6. Use theory to integrate information rather than to limit possibilities.
7. Plan interventions with the feelings and attitudes of the individual employee in mind.[13]

Those who have studied psychology will recognize BBS as a practical application of standard behavioral theory to the field of occupational safety. These theories are relevant in any situation in which certain types of human behaviors are desired, and others are to be avoided. Positive reinforcement in the form of incentives and rewards is used to promote the desired (safe) behaviors and to discourage undesirable (unsafe) behaviors.

Proponents of BBS use the ABC model to summarize the concept of understanding human behavior and to develop appropriate interventions when the behavior is undesirable (unsafe). Geller explains the model as follows:

> Behavior-based safety trainers and consultants teach the ABC model (or three-term contingency) as a framework to understand and analyze behavior or to develop interventions for improving behavior. As given in BBS principle 3 . . . the *A* stands for *activators* or antecedent events that precede *behavior* (*B*), and *C* refers to the *consequences* following behavior or produced by it. Activators direct behavior, whereas consequences motivate behavior.[14]

Two other advocates of BBS, Bruce Fern and Lori Alzamora, propose the expansion of the ABC model to ABCO,[15] in which the *O* stands for *outcomes*. They explain the addition as follows:

> *Outcome* refers to the longer-term results of engaging in safe or unsafe behavior. For example, an antecedent of a sign requiring employees to wear safety goggles could produce the behavior of putting on the goggles, the consequence of avoiding an eye injury, and the outcome of being able to continue working and enjoying time with the family. On the other hand, the consequence of not wearing goggles could be an eye injury with a potential outcome of blindness, time off the job, and a reduced quality of life. Failure to address the issue of outcomes represents a lost opportunity to give employees a good reason for engaging in safe behaviors.[16]

Behavioral Theory in Action

Jack Coker is the safety manager for Bonded Builders, Inc., (BBI). Several months ago, he became concerned because employees seemed to have developed a lax attitude toward wearing hard hats. What really troubled Coker was that there is more than the usual potential for head injuries because of the type of work done at BBI's jobsites, and he had personally witnessed two near misses in less than a week. An advocate of BBS, he decided to apply the ABC model in turning this unsafe behavior pattern around.

His first step was to remove all of the old "Hard Hat Area" signs from the job sites and replace them with newer, more noticeable signs. Then he scheduled a brief seminar on head injuries and cycled all employees through it over a two-week period. The seminar took an unusual approach. It told a story of two employees. One was in a hospital bed surrounded by family members he did not even recognize; the other was shown enjoying a family outing with happy family members. The clear message of the video was "the difference between these two employees is a hard hat." These two activities were the antecedents to the behavior he hoped to produce (all employees wearing hard hats when in a hard hat area).

The video contained a powerful message, and it had the desired effect. Within days, employees were once again disciplining themselves to wear their hard hats (the desired behavior). The consequence was that near-miss situations stopped, and no head injuries have occurred at BBI in months. The outcome of this is that BBI's employees have been able to continue enjoying the fruits of their labor and the company of their loved ones.

Summary

The domino theory of accident causation was one of the earliest developed. The theory posits that injuries result from a series of factors—one of which is an accident. The theory is translated into action in 10 statements called the Axioms of Industrial Safety. According to this theory, there are five factors in the sequence of events leading to an accident: ancestry and social environment, fault of person, unsafe acts and mechanical or physical hazards, accident, and injury.

The human factors theory of accident causation attributes accidents to a chain of events ultimately caused by human error. It consists of three broad factors that lead to human error: overload, inappropriate response, and inappropriate activities.

The accident/incident theory of accident causation is an extension of the human factors theory. It introduces such new elements as ergonomic traps, the decision to err, and systems failures.

The epidemiological theory of accident causation holds that the models used for studying and determining the relationships between environmental factors and disease can be used to study causal relationships between environmental factors and accidents.

The systems theory of accident causation views any situation in which an accident may occur as a system with three components: person (host), machine (agency), and environment.

The combination theory of accident causation posits that no one model or theory can explain all accidents. Factors from two or more models may be part of the cause.

There are seven principles of behavior-based safety: intervention, identification of external factors, motivation to behave in the desired manner, focusing on the positive consequences of appropriate behavior, application of the scientific method, integration of information, and planning of interventions.