

IMPROVING SAFETY PERFORMANCE

A Conceptual Toolbox for OSH Professionals

By Joe Story, John Zey, Miaocong Wu, James Junkin, Cameron Sumlin and Justin Story

THE NOTION OF A CONCEPTUAL TOOLBOX may sound odd to OSH professionals. However, articles presenting conceptual toolboxes have been published in business journals to help researchers advance management research (e.g., Shook et al., 2009). This article presents a toolbox to equip safety professionals with a set of conceptual tools not commonly found in OSH training programs or reference literature. The aim is to provide OSH professionals with new perspectives that will increase their understanding of issues that may reduce OSH performance.

Safety Performance Reducing Issues & Accompanying Conceptual Perspectives

This section discusses several organizational issues that transcend industries and can reduce OSH performance. Table 1 introduces each issue and offers an accompanying conceptual framework that OSH professionals can use to better understand and resolve the issue.

Issue: Disregarding or Not Understanding Causal Relationships & Interdependences

Systems thinking is a powerful tool for analyzing and resolving many OSH issues. According to the CDC (2017), systems thinking involves viewing problems by extending their boundaries so that interrelationships can be identified. Manuele (2019) refers to systems thinking as a “diagnostic tool.” The root of

systems thinking comes from systems theory, largely drawn from life sciences literature. It argues that organizations are ecosystems of interconnected and interdependent components (Thompson, 1967). The interdependences between the system components are key to understanding the systems perspective.

Systems thinking can be particularly useful when examining causal events, particularly sequential ones. For example, consider a scenario in which a worker experiences an eye injury because the individual was not wearing safety glasses. A safety professional who does not use systems thinking may conclude that the worker failed to understand the importance of safety and may recommend that the worker receive hazard awareness training. However, a safety professional using systems thinking would approach the issue differently. Through systems thinking, a safety professional would examine the causal chain of events to better understand what went wrong (Figure 1, p. 24). An increased understanding of what went wrong often leads systems-minded safety professionals to prescribe more effective mitigations.

Systems thinking can also be applied proactively to prevent incidents from occurring in the first place. To illustrate this, consider the analysis of the eye injury depicted in Figure 1 (p. 24). If systems thinking were used when deciding where to place PPE supplies, the worker’s injury may have been avoidable since one can foresee that an inconvenience, or the risk of production losses, could discourage workers from obtaining new PPE.

Lastly, systems thinking can be used to evaluate potential controls by examining how they may impact other workplace factors. In this sense, systems thinking can go beyond examining sequential events. To illustrate this concept, Figure 2 (p. 24) shows how a chemical substitution decision could negatively influence worker safety motivation. Therefore, by applying a more macro view of systems theory, safety professionals can evaluate how their decisions might influence factors in seemingly unrelated areas.

KEY TAKEAWAYS

- Organization theories can help OSH professionals better identify and understand organizational issues that reduce safety program performance.
- Such theoretical perspectives can also help OSH professionals identify and correct performance reducing issues that often go unnoticed and unaddressed.
- This article presents OSH professionals with a set of theoretical tools that can be used to increase their understanding of select organizational issues that reduce OSH performance.

TABLE 1

SELECT THEORETICAL TOOLS USEFUL TO OSH PROFESSIONALS

Challenge/issue	Theoretical tool	Concept	Key implications for OSH professionals
Disregarding and/or not understanding causal relationships and interdependences	Systems thinking and theory	Systems theory and thinking examine cause and effect relationships.	<ul style="list-style-type: none"> •Cause and effect relationships must be understood if effective controls are to be achieved. •Changes in one area will likely affect things in other areas, making it important to understand interrelationships before changes are implemented. •Single decisions can also set off chain reactions and impacts may manifest in very distal locations.
Safety initiatives are not aligned with workplace hazards or organizational circumstances	Contingency theory	There is no universal way to do things. Safety program policies/procedures will depend on the circumstances faced by the organization.	<ul style="list-style-type: none"> •Safety programs must be customized and match the organization's needs and workplace hazards. •In some industries, circumstances may necessitate safety programs to be more flexible and dynamic (i.e., easily adaptable/modifiable) than in other industries.
Unspoken/mixed messages sent to the workforce	Signaling theory	Actions or inactions from leadership can send subtle messages.	<ul style="list-style-type: none"> •Selective action and inaction can signal which behaviors are considered acceptable as well as indicate how the organization prioritizes safety. •Such actions and inactions can also cause safety professionals to change how they view their roles within the organization.
Leadership challenges	Agency theory	Agency issues occur when ownership and control are separated. The individuals who control do not always work on behalf of those who own.	<ul style="list-style-type: none"> •Governance mechanisms designed to reduce agency costs may incentivize or pressure executives to disregard safety.
	Upper echelons theory	Organizational outcomes are largely a reflection of the values of top managers and observable traits can make their decision-making somewhat predictable.	<ul style="list-style-type: none"> •The characteristics of top executives can be used to predict their safety orientation. •Background differences within safety departments can sometimes create chaos and can oftentimes explain safety department dysfunction.
Institutionalization of bad and nonsensical practices	Institutional theory	External forces cause organizations to become increasingly similar over time.	<ul style="list-style-type: none"> •Bad practices sometimes become institutionalized and are difficult for individuals in a given industry to see. •Such bad practices can still reduce OSH performance.

