

People-Based Safety

Exploring the role of personality in injury prevention

By E. Scott Geller and Douglas M. Wiegand

AN INJURY-FREE WORKPLACE requires attention to three basic domains: the environment (including tools, equipment and climate of the work setting), the person (including employee attitudes, beliefs and personalities) and behavior (including safe and at-risk work practices, as well as intervening for a coworker's safety). These factors are interactive, dynamic and reciprocal; influencing one factor eventually affects the other two.

For example, changes in the environment indirectly affect people's behaviors and attitudes, and behavior change usually results in attitude change and some change in the environment. Thus, to achieve and maintain an injury-free workplace, employers must address each domain daily during development, implementation and evaluation of intervention strategies to remove environmental hazards, decrease at-risk behaviors, increase safe behaviors, and provide more user-friendly or ergonomically sound workstations [Geller(h); (g); (f); (e)].

This article focuses on the person (or personality) factors that contribute to an organization's safety performance. Research in psychology shows that personality factors influence safety-related behavior [Hansen(a); (b); Harrell; Janicak; Stuhlmacher; Cellar, et al]. In fact, the first involvement of psychology in safety focused on finding the "injury-prone" personality. Methods of studying such a concept varied over the years, and potential explanations for why some people seemed to suffer more injuries than others ranged from chance or bad luck to innate personality traits. Each explanation and the accompanying methodologies suffered flaws, leading to studies that produced inconsistent or ambiguous results (Hadden, et al; McKenna; Shaw and Sichel).

Therefore, data related to the control of injuries with person factors were often misinterpreted, creating miscommunication and confusion among researchers and leading many to either scoff at or rally behind the concept of injury proneness. This is clearly an issue of debate among statisticians, psychologists and SH&E professionals. Nevertheless, the idea that person factors determine unintentional injury resurges in the literature every decade or so, often by a consultant with a new employee selection tool or a researcher who identifies prior miscommunication and urges further study [e.g., Hansen(b)].

Low-Hanging Fruit

Over the past several decades, safety researchers have focused their efforts largely on environment and behavior factors, mainly because these are readily observable and can be reliably measured. These environmental and management systems strategies have not failed. They tackle the low-hanging fruit and prevent numerous injuries and fatalities as a result.

Low-Hanging Fruit

More recently, however, the context seems to be shifting for many leading-edge companies that are looking for answers "outside the box" of traditional safety efforts. For example, several consulting companies have developed and implemented personality-based measures for selection of employees who possess characteristics believed to be relevant to occupational safety (BST; Pearson Performance Solutions). Furthermore, the comprehensive analysis of companies that make a transition from "good to great" led Jim Collins and his research team to conclude that selecting the right employees is most critical for achieving "greatness" (Collins).

A valid selection device can enable an organization to identify applicants who exemplify personality characteristics linked to careful decision making, responsibility and the ability to effectively cope with daily stressors and, thus, reduce the chance of personal injury. Indeed, the development and administration of such selection devices is a primary job function of industrial/organizational psychologists (Ones and Viswesvaran; Roberts).

While the use of personality-based measures for

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selection purposes is somewhat controversial (Burke), the authors believe attention to person-level variables could provide increased awareness and understanding of the diversity of individual differences related to injury prevention, inspire valuable interpersonal conversations, and inform the development of educational and training interventions to improve safety-related attitudes and behaviors.

Personality Traits

People are obviously different in many ways. To simplify things, we tend to put people into tidy categories. At times, these classifications can be unfair and invalid, such as generalizing one's thoughts about strict gender boundaries—as in “men are from Mars and women are from Venus” (Gray). However, it is noteworthy that psychological research conducted over the past two decades has shown that certain personality characteristics are genetically determined and inherited (Plomin and Caspi; Roberts).

For example, a systematic comparison of identical twins reared apart after age five months with twins raised together showed that pairs raised together were not more similar than those raised separately with respect to various personality traits (Plomin; Tellegen, et al). This and similar research has led to the conclusion that genetic factors can account for as much as 50 percent of individual differences in personality (Carey and DiLalla; Loehlin).

