

Workplace Perceptions of Safety

What Do Workers Think About Health And Safety, Why Does It Matter And What Can You Do About It?

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The National Institute for Occupational Safety and Health (NIOSH) would like to thank the aggregates company who organized and supported site-wide participation in this research effort. Mention of any company or product does not constitute endorsement by NIOSH. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of NIOSH. – Ed.

An organization's "climate" refers to the shared perceptions of workers about the health and safety procedures, practices and behaviors that are rewarded and supported at work [1-2]. Any type of climate assessment is often completed at a specific point in time, providing a snapshot of the workplace.

Previous research in high-risk industries has shown that understanding workers' perceptions of the workplace, including organizational and personal factors, provides foresight into their knowledge, motivation, and health and safety (H&S) performance [3-4]. Additionally, these findings show that as H&S knowledge, motivation and behavior improve, incidents decline.

Historically, mine-specific research has called for the need to improve climate and morale in the workplace [5]. Additionally, since the Upper Big Branch disaster in 2010, the mining industry has expressed a keen interest in knowing the current perceptions and intended actions of their workforce. Similarly, NIOSH shares the value of knowing which aspects of an organization's climate have the biggest impact on worker perceptions and decisions to help support a safer workplace.



The survey took about 15 minutes to complete.

Table 1. Measures in NIOSH Organizational Safety Climate Survey

External, Organizational Factors Measured (as perceived by the individual)	Internal, Personal Factors Measured (as perceived by the individual)
<ul style="list-style-type: none"> Organizational H&S Support Supervisor H&S Support Supervisor H&S Communication Coworker H&S Communication Worker Engagement H&S Training Adequacy 	<ul style="list-style-type: none"> Sense of Control Risk Tendency H&S Knowledge H&S Motivation Adaptability Thoroughness

Because both the organization and the individual control safety-related outcomes, NIOSH has identified the need to understand H&S risks both within and outside of workers' control on the job [6]. To address this need, researchers designed a questionnaire adapted from previous surveys in high-risk occupations, measuring the factors listed in Table 1.

The 58-question survey used a six-point scale (strongly disagree to strongly agree). A six represented "strongly agree" and was the highest response an employee could provide. After the survey was tested with miners and deemed reliable [7], the survey was finalized and wider distribution took place. Here, we discuss a case study that used the survey with one aggregates company in the Midwest, which was particularly interested in better understanding its employees' H&S perceptions.

Case Study Overview

After gaining approval from the employee participants, the survey was administered across three Midwestern mine sites, under one company, during February 2016. In total, 214 employees ($n = 51$; $n = 92$; and $n = 71$) participated. The surveys were administered during each site's eight-hour MSHA annual refresher training in order to obtain 100 percent participation.

Out of the 214 participants, 28 percent were salaried and 72 percent were hourly with a range of ages from 18 to 70. Mining experience and company experience fluctuated from just a few months to more than 20 years. Employees mainly represented work units in production and maintenance, with some in engineering, safety and other jobs. The survey took about 15 minutes to complete and to our knowledge, everyone who was present completed the survey.

Results

The company was primarily interested in learning the results for each scale item and areas in which the company could improve upon to support workers' H&S skills and decisions on the job. Additionally, analyzing the results for unique differences among various workgroups was of interest to the company, in hopes to develop tailored interventions for groups that would benefit from additional H&S communication.

Table 2 provides averages for each measure. This breakdown of averages allowed the aggregates company to focus on areas that received lower scores among the workforce (both hourly and salaried participants). Table 2 shows that the organizational factors, or those that are controlled more by the organization, had a lower perception – in the four-point range. This range falls into the "somewhat agree" attitude.

Regarding the personal measures, which are controlled more by the individual worker, results trended more in the five-point range, which is "agree." Based on these results, the company was concerned with employees' lower levels of (1) perceived organizational support, (2) leadership support and communication, and (3) involvement in health and safety. These areas are discussed as well as organizational responses to address these scores.

Organizational Support for Health and Safety

Organizational support for H&S was measured by asking questions about the perceived priority the company assigns to safety versus other aspects on the job, such as workload, productivity and expectations.

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Table 2. Company Survey Results

Scale	Average
H&S Proactivity	4.92
H&S Compliance	5.09
Organizational Support for H&S	4.07
Involvement in H&S Decisions	4.40
Supervisor H&S Communication	4.69
Supervisor Support for H&S	4.72
Coworker H&S Communication	4.97
H&S Training Adequacy	5.10
Personal Sense of H&S Control	4.55
Adaptability on the Job	4.73
Thoroughness on the Job	5.06
Risk Avoidance on the Job	5.12
Perceived H&S Knowledge	5.15

Responses that turned into action items for the company included:

- 44 percent of the workforce felt that H&S rules are sometimes ignored.
- 45 percent of the workforce felt that they sometimes have impossible production pressures.

