of empowerment** by a) holding people accountable for numbers they can control, b) setting goals that are specific, motivational, achievable, recordable, and trackable, c) recognizing successive approximations toward major accomplishments, d) increasing the use of supportive interventions, including behavior-based feedback, recognition, and reward.
3. **Help people feel important** by a) increasing opportunities for choice, b) teaching principles and guiding customization of procedures, c) demonstrating the significance of proactive, behavior-based safety, d) teaching the value of emotional intelligence, including techniques for communicating more effectively with others and with oneself.
4. **Cultivate belonging and interpersonal trust** by a) improving interpersonal communication, b) building group consensus for important decisions, c) promoting systems thinking and interdependence, and d) teaching and demonstrating the principle of reciprocity -- the fact that helping others activates an obligation to return the favor.

5. **Teaching and supporting safety self-management** by following the guidelines I outlined in the July and August issues of *ISHN* (1998).

In Conclusion

This brief article covers a lot of information about the design of interventions to improve behavior. It reviews a number of my previous *ISHN* contributions. The most innovative aspect of this article is the identification of three types of behavioral interventions with respect to their application for helping people transition between five states of safety competence: 1) unconsciously incompetent, 2) consciously incompetent (self-directed and/or other-directed), 3) consciously competent/other-directed, 4) consciously competent/self-directed, and 5) unconsciously competent.

Figure 1 reviews the intervention information in this article by depicting the flow between the various competency states, as influenced by the three types of interventions: instructional, supportive, and motivational. Instructional interventions involve activators designed to teach willing individuals to improve. In contrast, supportive interventions focus on the use of consequences to increase the frequency of safety-related behaviors. Supportive intervention, including behavior-based recognition, reward, and feedback, helps people develop fluency, which in turn can lead to the ultimate -- a safety-related habit or a state of unconscious competence.

Motivational interventions are needed to improve the behavior of people in a state of conscious incompetence. With regard to safety, these are usually calculated risks people take to obtain the soon and certain consequences of comfort, convenience, and/or efficiency. Such at-risk behavior might be other-directed, self-directed, or influenced by a combination of external and internal factors.

Both activators and consequences are needed to change the behavior of consciously incompetent individuals. These behavioral interventions usually take the form of incentive/reward or disincentive/penalty programs, although peer pressure can also have marked motivational influence on this state.

When the controlling contingencies of an activator/consequence intervention are obvious to an individual, a transition to conscious competence is likely to be perceived as other-directed. In other words, the individual will perform the desired behavior as long as the intervention program is in effect, but might revert to earlier at-risk behavior if the incentive/reward or disincentive/penalty program is removed. This won't happen if the individual's conscious competence changes from other-directed to self-directed. Facilitating such a transaction is among the most difficult and important challenges facing the safety professional. This has been, in fact, an overarching theme for many of my *ISHN* contributions, and it will continue to be for many articles to come.

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Illustrative and Supportive Research

Recent research by my students and me illustrates why it's important to match intervention procedures with purpose or state of the performer. We systematically compared the impact of three instructional interventions on driving performance: 1) specific activator feedback, 2) global activator feedback, and 3) specific consequence feedback. For the two activator conditions, behavioral feedback was given to a student driver before a driving session. For consequence feedback, the behavioral information was given immediately after a driving session.

For activator feedback, information (global or specific) was obtained from observations of each student driver's performance during the immediately prior session, which occurred on an earlier day. A research assistant sat in the back seat of the driver-training vehicle, and throughout the one-hour session used a checklist to classify behaviors as "safe" or "at risk." For the two specific feedback conditions, the driver received a "percent safe" score for each of 5 target behaviors; whereas for the global feedback condition, the driver received only an overall "percent safe" score (the ratio of total safe behavior to the sum of all safe and at-risk behaviors observed).

Only specific activator feedback improved the driving performance of the 13 student drivers in this condition, from a mean safe driving percentage of _____% (obtained during three consecutive baseline sessions) to _____% safe (averaged over four consecutive intervention sessions). The sole success of this behavioral intervention can be explained by considering the state of a learner and the type of intervention. The student drivers were motivated to do their best, if only to please the driver instructor who would determine whether they could eventually obtain a driver's

license. Thus, these student drivers were self-directing their driving behaviors, and when their driving performance was at-risk they were unconsciously incompetent.