The Big Five Personality Traits

Many readers are familiar with the Myers-Briggs classification of people along four bipolar personality dimensions: extroversion versus introversion, sensing versus intuition, thinking versus feeling, and judging versus perceiving (Myers and McCaulley). This approach is outdated, as evidenced by its lack of reference in most contemporary psychology texts. Indeed, every research-based psychology textbook among the more than 20 the authors consulted identifies the same five primary person factors, which have little overlap with the Myers-Briggs scale except for the extroversion/introversion dimension.

The sidebar at right identifies these five personality traits as bipolar dimensions, referred to in the research literature as the “Big Five.” (Note that the order of the dimensions presented spell the word “ocean,” which makes it easy to remember these critical personality dimensions.)

Substantial research throughout the 1990s indicates that these traits remain relatively stable over an individual's lifetime and are generalizable across various cultures (Costa and McCrae; Digman; John). The “Sample Questions” sidebar on pg. 30 provides some representative questions per each of the Big Five traits. Higher numbers reflect qualities of the particular personality trait, except for those items followed by the letter R. These need to be reverse scored; that is, the number circled should be subtracted from six to make the score consistent with other items.

An individual's totals for these select items are not a valid measure of the Big Five. These items were



The Big Five Personality Traits

Openness to Experience Characteristics

Curious, broad interests, creative, original, imaginative, untraditional, flexible, sensitive, adventuresome.

Opposite Characteristics

Conventional, down-to-earth, narrow interests, rigid, inflexible, insensitive, crude.

Conscientiousness Characteristics

Achievement-oriented, organized, reliable, hard-working, careful, self-disciplined, ambitious, persevering, responsible.

Opposite Characteristics

Aimless, unreliable, lazy, careless, lax, negligent, weak-willed, hedonistic, impulsive, disorganized.

Extroversion Characteristics

Sociable, assertive, talkative, optimistic, people-oriented, outgoing, fun-loving, affectionate.

Opposite Characteristics

Reserved, sober, cautious, quiet, aloof, task-oriented, shy.

Agreeableness Characteristics

Soft-hearted, trusting, good-natured, helpful, forgiving, caring, cooperative, gentle.

Opposite Characteristics

Cynical, rude, suspicious, irritable, manipulative, vengeful, uncooperative, ruthless, hostile, self-centered, headstrong.

Neuroticism Characteristics

Worrisome, nervous, emotional, insecure, hypochondriachal, frequent distress, hypersensitive, excitable.

Opposite Characteristics

Calm, relaxed, unemotional, hardy, secure, self-satisfied, composed.

excerpted from a longer survey (ORI), selected to improve a reader's understanding of each personality trait, and to activate conversations about these constructs and their relation to safety-related behaviors.

Relevance to Occupational Safety

How do the Big Five affect safety performance? To date, empirical research of specific connections between the five traits and safety-related behavior is limited. Specifically, the authors could find only one study that investigated relationships between the Big Five traits and work-related injuries (Cellar, et al). As hypothesized, these investigators found more reported injuries among those individuals who scored relatively low in agreeableness and conscientiousness.

Certain other relations between these personality traits and safety-related behaviors seem reasonable and worthy of serious consideration and systematic study. For example, it is reasonable to predict that individuals who score relatively high on openness to experience will more likely accept and participate in a new injury prevention strategy.

Common sense suggests that injury prevention procedures which require interpersonal conversation (such as a behavioral observation and feedback process) will be

Sample Questions Used to Assess the Big Five Personality Traits

Following are representative questions for each of the Big Five personality traits. Questions are answered on the following scale: 1 = never; 2 = rarely; 3 = sometimes; 4 = often; 5 = always. Items followed by (R) need to be reverse scored (i.e., the number answered should be subtracted from six to make the score consistent with other items).

Openness to Experience

- I have a vivid imagination.
- I have a rich vocabulary.
- I am not interested in abstract ideas. (R)

Conscientiousness

- I am exacting in my work.
- I neglect my duties. (R)
- I like order.
- I pay attention to details.
- I am always prepared.

