Safety Improvement

Perpection surveys can reveal strengths & weaknesses

By Dan Petersen

THE PERCEPTION SURVEY is one measure of safety system effectiveness. A fundamental difference exists in what perception surveys reveal versus what research or benchmarking surveys reveal. Most research asks what SH&E professionals or managers think works—and does not. The same is true in the benchmarking search for best practices. Perception surveys assess what hourly employees think about what works and does not work in the safety system—which suggests that the only reality is hourly employee perception. Thus, supervisor and manager perceptions are measured only to determine how far from reality they are. In an individual organization, this is valuable, as it reveals how removed management is from those on the shopfloor.

Such surveys have long been used in nonsafety applications. Rensis Likert was a pioneer of this technique; he measured the relationship of key factors to productivity. His evidence suggests that a "high achievement" firm generally exhibits a high degree of supportive relationships; uses the principles of group decision making; and has supervision in areas with high-performance aspirations. Attitudes toward the company, job and boss, as well as the level of motivation, are also key factors. Good performance in these areas results in higher sales volume and production, lower costs and better quality. In short, Likert's research showed a high positive correlation between scores in these areas and the bottom line (e.g., profitability, growth, return on investment) (Likert).

That early research was extended by the author and his colleagues to test how a perception survey might work as an indicator of "safety system health." After many years of perception survey development and testing, the author and colleagues found that such a survey provides a better predictor of the future safety record than any other indicator tested and helps to clearly target what needs to be done to improve safety systems in organizations [Bailey(a);(b); Bailey and Petersen; Petersen(a);(b);(c)]. As these surveys have been processed and analyzed, some data have been accumulated that may be descriptive of how effective safety systems are overall. Patterns in the surveys of many organizations over time may suggest that current approaches need to be reassessed and perhaps changed [Bailey(a);(b); Bailey and Petersen; Petersen(a);(b);(c)].

From 2000 to 2004

The January 2000 issue of *Professional Safety* featured an article on the strengths and weaknesses of safety management at the turn of the century as evidenced by perception surveys which had been completed up to that point in time. The data then showed the perception of hourly employees in some 56 companies and some 1.657 million people at all levels in those companies [Petersen(b)]. The Safety Perception Survey asks several simple yes/no questions (74 in all), then clusters these questions into 20 categories of a safety system (Sidebar 1). Each question in each category has been statistically validated to show what people really think and what really works or does not work [Bailey(a);(b); Bailey and Petersen; Petersen(a);(b);(c)].

Having completed 104 company surveys in the last three years, this article updates the 2000 article to provide a larger database. As indicated in 2000:

> At times, as safety professionals have delved into concepts such as system safety, behavior-based safety, ergonomics, industrial hygiene, human factors and human error reduction, it has often appeared that all the bases have been covered. Despite these advances, one must ask, "To what extent have safety professionals built systems that truly control losses?" [Petersen(b)].

Research has examined the types of management systems that have led to excellence. Results can be best described via the following six criteria for safety excellence. The safety system must:

1) Ensure daily proaction by supervisors and teams which demonstrates that safety is a core value of the organization.

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Key Safety Categories

The perception survey asks a series of 74 yes/no questions, then clusters these questions into the following 20 categories of a safety system:

- Accident investigation
- Quality of supervision
- Alcohol and drug abuse
- Attitudes toward safety
- Communication
- New employees
- Goals for safety performance
- Hazard correction
- Inspections
- Involvement of employees
- Awareness programs
- Recognition for safety performance
- Discipline
- Safety contacts
- Operating procedures
- Supervisor training
- Support for safety
- Employee training
- Safety climate
- Management credibility

2) Involve middle managers as key players. It must require them to: a) ensure subordinate, supervisor or team performance; b) ensure quality of that performance; and c) engage in actions that demonstrate the importance of safety.

3) Require visibly demonstrated executive action, not merely commitment.

4) Ask for and obtain hourly involvement in meaningful daily activities.

5) Allow flexibility. Units and personnel must have options regarding what actions they will take.

6) Be perceived as positive by the workforce [Petersen(a);(b);(c)].

The Research

The research is relatively clear. It suggests that certain criteria are essential for safety success. NIOSH studied several organizations in a matched pair study (NIOSH). National Safety Council conducted a study in 1967 and a follow-up study in 1992 that identified what elements of a safety system are used by the best U.S. companies (Planek, et al; Planek and Fearn). Similarly, companies have been benchmarking each other for many years, usually arriving at the same or similar conclusions. Examining what step-change improvement companies have achieved also reveals some criteria for success.

To what extent do current safety systems meet these criteria? In the early days of safety, accident measures (e.g., number of accidents, frequency and severity rates) were used to assess progress (of a corporation, department or facility). Practitioners felt comfortable using these measures even though they offered little—that is, they did not indicate whether the system was working; diagnose what was right or wrong; nor indicate whether the system was in or out of control. In the author's experience, the perception survey delivers a much clearer picture of safety system effectiveness.