Issue: Safety Initiatives Are Not Aligned With Workplace Hazards or Organizational Circumstances

The contingency perspective was largely a response to the classical management theories from the 1940s and 1950s that looked for a one-size-fits-all approach to organizational structure and management. The theory contends that there is no universal way to do anything, and that good decisions are contingent upon the circumstances (Van de Ven et al., 2013). According to this model, optimal performance is achieved when there is a good fit between the internal attributes of an organization and its external environment. Although the perspective largely deals with macro-level topics such as organizational structure, the contingency approach has been applied elsewhere. For example, readers may be familiar with contingency styles of leadership that argue that the most effective leadership styles depend on the circumstances.

The authors believe that contingency theory can be used to help explain why many safety programs fail to achieve their performance objectives. The authors contend that many organizations have safety programs that are not aligned with the hazards found in their workplaces or with the circumstances faced by the organization. This misalignment can go a long way in explaining why some programs perform poorly. When safety programs are not designed specifically for the unique hazards and circumstances of a given organization or industry, workplace hazards will be inadequately evaluated and controlled.

There are numerous explanations for such a mismatch. One explanation may be the use of a third-party verification system to develop the safety program. Safety program verification systems have been heavily marketed in recent years and are now used by many organizations to evaluate contractors. Organizations that utilize such systems to develop their safety programs sometimes develop their programs to satisfy the technical requirements of the verification system rather than to address the hazards specific to their work sites. This has resulted in many safety programs that are near du-

plicates of each other (see the discussion on institutional theory in the "Institutionalization" section) and that do not reflect the unique circumstances of the work environment in which they will be used.

In other instances, organizations may use a boilerplate safety program obtained from the internet as a foundation for their safety program. This is often done to save time or because the organization does not have the requisite safety expertise to develop a program from scratch. While boilerplates can create a good starting point, they tend to be incomplete and overgeneralized. This makes them inadequate if they are not built upon and customized to meet the unique hazards and circumstances of the organization.

Another concept that developed from contingency theory that can help safety professionals craft better safety programs is the notion of mechanistic and organic organizations. Under contingency theory, organizations with more mechanistic structures (those that are machinelike with a rigid hierarchy and bureaucracy) perform better in predictable environments, and organizations with organic structures (those that are more informal and able to adapt) perform better in unpredictable and rapidly changing environments (Burns & Stalker, 1961). Extending this logic to OSH, a safety program on a construction site where conditions often change daily should be flexible enough to adapt to rapidly changing workplace conditions. The authors have seen many instances of construction sites using safety programs intended for static manufacturing settings. Using a safety program designed to be used in a factory setting that seldom changes will likely not perform well in a constantly changing construction environment. In these situations, a dynamic safety program designed to maintain pace with a changing work environment is more appropriate.