Extroversion

- I feel comfortable around people.
- I start conversations.
- I keep in the background. (R)
- I don't like to draw attention to myself. (R)
- I am quiet around strangers. (R)

Agreeableness

- I feel little concern for others. (R)
- I make other people feel at ease.
- I feel others' emotions.
- I insult people. (R)
- I take time out for others.

Neuroticism

- I change my mood a lot.
- I get upset easily.
- I worry about things.
- I get stressed-out easily.
- I am relaxed most of the time. (R)

Source: ORI.

more acceptable to those who score high on "extroversion and agreeableness." Furthermore, those with these personality traits will likely be more successful at implementing an interpersonal coaching process.

These observed and hypothesized correlations between personality and safety-related behavior reflect only a few ways that the Big Five personality traits can influence industrial safety. Clearly, systematic research is needed in this domain, especially given the pervasive behavioral influence of these five dimensions of human personality.

Personality States

Research has shown that many personality characteristics are states which vary according to the interpersonal situation or environmental context (Cattell; Cattell and Kline). In other words, context interacts

with personality characteristics to influence behavior. Some situations are more directive than others and have more impact on behavior than does personality. For example, individuals reporting to work may follow the social norms established by their place of employment (e.g., sitting quietly at their workstations, being attentive at meetings) regardless of their personalities. However, at a less-restrictive social gathering, the same employees' behavior will likely vary greatly as a function of personality factors.

Likewise, most readers can probably think of situations in which they show characteristics of being introverted (focusing on internal thoughts, feelings or impressions), but can just as quickly think of different situations where they may be more extroverted (focusing on external events, such as interactions with others). Thus, people should be careful not to limit themselves with a certain personality label—a permanent trait that biases one's attitudes, perceptions and behaviors.

Injury Prone vs. Injury Preventive

To integrate the personality factors related to safety, the authors propose the label "safety identity," and two safety-related propensities: injury proneness versus injury preventiveness. When relating personality to safety, it is important to distinguish between characteristics that may be linked to the probability of experiencing an injury versus characteristics linked to one's willingness to participate in an injury-prevention effort.

Both propensities influence an organization's safety record, but injury preventiveness is probably easier to change than injury proneness. Specifically, injury proneness is presumably determined in large part by internal or dispositional factors that are difficult to observe directly and thereby influence. This suggests that injury proneness is more traitlike (stable across situations) than statelike (dependent on situational factors).

By contrast, situational factors controlled by organizational and interpersonal variables influence a person's willingness to actively care for him/herself and others by participating in an organizational process designed to prevent injuries [Geller(g); (f)]. These person-states fluctuate according to the behavioral context or climate. Thus, it seems to make more sense to design environmental and behavioral interventions to get people involved in a safety improvement campaign than to attempt to change an individual's personal disposition to be injured. Figure 1 depicts this distinction between injury proneness and injury preventiveness. Each cell in the matrix reflects the relative risk of injury to four different personality typologies. The safest individuals are those who are not injury prone and who take steps to prevent an injury. The most unsafe employees are those who are injury prone and do not take precautionary measures.

Appropriate intervention strategies can move an individual from Cell A (having neither those characteristics associated with experiencing an injury nor those associated with willingness to participate in injury preventive behaviors) into Cell C (not having

Figure 1

Safety Identity Categories

Four safety identity categories as defined by two extreme injury proneness traits and two injury preventive states.

| | | Injury Prone | |
|-------------------|-----|--------------|-----|
| | | No | Yes |
| Injury Preventive | No | A | B |
| | Yes | C | D |

characteristics associated with experiencing an injury but having those associated with willingness to participate in injury preventive behaviors), but it is unlikely an external technique can be successful in advancing an individual from Cell D (having characteristics associated with experiencing an injury and those associated with willingness to participate in injury preventive behaviors) to Cell C.