Interpreting the Surveys

Over the years, the author and colleagues have assessed survey results from all types of organizations. Although overall scores and scores for each category do not allow norms to be established, interpretations can be made and communicated to each organization. Scores are communicated as "percent positive" for each category. Over time, the author and his colleagues have determined that a score in a category at the hourly employee level below 70 percent positive suggests a need to look more closely at what the organization is doing because three of 10 employees do not believe it is working well. A score below 60 percent positive is a red flag.

As each survey is set up, results can be measured by unit, location and craft for each company, showing any similarities or differences that may exist. Rather than establish norms, the focus is on maximum, minimum and mean scores by category over several companies to provide a picture against which a company may compare itself. This article examines results from several company surveys. The tables encompass 160 companies at all levels in order to produce a picture of how companies have been succeeding—or not—in their safety efforts as judged by their hourly employees.

In recent years, hundreds of organizations have performed perception surveys from various sources. While it is not possible to accumulate data from different surveys, data from companies using the same survey (the Safety Perception Survey) can be used. Compiling data from 160 different organizations reveals some similarities between companies with respect to safety system element effectiveness. For example, overall, companies are not highly successful as a rule in these categories (hourly positive response only):

- discipline: 61.5 percent positive;
- recognition: 61.9 percent positive;
- inspections: 62.3 percent positive.

2004 Results

According to the 2004 data, the safety situation has improved since 2000. Overall, there was a 91 percent better score in this summary of 104 companies than before 2000 (with 56 companies). Some categories were markedly better:

- employee training: +19 percent;
- supervisory training: +18 percent;
- quality of supervision: +17 percent;
- alcohol and drug abuse: +14 percent;
- safety contacts: +13 percent;
- employee involvement: +12 percent.

These account for an overall difference of nine percent. It should be noted that this could be because of a different mix of companies or a general improvement in safety systems across organizations. The 2000 results covered the period from the beginning of to late 1999; the 2004 data were gathered between 2000 and late 2003. The 2000 summary revealed three relatively weak areas: supervisory performance, management performance and employee involvement (Table 1). All three improved according to the 2004 summary.

Historical Survey Results

Table 2 shows the total results for all 160 companies that have used this perception survey. Comparison of these data to the criteria for safety success reveals that the categories of recognition, discipline, supervisory training, quality of supervision and inspections—activities typically conducted by supervisors or teams (criteria #1 made to happen by criteria #2)—would average a score of 64.4 percent positive—barely above red-flag level. This suggests that hourly employees believe supervisors either do not know how to satisfy their safety responsibilities or that no system requires them to do so.

The categories of management credibility, support for safety, goal setting and operating procedures,

which are means of judging upper and middle management (criteria #2 and #3), average a score of 75.6 percent positive. This is still below the point where a firm should feel comfortable about safety system effectiveness. Criteria #4 (employee involvement) scores 75.8 percent positive.

As these results indicate, surveyed firms fared poorly in four of the six criteria for safety excellence. If this sample is descriptive of safety system effectiveness, then these results reflect the current state of safety. As SH&E professionals strive to address apparent weaknesses, they must assess the following areas:

1) Most companies score notably low on recognition. This category refers to whether people are recognized daily (regularly) for doing a good job and working safely. This is a measure of whether people are positively reinforced, which fosters safe behaviors. Recognition was the worst-rated category in more than 41 percent of companies surveyed. The composite score of 61.9 percent positive indicated that nearly one-third of the workforce feels it is being ignored.

2) Not only are employees ignored when they perform well, they are also ignored when they engage in unsafe acts. Discipline was the lowest category in 23 percent of those firms surveyed—receiving a composite score of 61.5 percent positive. In this context, discipline refers not only to punishment, but also to whether people are allowed to work unsafely without being corrected.

3) When one considers that it has been more than 30 years since passage of the OSH Act, with its emphasis on physical conditions, it is disconcerting that inspections (the mechanism used to improve physical conditions) is rated the worst category in 11 percent of companies and received a 62.3 percent positive response from employees.

4) Supervisory training was rated the worst category in 11 percent of companies, with an overall score of 71.4 percent positive.

5) These four categories (recognition, discipline, inspections and supervisory training) are, in the author's experience, solid indicators of a serious problem in current approaches to safety management. What is that problem? The performance of supervisors, middle managers and teams.

These scores reflect one of two conditions: 1) Supervisors or teams do not know what they are supposed to do with respect to safety, which is a training problem. 2) No system requires them to take these actions, which is an accountability problem. In the author's opinion, accountability for safety is a major problem throughout U.S. industry. Managers, supervisors and teams still are not held accountable for safety performance.

6) Management credibility did not fare well. The categories that comprise this criteria received an overall score of 75.6 percent positive. This indicates that many managers say safety is a top priority, yet their actions (e.g., downsizing, outsourcing, overtime) often say otherwise.

7) Employee involvement is another area of concern. It received a composite score of 75.8 percent positive, which suggests that at least one-fourth of the total workforce wishes to be more involved.