Safety professionals regularly tell workers to always select the right tool for the job and to never modify a tool to do a job for which it was not designed. Unfortunately, some safety professionals fail to follow their own advice when it comes to developing safety programs. There is little difference between a worker using

FIGURE 1 SYSTEMS PERSPECTIVE FOR UNDERSTANDING EYE INJURY CAUSATION

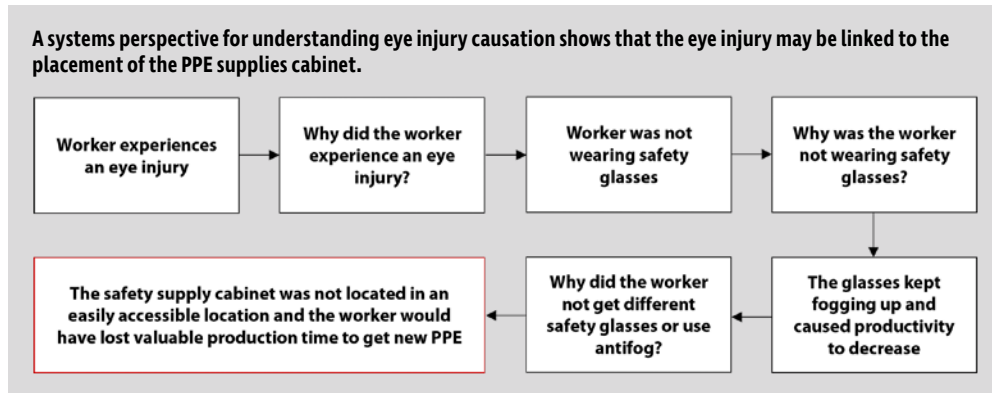
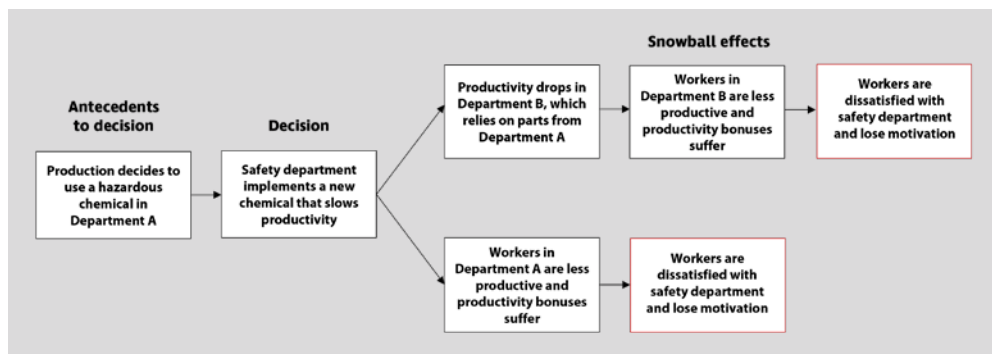


FIGURE 2 SNOWBALL EFFECTS OF A CHEMICAL SUBSTITUTION DECISION



a screwdriver as a prybar and an organization in one industry using a safety program designed to be used in a different industry. When a safety program is not industry- and organization-specific, it may create as many problems for the organization as it resolves.

Issue: Unspoken/Mixed Messages to the Workforce

Signaling theory is another conceptual tool that can be highly useful to OSH professionals. For the purposes of this article, signaling can be thought of as sending a message to someone without specifically saying anything. In other words, signaling is a form of communication. According to Spence (1973), parties send signals to transmit information to each other. These signals often indicate intentions as well as preferences. Organizations and safety professionals must be cognizant of the signals they send, as these signals can have implications for workplace safety.

To illustrate, consider a supervisor allowing workers to temporarily remove machine guarding during a production crunch to momentarily increase production so that production goals can be met on time. Consider what message this sends to the workforce. It may indicate that deviation from established safety rules is acceptable if the situation warrants such deviation. Although the supervisor did not specifically tell the workers to remove the guards, allowing guards to be removed during a production crunch may indicate how the organization prioritizes safety, particularly if this practice runs counter to mission statements and safety culture rhetoric. Workers are quick to notice when safety practices are observed and when they are disregarded. Inconsistency in the prioritization of safety may cause some workers to conclude that safety policies are merely there to reduce liability or to pacify regulators.

Management can send signals to safety professionals as well. In some organizations, OSH professionals may receive

subtle messages from top management that hint at what the OSH professional should prioritize or how the OSH professional should behave. In some instances, these signals may conflict with professional ethics as well as with the training and education the OSH professional has received. Unfortunately, the authors have seen cases in which management signals have caused new OSH professionals to change how they view their roles. For a new OSH professional, mixed messages whereby the espoused culture says one thing, but the signals sent by management say something different can be confusing and damaging. In these scenarios, a once proactive and dedicated safety professional can become corrupted or devolve into a professional yes-man who simply goes along to get along. The authors have also seen instances in which mixed messages from management have caused safety professionals to

become hesitant to take necessary workplace safety actions out of fear of consequences.