Some personality factors can affect both injury prevention and injury proneness. For example, optimists and people who perceive a high level of personal control (termed "internals") are more likely to be injury preventive than are pessimists and "externals" (those with relatively low expectations of personal control) because they place greater value in taking responsibility for their safety [Hansen(b)]. However, because of their greater expectations of personal control and positive outcomes, internals and optimists, respectively, might take more risks and, therefore, be relatively injury prone (Cooper). Thus, these personality factors can increase one's propensity for both preventing and experiencing personal injury, resulting in minimal net gain for safety. Externals and pessimists, however, experience relatively high rates of unintentional injury compared to internals and optimists [Hansen(b)].

Examples of how one's personality may contribute to injury proneness and/or injury preventiveness are discussed next. Although these are mostly based on speculation and need empirical research to directly support their relevance to safety, they will perhaps inspire future research in addition to thoughtful discourse on establishing the concept of "safety identity."

Living in the Moment

"Plan ahead." "Prepare for tomorrow." "Create a vision of your future." Such slogans are common in today's U.S. culture. They reflect a proactive and achievement-oriented mindset, and are basic guidelines for highly successful people. But this future-focused perspective can put people at risk for injury. Some people are more likely to be in this state than others. Thus, one's propensity to be future- rather than present-focused reflects a personality trait (or state) relevant for safety.

Cherish the Present

In *The Present*, Spencer Johnson advises readers to learn from the past and plan for the future, but live in the present. Similarly, the audio program, "The Pleasure Principle" (Pearsall), teaches the joy of living in (not for) the moment. The key point is that pleasure comes from experiencing the present—the situation a person is in right now (Csikszentmihalyi). Simply put, this means focusing on current behaviors, cognitions and context.

People who cherish the present use all of their relevant senses. For example, when eating they use more than their taste buds. They appreciate the texture of the food, its aroma and the visual display. Plus, they pay attention to the context of the eating environment, perhaps with a focus on picturesque scenery and playful chatter with a companion. Those with a Type A personality type (Friedman and Ulmer) have a relatively difficult time doing this. Rather than seizing the moment, these individuals rush through a meal to get to their next activity, which is only viewed as a stepping stone to the next future event, and so on.

Advising listeners to be sensuous about simple everyday pleasures, Pearsall notes:

Take time to feel the warmth of your bed, linger in your morning shower, savor the taste of your breakfast orange juice, reflect a few minutes on the setting sun, listen for the evening birds' songs and hold someone close at the end of your day.

Consider that depressed individuals typically dwell on the disappointments of their past. "If only I had done that differently or made another choice," they ruminate. In contrast, many overly stressed, Type A people live in pessimistic anticipation of the future. Their self-talk is something like, "What if I can't pull this off?" "What if my support system crumbles?" "What if Murphy's Law prevails and I fail miserably? My future will be ruined."

Depressed and overly stressed people are obsessed with the past or the future, respectively. They miss the pleasures of the moment that could help them relax and rejuvenate. The melancholy of the past and the insecurities of the future can actually be cast aside by the rapture of the present, if only daily lives would allow people to let that happen.

Relevance to Occupational Safety

So, what is the relevance of this "living in the moment" personality factor for occupational safety and health? When people attend to their ongoing behavior in every respect, they are less likely to experience personal injury. Living in the moment means using all relevant senses to recognize ongoing behavior and the surrounding context. Fully encountering the present, including the environment and ongoing behavior, should decrease the probability of a mishap or unintended injury.

Achieving Success vs. Avoiding Failure

This section discusses a critically important personality dimension that has a dramatic effect on one's attitude toward safety, as well as an individual's willingness to participate in a safety improvement effort. Some individuals seem to possess a "need to achieve," while others portray a "need to avoid failure." This distinction can be made by listening to people's verbal behavior. For failure avoiders, the task at hand may be a requirement they must fulfill in order to "get by." They work only minimally to avoid failure and feel controlled by negative consequences. Generally, they are not happy unless the task is no longer required or is otherwise completed.

Those who "work to achieve" typically enjoy the task much more than the "failure avoiders." They might view the task as an opportunity to learn.

These individuals feel more influenced by positive than negative consequences and, thus, perceive more personal control, self-efficacy and optimism. These person-states influence more achievement, which in turn feeds these person states. Thus begins a productive behavior/attitude spiral that continuously improves human performance.