This situation calls for an instructional intervention, whereby specific feedback is provided immediately prior to an opportunity to alter one's self-direction. Global feedback doesn't provide the student drivers information they can use to improve their internal activators. Such general information could motivate a person to try harder, but if the individual is already highly motivated, such feedback cannot improve performance.

Although the specific consequence feedback gave the student drivers information they could use to revise their self-directions, this information was not provided at an appropriate time. It came at the end of a driving session, and thus was not relevant until the next driving lesson. Since the student driving sessions were separated by at least a day and often an entire weekend, the instructional potential of such feedback was limited.

A second research project by my students and me illustrates the futility of providing activator feedback to people in a state of conscious incompetence. The setting is an industrial plant of about 450 employees and the target behavior is vehicle safety-belt use. For more than two years, the employees' safety-belt use was observed and recorded while they entered and left the plant in the morning and afternoon. The observations were taken by research assistants sitting in a parked car adjacent to the plant's entrance/exit area.

Over a two-year period, we periodically implemented a series of behavioral interventions in an attempt to increase vehicle safety-belt use. Each intervention phase was separated by a lengthy baseline period, thus providing an opportunity to assess the

impact of a particular behavioral intervention. To our initial surprise, none of the following activators posted throughout the plant and attached to individual paychecks had any impact on the percentage of vehicle drivers using their safety belts: 1) a buckle-up slogan designed by a work team, 2) an achievable safety-belt use goal, 3) a belt-use goal plus weekly feedback on actual safety-belt use, and 4) individual buckle-up pledge cards signed by ____ employees.

Our final intervention program increased belt use slightly (from ____% to ____%), but much less than desired and expected. This intervention was an incentive/reward process whereby individuals could sign buckle-up promise cards and become eligible for a cash prize awarded to one winner of a random drawing (of signed promise cards). The amount of the cash award was determined by mean safety belt use among all plant employees. Specifically, it was announced on signs placed throughout the plant and on flyers attached to paychecks that for every one percentage point mean safety-belt use increased over the baseline of ____%, \$20 would be added to the lottery prize. Thus, if mean safety belt use increased to ____%, the winning pledge card would be worth \$300.

The failure of these various behavioral interventions to improve vehicle safety belt use can be explained by considering the state of those employees not currently buckling up. The employees at this facility have been informed many times about the value of safety belts and they know how to buckle up. Thus they are not "unconsciously incompetent." In fact, given that a safety-belt use law has been in effect in Virginia since ____, vehicle occupants are willfully taking two calculated risks when they don't buckle up. They risk a \$25 fine and the likelihood of being more seriously injured in a vehicle crash. Hence, these individuals can be considered "consciously incompetent."

To increase safety belt use among those who don't buckle up, a behavioral intervention needs to be motivational. And the motivational consequences need to seem more powerful (soon, certain, and significant) than any intervention currently in effect to motivate safety-belt use. Our various activator interventions were not motivational, and for most nonusers of safety belts the consequences of our incentive/reward program were not strong enough to overcome their resistance.

At this same facility in 1982, my students and I were able to increase safety-belt use prominently (from ___ to ___%) with an incentive/reward intervention similar to one described here. Why did the same behavioral intervention work 15 years ago but not today? This is a rhetorical question, of course, because the answer is given in the prior paragraph. There was no safety-belt use law in 1982, and therefore the incentive/reward intervention seemed relatively powerful to some individuals. These individuals were motivated to enter the self-directed stage and choose to buckle up.

The higher baseline level of safety-belt use today compared to belt use during the intervention phase of 1982 (____vs____) suggests that those individuals motivated by the improbable penalty of \$25 or the financial reward are already using their safety belts. In other words, employees who aren't motivated to buckle up to avoid a \$25 fine are not likely to buckle up to win a raffle drawing.

A more probable and valuable extrinsic consequence is needed to motivate these conscious resisters to use their safety belts. Instructional or supportive interventions can only work if they implicate external or internal consequences more powerful than an improbable penalty or reward. Peer pressure might work if the resisters perceive displeasure or a reprimand from others to be significant and probable.

And it helps if those taking calculated risks anticipate soon, certain, and positive approval from their peers when they perform the safe alternative. Thus, the consequences from peers can improve the behavior of consciously incompetent individuals resisting influence from the existing natural and extrinsic contingencies.