Table 1

Three Areas of Weakness & Their Improvement Over Time

Criteria	Categories	2004	2000	Percent Improved
Supervisory Performance	Discipline	61.5%	58.4%	+5%
	Recognition	61.9%	56.9%	+9%
	Inspections	62.3%	60.0%	+4%
	Supervisory Training	71.4%	60.3%	+18%
	Quality of Supervision	76.6%	65.4%	+17%
	Average	**66.7%**	**60.2%**	**+11%**
Management Performance	Management Credibility	77.2%	70.0%	+10%
	Support	74.6%	70.0%	+7%
	Goals	78.0%	70.7%	+10%
	Operating Procedures	72.5%	67.6%	+7%
	Average	**75.6%**	**69.6%**	**+9%**
Employee Performance	Involvement	74.6%	66.4%	+12%
	Employee Training	77.0%	64.6%	+19%
	Average	**75.8%**	**65.5%**	**+16%**

Where Has the Situation Improved & Why?

If safety systems have improved as the statistics might indicate (a nine percent improvement in four years), where did this improvement come from and why? Ten categories showed improvement of at least 10 percent: employee training +19%; supervisor training +18%; quality of supervision +17%; alcohol and drug abuse +14%; safety contacts +13%; involvement of employees +12%; management credibilty +10%; goals for safety performance +10%; new employees +10%; and accident investigation +10%. Seven of these are in the area of supervisory performance, three in the area of manage-

Table 2

Survey Results for 160 Companies

Category	Results
Accident investigation	83.0%
Alcohol/drug abuse	69.7%
Attitude toward safety	74.3%
Awareness programs	72.7%
Communication	80.7%
Discipline	60.3%
Employee training	72.6%
Goals/safety performance	75.5%
Hazard correction	75.9%
Inspections	61.5%
Involvement of employees	72.1%
Management credibility	74.7%
New employees	77.0%
Operating procedures	70.8%
Quality of supervision	72.7%
Recognition	60.1%
Safety climate	75.1%
Safety contacts	78.4%
Supervisor training	67.5%
Support for safety	73.0%
Overall	**72.1%**

Safety excellence only occurs when supervisors, managers and executives demonstrate their values through actions, then, being credible, ask hourly workers to help improve the system.

Table 3

Survey Results: National vs. Minnesota Power

Category	National 2004	MN Power
Accident investigation	85.8%	95.0%
Alcohol/drug abuse	72.5%	78.0%
Attitude toward safety	76.6%	83.0%
Awareness programs	72.4%	80.0%
Communication	80.5%	87.0%
Discipline	61.5%	66.0%
Employee training	77.0%	87.0%
Goals/safety performance	78.0%	86.0%
Hazard correction	78.1%	91.0%
Inspections	62.3%	83.0%
Involvement of employees	74.6%	81.0%
Management credibility	77.2%	89.0%
New employees	79.8%	89.0%
Operating procedures	72.5%	78.0%
Quality of supervision	76.6%	88.0%
Recognition	61.9%	72.0%
Safety climate	76.6%	87.0%
Safety contacts	82.0%	92.0%
Supervisor training	71.4%	84.0%
Support for safety	74.6%	87.0%
Overall	**74.2%**	**84.0%**

ment policies. Perhaps recent safety initiatives in the areas of management, accountability and related areas are beginning to have some impact.The only category with no improvement was awareness programs, perhaps suggesting that SH&E professionals are realizing that posters, contests and similiar efforts have limited value.

Using Perception Surveys for Improvement

A perception survey 1) establishes a baseline and 2) diagnoses what needs to be fixed. Some organizations conduct such a survey annually to assess progress; they then correct problems diagnosed. Following is an example.

The Minnesota Power Story

Minnesota Power has used a perception survey for the last four years to track progress in its safety efforts. The company currently has an 85 percent positive employee-only score overall, with only one score below 70 percent positive. Scores have improved each year; over the four years, some categories have improved 15 percent, while all 20 categories show some improvement for the period. In addition, the percent difference between levels (employee to supervisor) has dropped from a 10-percent difference in 2000 to a two-percent difference in 2004. Table 3 provides a comparison of Minnesota Power (employee-only positive responses) to national averages for this survey.

Achieving Safety Excellence

Leadership Is an Art, by Max DePree, opens with a profound statement: "The first job of the leader is to define reality." Perhaps this is the single most important thing a leader in safety can do—yet in safety, corporate leaders have not historically attempted to define reality, choosing instead to jump to solutions (DePree). Using DePree's concepts, one can suggest this threefold view of the process to safety excellence:

1) Define reality: Where is the company today?

2) Define the vision: Where does the company want to be?

3) Define the path: How will the company get there?

Defining Reality

SH&E professionals have long depended on injury statistics to reflect the reality of safety efforts. Better measures—including perception surveys—are now available to truly define reality. Safety excellence only occurs when supervisors, managers and executives demonstrate their values through actions, then, being credible, ask hourly workers to help improve the system. This requires daily proaction by line managers and supervisors—a missing link that can only be corrected when the system holds these managers, supervisors and executives accountable. Research and industry benchmarking indicate where SH&E performance should be. The survey data summarized here reveal where performance levels actually are. As these data show, a discrepancy exists that must be addressed. ■

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