Four Achievement States

The person-state dichotomy of working to achieve success versus working to avoid failure is based on classic educational research conducted in the 1950s and 1960s by Richard Atkinson and David McClelland [Atkinson(a); (b); McClelland(a); (b)]. These investigators developed a reliable assessment tool of achievement motivation capable of predicting students' course selections and class performance. However, this bipolar categorization is an overly simplified version of Atkinson's original theory that identified four types of individuals (Figure 3) (Covington). This typology of person-states classifies people as success seekers, overstrivers, failure avoiders and failure accepters (Covington and Omelich).

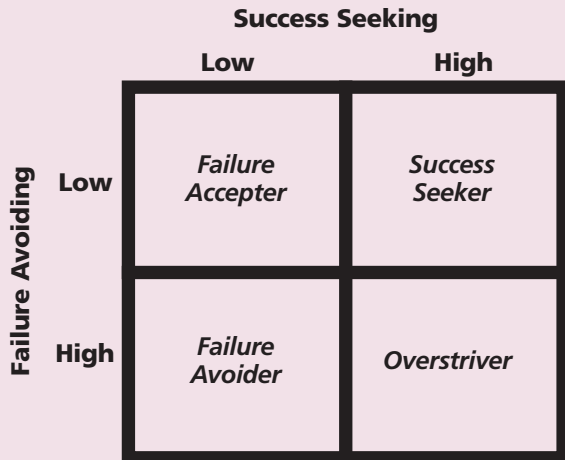
A notable amount of research has identified personality characteristics related to each of these four categories. A complete discussion of these is beyond the scope and purpose of this article (Wiegand and Geller). Here it is only critical to understand why the success-seeker category is most desirable. These individuals show the highest levels of self-efficacy, personal control and optimism [Covington and Omelich; Covington and Roberts; Martin(a)] and are more likely to actively care for the safety and health of others [Geller(g); (f); (d)].

Although it is generally better to be an overstriver than a failure avoider or failure acceptor, the high fear of failure among overstrivers leads to self-doubt about personal abilities (Covington; Covington and Omelich). These individuals fear personal evaluations and work hard to escape negative feelings of

Figure 3

Classification System

A four-way classification system determined by a focus on achievement versus failure.



Source: Covington.

guilt, shame, incompetence and anxiety. They experience high levels of distress, low perceptions of personal control and unstable self-esteem [Covington and Omelich; Covington and Roberts; Martin(a)].

As one can imagine, failure avoiders have low expectancy for success and, thus, they avoid challenges. They are unsure of themselves and are overly anxious and pessimistic about the future (Covington and Omelich; Covington and Roberts). Interestingly, failure accepters are better adjusted than failure avoiders (Covington and Roberts). These individuals accept failure in the particular situation, and are generally apathetic or indifferent (Covington and Omelich). While this person-state may be more desirable than "failure avoidance" at the individual level, from an organizational perspective, the "failure acceptance" state is least desirable, especially with regard to safety. The popular label for this state is "complacency."

Relevance to Occupational Safety

The relevance of this personality dimension to safety is obvious. According to systematic research and common sense, the most productive and healthy person-states are those associated with the success-seeker typology. With their high expectancy for success and low fear of failure, success seekers respond to setbacks with optimistic persistence, self-assurance and a sense of personal control [Martin(b)]. These person-states provide fuel for more success seeking.

Thus, SH&E professionals need to find ways to facilitate success-seeking person-states in industrial safety and health. The more safety success seekers in an organization, the greater the probability of achieving and maintaining an injury-free workplace. How can the number of safety success seekers in a workgroup be increased?

Decrease the Failure Focus

Many aspects of the traditional industrial safety program seem to emphasize failure avoiding rather than success seeking. How do companies typically evaluate their safety performance? If the key indices are number of recordable lost-time injuries, the focus is on avoiding failure. If safety rewards or financial bonuses are based on “days without an injury,” failure avoidance becomes a primary motivator. When companies are ranked according to their OSHA-recordable injury rates, a reactive failure-avoidance stance takes precedence over success seeking.