Issue: Leadership Challenges (Executive Level)

Individuals in executive leadership roles can have a major impact on workplace safety. To illustrate this impact, consider the 2005 Texas City refinery explosion that killed 15 workers and injured 170 others (Schorn, 2006). A subsequent CSB (2007) investigation determined that BP executives elected to ignore numerous leading indicators and declined to make necessary capital investments in process safety after numerous budget cuts. The investigation concluded that many unit leaders at the plant had short tenures prior to the disaster and were likely more concerned with short-term financial performance than making long-term process safety investments. The CSB investigation noted that BP top management only made significant investments in safety when it came to absolute matters of compliance that might draw the negative attention of regulatory bodies such as the U.S. EPA and deferred items such as critical maintenance and adequate staffing to avoid fatigue.

Noticeably absent from the CSB report are issues of agency and how organizational controls to circumvent agency could have played a role in causing the disaster. Agency theory describes the issues that can happen anytime there is a separation of ownership and control (Eisenhardt, 1989). When ownership and control are separated, the individuals who control (e.g., managers) may behave in ways that conflict with the interests of the owner. To control for this, many organizations implement corporate governance mechanisms to oversee executives or to align the interests of executives with the organization owners. These issues can affect OSH professionals because many corporate governance

mechanisms are designed to give executives a “bottom line” mentality, and that mentality may disincentivize them from making safety investments. In a nutshell, corporate governance mechanisms may incentivize (or force) executives to focus on maximizing profits over all else. It is reasonable to believe that the incentives produced by an anticipated short tenure with the organization combined with corporate governance mechanisms designed to force or influence a bottom-line mentality played a role in prompting BP executives to focus more on short-term profits than on the long-term maintenance of the plant.

Issue: Leadership Challenges (Executive & Safety Team Level)

Individuals in leadership roles within safety departments or teams can also have workplace safety implications. Upper echelons theory suggests that organizations are largely a reflection of their leadership and that organizational outcomes can be predicted by the observable traits (e.g., age, education level, experience) of its leaders (Hambrick & Mason, 1984). The upper echelons perspective can be a particularly useful tool for OSH professionals in two primary ways.

First, it can be applied to understand why some executives are less likely to prioritize safety than others. This is important because how an executive prioritizes safety is linked to their willingness to allocate capital for safety. To illustrate, younger executives who are newer to their careers tend to be riskier than more senior leaders who have many years of experience (Hambrick & Manson, 1984). Hence, according to the upper echelons perspective, younger executives who are new to their leadership roles and who “have something to prove” may be more focused on making money and bolstering stock prices than on making capital investments in safety.

The functional track of the executive can also influence OSH orientation. Executives who ascended to a leadership role from an operations position closer to production may have a different orientation toward safety than an executive who ascended to a leadership role from another functional track, such as finance, that is further away from production. The proximity of executives to production in their former roles may make them more aware of the importance of safety. It can also be argued that executives with prior career experiences closer to operations may be more willing to push back against corporate governance mechanisms designed to curb agency issues by forcing or encouraging executives to control costs in the interest of increasing profit margins.

Second, the upper echelons perspective can help safety practitioners identify safety team conflicts and better understand why safety team performance is sometimes less than desirable. It is not uncommon for safety teams to include individuals with different backgrounds that cause them to analyze, interpret and prioritize differently. The differences in formal education and career trajectories between safety practitioners can explain the inconsistency in control recommendations, worker training approaches and, in many cases, why there is excessive safety team turnover.

To illustrate how the upper echelons perspective can help explain safety team conflicts, consider a construction organization that appoints as its corporate safety director a former craft worker with no formal education and an organization that has safety technicians in the field who have safety degrees, but no construction experience. In this example, the differing backgrounds and skill sets will invariably result in people in the field having different perspectives from those in the corporate office. These opposing viewpoints could clash and create a dysfunctional safety department that is unable to adequately perform. Hence, it is important for senior safety professionals working on safety teams

to understand that not everyone in the safety profession has the same background or will approach problems in the same manner.