If H&S rules were being ignored by almost half of the workforce, company management felt that a high tolerance for risk could be present. Additionally, if individuals were feeling pressured to produce, they could be more likely to take unnecessary risks [8]. Therefore, the company wanted to better understand and aim to change these perceptions to prevent unintended risks on the job.

Leadership Communication and Support for H&S

Supervisor support for and communication about H&S were measured by asking workers if they felt valued on the job, if management cared about their personal well-being, and if there was an open and comfortable line of communication between hourly and salaried workers about H&S. Responses that

turned into action items for the company included:

- 37 percent of the workforce felt that their supervisor did not notice if they do their job safely.
- 22 percent of the workforce felt their supervisor did not monitor H&S practices.
- 18 percent of the workforce felt that their supervisor did not regularly inform them of job-specific H&S hazards.

These items, receiving a much lower score among hourly workers, informed the need to improve not only the type of H&S communication between site-level management and hourly workers about H&S practices on the job, but also that more modeling of H&S was needed by site-level management.

Impact of Mining Experience on Perceptions of Support

Of value to the company was learning that significant differences existed among groups of varying experience in the mining industry. Specifically, the 13 percent of workers who had under one year of mining experience perceived

higher levels of organizational and supervisor support (average = 4.7 and 5.1) than the 18 percent of workers who had one to five years (average = 4.3 and 3.6) or the 11 percent of workers who had six to 10 years of experience (average = 4.8 and 4.2) in the industry.

These results mean that those who are newer to the mining industry, regardless of age, are more likely to have a positive perception of the company. This provides direction to target other groups of miners who, perhaps, have been in the industry for a long time and whose positive attitudes have waned over time. Based on these results, the company felt they needed to take steps to provide additional attention and communication to miners who had been working in mining for a sustained period.

Organizational Response

It is important to note that the workforce had a high perception of their site-specific H&S training. In fact, training adequacy was the highest-rated organizational factor measured in the survey. Therefore, a gap in training or the need to provide more training was not deemed an all-inclusive response.

Rather, site-level, day-to-day decisions and interactions were lacking. Corporate felt that if H&S rules were being ignored to the degree reported in the survey, then workers were willing to accept a fairly high level of risk on the job. Since previous research in other industries supports this rationale [9], changing levels of risk tolerance needed to be addressed. Corporate felt the use of two mechanisms could help impact worker perceptions and actions: worker engagement and leadership development.

Engaging Workers through Site-specific Tools

First, the organization embraced the idea of risk assessment cards for employees (i.e. I Choose to Reduce Risk). These cards provide employees with a medium to identify hazards related to

their job tasks and assess or rate the risk involved in doing the task. They also allow employees to suggest what they or the organization can do to reduce the risk and follow-up with supervisors about what they wrote. The consistent use of such cards is a tool to empower workers as well as provide a platform for consistent communication among employees and their supervisors.

Additionally, when employees take the time to not just think about risk, but to process and write down certain hazards and assess specific risks, it provides the opportunity to overcome complacency on the job, which can happen easily after completing similar tasks throughout the day [10]. Additionally, the company decided that the annual MSHA training that workers complete each year could be enhanced to focus on understanding the risk assessment process, typical injuries that miners experience, and personal risk tolerance on the job.

Leadership Development for Supervisors

From the survey results, it was gleaned that a part of the company's H&S perceptions and problems were in how site-level supervisors support and communicate with the hourly workforce. Examples could include mixed or confusing messages, accountability, and leading by example. In response, the company developed and incorporated specific leadership skills as they relate to health, safety, and stress at work for supervisors.

Second, the company also wanted to target the middle-range experience group, whose results were lower throughout the survey, indicating their low levels of satisfaction with organizational and supervisor support. Providing this key group, who had more knowledge and experience, with leadership development opportunities was used as a method to further engage them and encourage a transfer of knowledge to new miners. Because not all managers are leaders and not all leaders are managers, incorporating this experienced group into leadership development efforts was deemed plausible. Key leadership practices that were emphasized included modeling the way, inspiring shared vision, challenging the process, enabling others to act, and encouraging others [11].

Summary

If implemented and used correctly, certain tools, programs and training initiatives have the ability to improve worker perceptions and subsequently, H&S performance. This case study shows the value of understanding how workers may be perceiving actions or rules on site (or the lack thereof). For example, a supervisor may want to provide more autonomy for the worker and by doing so, inadvertently reduce communication. There is a fine line between observing workers to "find something wrong" in what they are doing and engaging in a conversation during a work task to remind them of a hazard.

Without doing routine assessments, there are minimal opportunities to tease apart such nuances. Finally, although conducting initial assessments to understand the current state of workers' perceptions is valuable, it is important to

conduct follow-up assessments to estimate what is going up, down or staying the same. The company studied here is engaging in follow-up assessments to measure the impact of its proposed and implemented changes to its site-level tools and trainings. ▲

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