When does management get most concerned about safety? If lost-time injuries seem to arouse the most attention to safety, avoiding failure is promoted. If management considers “injury investigation” the key job responsibility of the company SH&E professional, avoiding failure is given priority status. When managers summarize their organization’s safety performance with injury statistics and loss-control numbers, they put clear and obvious emphasis on avoiding failure.

Given these characteristics of traditional safety, it is understandable why a failure-avoiding state can be the prominent motivator of workplace safety. Furthermore, if failures (or injuries) keep occurring despite best efforts to avoid them, a mindset of “failure acceptance” can develop. This is an apathetic and helpless person state that can stifle participation in any safety improvement effort.

Focus on Proactive Success

With traditional safety, it is easy to develop a failure-avoiding mindset. The obvious antidote is to focus on safety achievement rather than injury avoidance. Simply put, this means associating more positive than negative consequences with safety—which is easier said than done.

Entitlement Personality

Researchers used the following nine-item measurement tool to assess people’s degree of entitlement thinking. The higher the score, the greater one is influenced by an entitlement perspective. Questions are answered on the following scale: 1 = never; 2 = rarely; 3 = sometimes; 4 = often; 5 = always. Item five is reverse scored (i.e., the number answered should be subtracted from six to make the score consistent with other items).

- 1) I honestly feel I’m just more deserving than others.
- 2) Great things should come to me.
- 3) If I were on the *Titanic*, I would deserve to be on the first lifeboat.
- 4) I demand the best because I’m worth it.
- 5) I do not necessarily deserve special treatment.
- 6) I deserve more things in my life.
- 7) People like me deserve an extra break now and then.
- 8) Things should go my way.
- 9) I feel entitled to more of everything.

Source: Campbell, et al.

With quality production, positive consequences are inherent with the ongoing work activities. People can usually see evidence of achievement when contributing to the production or quality of a commodity or service. Plus, the scoring system for the productivity side of an organization is typically given in achievement terms. Not so for safety.

The best way to put an achievement spin on safety is to define proactive actions to take for injury prevention, then hold people accountable for achieving them. An achievement-based accountability system should put more focus on positive consequences for accomplishment, from interpersonal recognition to group celebrations. Plus, the safety scoring system should be based on proactive measures—activities accomplished to prevent injury.

Imagine a safety meeting that begins with a presentation of various process accomplishments for injury prevention, including the number of a) environmental hazards removed; b) near-hit reports reviewed; c) safety audits completed; d) interpersonal observation and feedback sessions conducted; e) safety suggestions received and implemented; and f) safe behaviors observed per work team.

In addition, imagine the facilitators of employee meetings asking participants to state publicly what they have done for safety since the last meeting. Imagine also that work teams are not ranked according to reactive injury records, but are recognized for what actions they take to prevent personal injury. Furthermore, imagine the safety portion of a performance appraisal including a checklist of safety accomplishments rather than total recordable injury rate. With these transitions from traditional safety, it is easy to imagine the cultivation of an achievement orientation toward safety and a resultant increase in the number of safety success seekers.

Entitlement Thinking

As a personality dynamic or mindset, “entitlement thinking” is a belief that basic personal comforts are expected—even owed to a person. In other words, regardless of individual effort, some people believe they deserve to have their basic needs met—they feel entitled. It is reasonable to assume this perspective can stifle personal responsibility to achieve peak performance, including safety [Abernathy; Geller(b)].

The Entitlement Personality

Recent research has found an entitlement mindset to vary significantly among people, and to be a relatively stable personality dimension (Campbell, et al). The investigators used the nine-item measurement tool (sidebar at left) to assess people’s degree of entitlement thinking. The higher the score, the greater one is influenced by an entitlement perspective. Item 5 is reverse scored; that is, the scale value selected by a respondent should be sub-

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tracted from six before using this number to calculate a total score.

The developers of this innovative and straightforward device successfully predicted a number of specific behaviors from knowledge of an individual's entitlement score. Specifically, those who scored relatively high on entitlement thinking were significantly more likely to a) make competitive win/lose decisions; b) select selfish approaches to romantic relationships; c) show aggressive behavior following a threat to their ego; and d) take candy designated for children (Campbell, et al).