Issue: Institutionalization of Bad & Nonsensical Practices

Grace Hopper was an early pioneer in the computer technology field at Yale University and is often credited with the expression, “The most dangerous phrase in the language is ‘We’ve always done it this way.’” Although the origin of the quote may be debatable, these words embody the essence of institutional theory. Institutional theory is a theoretical perspective that primarily deals with understanding institutionalization and the forces that prompt institutions to become increasingly similar in a process called isomorphism. An exhaustive review of this perspective is beyond the scope of this article, but a brief discussion of institutional theory and its origins is appropriate before exploring how safety practitioners can leverage this perspective.

According to Davis and Powell (1992), something is institutionalized when repetition causes it to become “rule-like” and be able to persist in the absence of efforts to continue it or when institutions or professions have created a collective norm. Institutional theory examines how institutionalization occurs and largely originated from two publications. According to the authors of the first, Meyer and Rowan (1977), organizational decision-making is sometimes driven more by obtaining legitimacy than by efficiency, and there are a narrow number of options (referred to as “rational myths”) that could lead to legitimacy. This causes similarity because organizations often adopt many of these options in an attempt to obtain legitimacy. In the second publication, DiMaggio and Powell (1983) offer three explanations (or institutional pressures) to explain the similarity seen in many organizations:

1. coercive isomorphism that arises when organizations attempt to cope with the same regulatory and environmental constraints;
2. mimetic isomorphism that occurs when there is some sort of uncertainty and one organization mimics something that another organization is doing; and
3. normative isomorphism that occurs through professionalism when an organization hires members of a professional community who, through training and education requirements, as well as through professional organizations, think and behave in a similar manner.

How can safety professionals leverage this theoretical perspective? The authors believe that this perspective is highly relevant to the OSH profession and that it can be applied to many OSH issues. Generally, institutionalization tends to occur at the industry level. In other words, if some idea or practice becomes institutionalized, it will tend to be isolated to a particular industry (e.g., construction, oil and gas, manufacturing) and affect most firms within that industry. Although the authors believe that all OSH professionals can benefit from this perspective, the fact that the institutionalization tends to occur on an industry level means that the perspective may be most useful for OSH consultants who may find themselves in a variety of different industries while performing their duties.

There are numerous examples of institutionalized practices that affect OSH. One example of a practice that the authors believe is institutionalized in some parts of the construction industry is the requirement that individuals obtain the OSHA 500 credential to be hired for a construction safety job. The OSHA 500 course is intended to allow people with formal safety training and experience to teach the OSHA 10- and 30-hour outreach course and issue completion cards. Many construction industry organizations now require individuals to obtain an OSHA 500 credential before they are considered for employment as a safety professional on one of

the organization's construction sites. The authors have witnessed many instances in which individuals with considerable construction safety experience, degrees in safety and even recognized credentials such as the certified safety professional or construction safety and health technician be denied consideration for construction safety jobs because they did not hold an OSHA 500 credential. At the same time, the authors have observed individuals with little or no construction safety experience and little formal training obtain construction safety jobs because they possessed the OSHA 500 credential. In short, the authors believe that this credential requirement has become institutionalized in the construction industry and has led to many insufficiently credentialed people being permitted to work as construction safety professionals.

The authors believe that many organizations in the construction industry have become unwilling to consider credentials outside the OSHA 500 when evaluating potential construction safety professionals. Hence, the OSHA 500 requirement may be institutionalized in the construction industry and has resulted in organizations dismissing other, arguably better, credentials in favor of the OSHA 500 credential. Returning to the OSH performance aspect of this article, the insistence on the OSHA 500 credential over all others may lead to an organization hiring an insufficiently credentialed OSH professional, which may adversely impact their OSH performance.

The main takeaway from this perspective is to understand that the way things are done in an organization or entire industry may not be the best way of doing things. In these situations, institution theory may provide safety professionals, particularly those who are working as safety program auditors, with a theoretical tool that they can use to analyze why organizations perform certain practices and how such practices came into existence.

Conclusion

In closing, the authors believe that OSH professionals can benefit from this conceptual toolbox. The theoretical perspectives outlined in this article are not commonly found in safety research and could prove useful in understanding organizational challenges that reduce safety performance. These perspectives could also help advance OSH research, specifically in the areas of leadership and culture.

The authors also believe that organization and leadership theories should be taught to OSH practitioners and be included in OSH degree programs. Providing OSH professionals with theoretical foundations that explain how and why things

happen would help them better contend with organizational challenges. In other words, teaching OSH professionals organization and leadership would be akin to teaching aspiring automobile mechanics how an engine works rather than simply teaching them how to change its parts. **PSJ**

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