Relevance to Occupational Safety

How does entitlement thinking influence participation in safety-related programs? This is a provocative and timely topic, able to stimulate lively conversation at a safety meeting. Group discussions will likely reveal many ways an entitlement perspective inhibits safety at a particular facility.

For example, consider the following possibilities:

1) Should employees receive prizes or a financial bonus based on injury statistics? Such programs may only reduce the reporting of injuries. Try removing this ineffective approach to motivating safety participation and entitlement thinking will be observed. Some will say, "You can't do that, we're entitled."

2) Are workers entitled to an optimal "fail-safe" work environment? The authors have heard employees use such entitlement thinking as an excuse for not participating in a behavior-based safety process. An entitlement thinker offers the retort, "Why should we change our behavior when management has not given us the safe environment we deserve?"

Of course, it is important to remove as many environmental hazards as possible, and to provide employees with the most comfortable and effective PPE. But often it is not economically feasible to make work settings "fail-safe" and to upgrade all PPE. Employees need to take personal responsibility to help themselves and others adjust their behavior so as to stay out of harm's way.

3) Shouldn't employees expect the SH&E professional to handle all safety-related concerns and do whatever it takes to keep the organization injury-free? Many SH&E professionals have experienced and bemoaned this entitlement mindset. In a similar vein, the authors have heard workers claim that their compliance with safety rules and regulations is all the responsibility for occupational safety that they need to accept.

Changing Personality & Shifting Paradigms

Theoretically, a personality trait is a permanent characteristic of an individual that markedly influences behavior, especially in ambiguous or nonrestrictive environments in which behavioral directives or expectations are broad or nonexistent. In other words, when the environment does not prescribe a certain behavioral protocol, personality has a powerful influence on what people do.

But a critical question remains: Can personality and its impact on behavior be changed? As noted,

many personality researchers and scholars claim that certain personality characteristics (termed "traits") are essentially immutable and cannot be targeted for intervention tactics. These include the Big Five traits. Thus, many personality researchers suggest that we must accept the reality that people are born with some degree of propensity to reveal certain personality characteristics (Ones and Viswesvaran; Roberts).

However, one must also recognize that situations, contingencies and interpersonal intervention can influence the extent to which a particular personality trait is manifested in behavior. Thus, a person who is naturally low on a Big Five trait can be activated to show this characteristic through an environmental condition, a behavior-change intervention or interpersonal dialogue.

To understand the potential flexibility of personality traits, it is useful to consider handedness. While most people have a clear preference to use one hand over the other for specific activities, they can use the other hand when situations require. It feels awkward, but they can do it. With practice, people can get quite good with their nondominant hand. Similarly, practice (with feedback) can make it feel natural to behave contrary to a personality trait.

From Personality to Paradigm Shift

What is the mechanism or process by which a personality characteristic affects behavior? Simply put, people's personality influences their readiness to perform in certain ways. It makes them naturally aware or unaware of certain aspects of their life space. It influences how they interpret the various happenings in their daily lives. In addition, personality affects how they respond to environmental stimuli, biasing their perceptions so they selectively attend to some things and not others. Again, environmental and social circumstances interact with personality traits to enhance, neutralize or inhibit them.

To illustrate the interaction of personality and environmental factors, consider two paradigm shifts needed to improve the human dynamics of a work culture. A paradigm is considered a perception or perspective that influences both attitude and behavior [Geller(g)]. How does personality fit into this mix?

Paradigm Shift 1: From Behavior-Based to People-Based Safety

In several publications, Geller has proposed the need to consider person-based factors relevant to safety performance [Geller(h); (g); (f); (d); (e)]. He has long used the term "people-based safety" to reflect the combination of behavior-based and person-based factors. How might personality influence a transition to becoming more people-oriented when addressing safety issues?

Narrowing the focus to only the Big Five, it is intuitive that people who score higher on extroversion and agreeableness should be more likely to understand and commit to this paradigm shift. These individuals are more people- and relationship-oriented by nature and, therefore, are more comfortable with

procedures that involve interpersonal interaction and influence. Also, those more open to experience should be more likely to consider any paradigm shift—and will be less likely to resist change. Indeed, systematic research has demonstrated a significant inverse relationship between the factor agreeableness and the total reported number of work-related injuries (Cellar, et al).

Paradigm Shift 2: From Other-Directed to Self-Directed Accountability

The distinction between “other-directed” behaviors that occur because people are held accountable by observers, supervisors or coworkers, and “self-directed” behaviors that occur because the performers are holding themselves accountable have been discussed in several sources [Geller(g); (a); (f); (c); (e)]. In an ideal, safety-mature organization, employees do not need an outside accountability system to motivate them to follow safety-relevant procedures. Rather, these employees hold themselves accountable to perform safe work practices. They stick to safety protocol when working alone, even in their own backyards, when no one else is there to hold them accountable.

What personality types are more apt to work toward this paradigm shift? From the Big Five, it seems conscientiousness is most aligned with acquiring a self-accountability perspective with regard to industrial safety. In fact, empirical research supports this notion with the observation of significant inverse correlations between degree of conscientiousness and total number of reported work-related injuries (Cellar, et al), and number of driving crashes (Arthur and Graziano).

It is also reasonable to expect the factor neuroticism to be related to this paradigm shift. More specifically, the authors propose that some degree of ongoing anxiety (or concern) contributes to the self-motivation needed to keep a person doing the right thing for safety when an external accountability system is unavailable. This is not extreme neuroticism, but a level somewhere between “completely calm, relaxed and unemotional” about an injury possibility and “nervous, emotional, insecure and distressed” about safety issues.

Conclusion

This article has addressed several personality aspects of industrial safety. A key lesson is the distinction between injury proneness (which may be considered an internal personality trait difficult to change) and injury preventiveness (which is more likely a state that is changeable by relevant external intervention).

Two classification systems were reviewed. One distinguished between injury-proneness traits and injury-preventiveness states. The other defined four person states that primarily impact injury preventiveness or one’s propensity to participate in an injury-prevention effort.

In addition, an innovative personality factor related to the well-researched Type A personality type was introduced. More specifically, it is proposed that one’s ability to live in the moment (both cognitively and

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behaviorally) impacts injury proneness. Although this hypothesis is quite intuitive, the critical question is whether this person factor is a dispositional trait or a situational state. If it is a changeable state, how can people be persuaded to shift their mindset from future-oriented to present-attentive?

This article also discussed the notion of entitlement thinking as it relates to occupational safety, and introduced a survey recently developed to assess individual differences related to this mindset. Specific ways an entitlement mindset can be detrimental to voluntary participation in injury-prevention programs were explored. It is proposed that group discussion of this personality dimension could define practical ways to reduce entitlement thinking and its negative ramifications throughout a work culture.

This article only touches the surface with regard to the variety of personality factors that can impact people's predisposition for personal injury and their voluntary participation in an injury-prevention program. The Big Five personality traits were introduced as determinants of injury proneness versus injury preventiveness, and the roles of conscientiousness, agreeableness, optimism, entitlement and personal control were considered.

However, numerous other personality dimensions are relevant, including belongingness (Wheless, et al); self-efficacy (Bandura); sensation-seeking (Zuckerman); introversion/extroversion (Eysenck and Eysenck); perceived risk (Goldberg, et al); mindfulness (Langer and Moldoveanu); impulsivity (Eysenck, et al); emotional intelligence (Goleman) and perceptions of invulnerability (Perloff and Fetzer). Furthermore, the complexity of this consideration of personality factors multiplies when considering that each of these dimensions can influence injury proneness, injury preventiveness or both of these determinants of an organization's safety record.

The authors hope this article will serve two important functions: 1) increase awareness and understanding of the role personality can play in both injury proneness and injury prevention; and 2) stimulate the systematic, empirical study of relationships between personality predispositions and voluntary participation in efforts to prevent unintentional injury. ■

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